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2. INTRODUCTION

We have pleasure in presenting our proposal in response to the Statement of Service Requirements for the BA/POCL Programme : *Bringing Technology to the Post Office and Benefit Payments.*

2.1 STRUCTURE OF THE PATHWAY PROPOSAL

2.1.1 This proposal has been designed to assist the evaluators in their task. To this end, the proposal meets the requirements outlined in *Chapter 9 of the SSR*, concerning the structure of the response.

2.1.2 Where Pathway believes that supplementary information could be useful in support of the proposal this is referenced within the main response and is provided separately in the form of annexes, within the Supplementary Information Volume.

2.2 SSR CHAPTER 9

Pathway confirms that it understands and accepts the statements made within *Chapter 9.*

2.3 POINT OF CONTACT

2.3.1 The point of contact within Pathway for all communications is :

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GRO

2.3.2 Should you have any queries please do not hesitate to contact Pathway on the above numbers.

2.4 NAVIGATING THE PATHWAY PROPOSAL

2.4.1 The Pathway proposal has been provided within its own slipcase. The slipcase contains 4 folders that are detailed below :

- Folder 1 Management Summary. This is a spiral-bound document contained within a folder that summarises the Pathway Service.
- Folder 2 Main Response. This folder details Pathway's response to the Introduction, The Service Provider, The Services and Systems Architecture, Steady State Services, The Pilot Programme and the Roll-out Programme.
- Folder 3 Commercial Response. This folder contains Pathway's response for the Commercial requirements. It has been supplied within a separate folder in accordance with the requirements of BA/POCL.
- Folders 4 Supplementary Information. This folder contains the annexes identified throughout the other sections of the proposal.

2.4.1.1 Pathway has provided 16 copies of the proposal with one copy provided on floppy disk, plus a single sealed envelope containing information that has been kept separate from the main proposal, meeting the requirements of BA/POCL.

2.4.2 A diagram depicting the Pathway Proposal has been provided in *Fig. 1* on the next page, as a navigation tool.

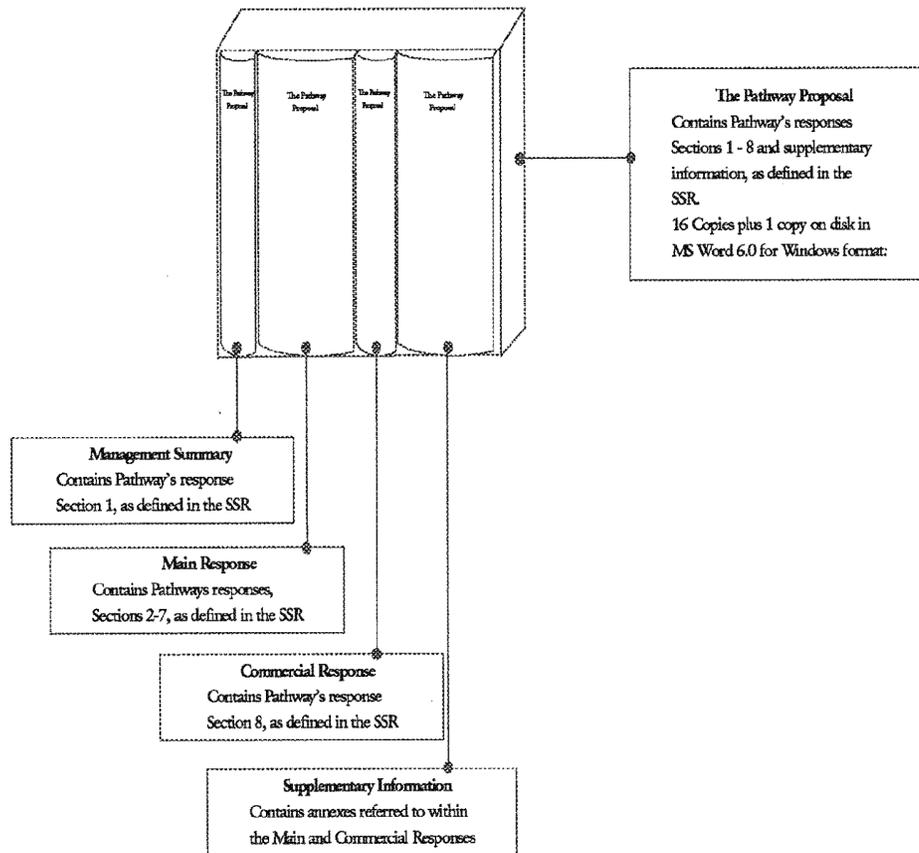


Fig. 1 - The Pathway Proposal in its Slipcase

2.5 GLOSSARY OF TERMS

2.5.1 To assist in the clarity of understanding of the Pathway proposal, a Glossary of Terms is given in *Annex 10*.

To assist the reader we have also provided a Pathway Bookmark reference card which contains a sub-set of the Glossary of Terms. Copies of the Pathway Bookmark have been included in the Main Response, the Commercial Response and in the Supplementary Information folders.

2.6 PATHWAY TERMINOLOGY

To avoid confusion Pathway has provided descriptions for four terms used specifically throughout the proposal when discussing the process of authorising benefit payments. These are Identification, Verification, Authentication and Authorisation.

**2.6.1 IDENTIFICATION (CUSTOMER IDENTIFICATION)**

2.6.1.1 This term is used when identifying the cardholder to the system, which is done by swiping the card or keying in the card number. It identifies the benefit entitlement and personal details of the cardholder by using the card number to retrieve information from various Pathway systems.

2.6.2 VERIFICATION (CUSTOMER VERIFICATION)

2.6.2.1 This term describes the process of ensuring that the cardholder (the person presenting the card) is who he says he is. Customer verification methods include signature, PIN, biometrics and photocards.

2.6.3 AUTHENTICATION (CARD AUTHENTICATION)

2.6.3.1 Authentication is the process that determines whether the card or foil is valid (not forged). This is done partly by inspection and partly by checking the validity of data held on the card, such as the issue number. (This term can be used in a wider sense to mean the process that verifies the identity of any entity. In this document, however, the previous definition is used).

2.6.4 AUTHORISATION (PAYMENT AUTHORISATION)

2.6.4.1 Authorisation is largely an automatic process assuming all other parts of the process have been passed. It consists of checking that the payment is being made at the right place and the right time.



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3. THE SERVICE PROVIDER

3.1 INTRODUCTION

3.1.1 The purpose of Section 3 is to explain the make-up of Pathway and discuss how we will deliver the range of proposed services and engender a stable long-term business relationship with BA/POCL. Where appropriate, we will identify the separate contributions and responsibilities of each of our member organisations. However, Pathway will carry full responsibility for delivery of the service and will be the prime interface to BA/POCL during the life of the contract.

3.1.2 We will cross-reference where appropriate to other sections of the proposal where a particular subject is covered in more detail.

We believe that all the financial information requested has been provided in this proposal or previously with the Statement of Capability.

3.2 PATHWAY THE COMPANY

3.2.1 Pathway has been set up with a clear purpose : to respond to the Statement of Service Requirement (SSR) and to develop and deliver the service to the Benefit Agency and Post Office Counters Ltd. Pathway's shareholders have been carefully chosen to bring together complimentary providing full coverage of skills the BA/POCL service requirement. Both to avoid overlap and to ensure full coverage of the service requirement.

3.2.2 Pathway has been registered as a private company with three shareholders, all of whom are world leaders in their respective fields of expertise and who share the common goal of developing a long-term business relationship with BA/POCL :

De La Rue - the world's leading banknote and security printer, using integrated cash handling equipment and electronic payment solutions. De La Rue is the leading UK supplier of payment cards and cheques, including manufacture, personalisation and distribution.

ICL - a leader in the field of major systems integration services, project management of complex projects and supply of world-class technology.

Girobank - leaders in the field of cash management and reconciliation providing innovative financial services to the corporate sector.

PATHWAY BOARD

3.2.3 The Pathway board has been set up under the chairmanship of Sir Michael Butler with board representatives from the shareholders and principal subcontractors.

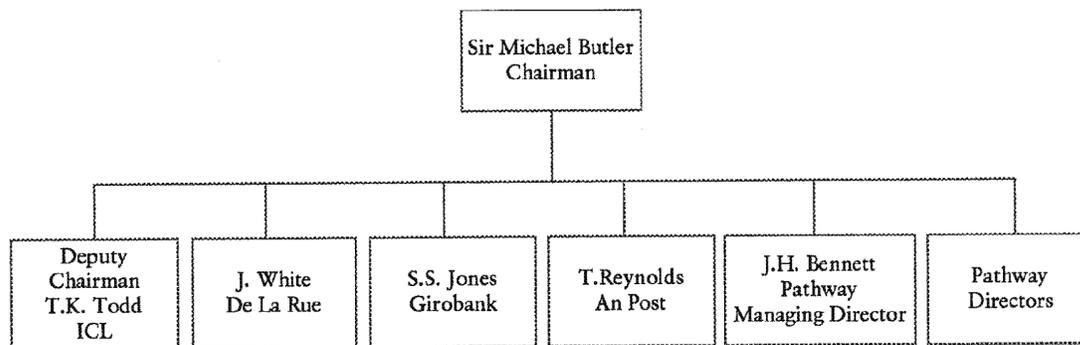


Fig 1 - The Pathway Shareholders' Board

3.2.4 Pathway will be responsible for these services :

- Overall Project Management
- Secure Service Delivery
- Application Design and Business Planning
- Risk Management
- Business and Marketing Development and Business Consultancy

PATHWAY'S SUBCONTRACTORS

3.2.5 Pathway has also set up a number of subcontract relationships that bring very specific and vital expertise to the project. All of these have been key contributors to this proposal and therefore have established a common culture within Pathway and have developed excellent working relationships :

An Post - the Irish Post Office who are already well advanced in the implementation of technology to improve their services to the public. Over the past two years, An Post has installed systems in over 400 offices. Systems installed so far include those for the payment of benefits, receipts of savings and a variety of counter services, all with full end-of-day reconciliation. User acceptance has proved to be very high. An Post has set up processes and procedures for their offices. Pathway will build on that expertise and ensure that the lessons and the experiences are reflected in our solution.

Escher Group - the principal designers and developers of the An Post systems and already recognised by Microsoft as world leaders in the design of intuitive counter systems. Escher has also developed the very successful ESNS system in the ALPS project which is already rolled out to over 500 offices in the London area. Escher has the major benefit of developing post office systems for over five years. This experience will be invaluable in the design of systems for BA/POCL.

SECTION 3 - THE SERVICE PROVIDER

British Telecom - the UK's leader in network design, provision and management.

Hambros Bank - expertise in PFI advice and commercial advice in general.

Alliance & Leicester - card and payment management expertise.

3.2.6

In summary, the Pathway service will be delivered as follows :

This company :	Will provide these services :
ICL	• Systems Integration
	• Retail Systems Consultancy
	• Business Process Re-engineering
	• Roll-out capability
	• Nationwide Support
	• Technology
	• Large Scale Project Management
De La Rue Group	• Magnetic and Smart Card Manufacture and Distribution
	• Secure Printing and Identity Card Systems
	• Card Technology
	• Cash Management
Girobank Plc	• Business Development
	• Fraud Risk Management
	• Reconciliation and Accounting Management
Alliance & Leicester	• Card Management
	• Payment Management
An Post & Escher	• Post Office Counter Automation
	• Network Software and Consultancy
British Telecom	• Network Design, Provision and Management
Hambros Bank Plc	• PFI Expertise
	• Commercial Structure and Advice
	• Risk Assessment
	• Financial System Security
	• Corporate Finance Best Practice

PATHWAY TEAM

3.2.7

The Pathway team is in place. The management structure has been agreed and the positions filled. The structure of the team is as follows :

SECTION 3 - THE SERVICE PROVIDER

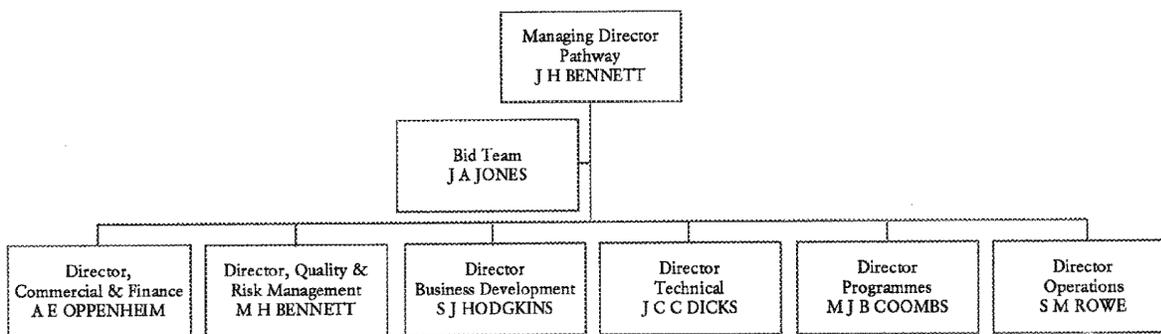


Fig. 2 - The Pathway Management Board

Title and Appointee	Principal Responsibilities
Managing Director John Bennett	Ensure fulfilment of contract Establish strategic direction
Director - Commercial & Finance Tony Oppenheim	Manage commercial, legal and financial aspects of Pathway
Director - Quality & Risk Management Martyn Bennett	Manage all risks Ensure Quality adherence
Director - Business Development Stephen Hodgkins	Generate new business for POCL and Pathway
Director - Technical John Dicks	Design, development and testing of overall solution
Director - Programmes Mike Coombs	Ensure delivery of end-to-end solution
Director - Operations Stephen Rowe	Operation of services in line with service level agreements

3.2.8 Full details of roles and responsibilities as well as personal CVs are included in *Annex 7*.

3.2.9 Each Director is responsible for managing and resourcing his area of responsibility. He will manage either Pathway’s own staff or specific subcontractors to undertake tasks within the project. To ensure best value for money in relation to any service or product, Pathway will undertake rigorous evaluation of suppliers, at all times aiming for ‘best of breed’ wherever possible.

PATHWAY CONTRACT STRUCTURE

- 3.2.10 Pathway will provide BA/POCL with a single interface to manage the implementation and running of the service as shown in the following diagram :

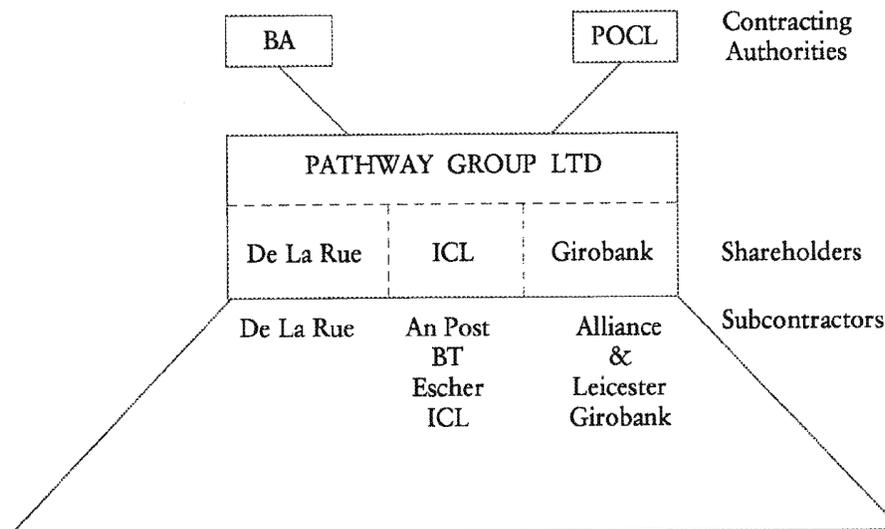


Fig. 3 - Pathway Contract Structure

- 3.2.11 The overall structure, which has been built at every level from the valuable skills, capabilities and experience of the organisations forming Pathway Group Ltd, is designed to provide the greatest flexibility combined with a very flat hierarchy to minimise costs and ensure effective and fluent communications.

DESIGN AND DEVELOPMENT

- 3.2.12 Our design and development teams are already identified and our development of demonstration/prototype systems is well under way. Our approach has been firstly to understand the requirements of the BA/POCL business and then to respond in a business oriented way to ensure that our solution best delivers the benefits required by the Contracting Authorities.
- 3.2.13 The three aspects of Pathway's service provision that are key to our joint success are Quality, Management of Change and Risk Management. Pathway embraces these three qualities in its ethos.

QUALITY

- 3.2.14 Pathway considers that quality of service and continuous improvement is fundamental to its success in meeting or exceeding BA and POCL expectations. As a hub to its Quality Management, Pathway has adopted the Strategic Quality Model, *see Fig. 4*. Each element of the model will be used as a criterion for measuring Pathway's progress towards full quality management.

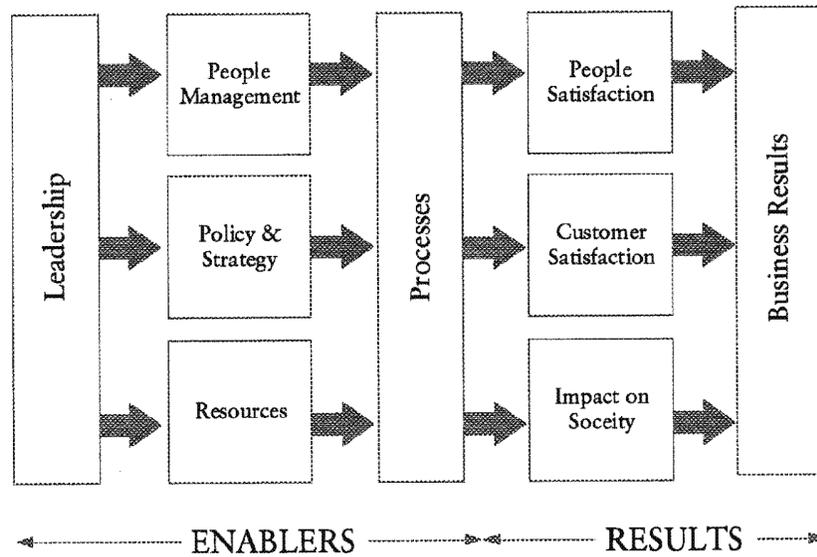


Fig. 4 - The Nine Elements of the Strategic Quality Model

3.2.15 This will be lead by the management team with the primary objectives of :

- Implementing quality processes
- Gaining ISO9001 accreditation
- Developing a culture of continuous improvement
- Assuring subcontractor quality
- Delivering customer satisfaction

3.2.16 The philosophy of best in class quality management is underpinned by the success of member organisations, all of which are either accredited for their quality systems or are in the process of achieving it. For example, Girobank was the first UK financial services company to achieve ISO9001, and ICL won the European Quality Award in 1994.

MANAGEMENT OF CHANGE

3.2.17 Critical to the success of a programme of this magnitude are the skills with which the services are introduced to POCL, its clients, staff and agents as well as to BA and its customers and staff. These skills are essential throughout the life of the programme as it evolves to incorporate new clients, services and legislation. Pathway's plans incorporate these requirements for management of change in the following way :

- Roll-out of the system will be preceded by a comprehensive sequence of public awareness events
- Core processes have been driven by and will react to BA and POCL needs

3.2.18 The members of Pathway's management team have all experienced substantial change within their previous organisations, and therefore have experience of change management. For example, Girobank has moved from the public to the private sector and integrated its entire personal customer account base with the Alliance & Leicester; ICL has completely re-structured its European operations to improve its responsiveness and competitiveness, and De La Rue has created a new organisation which recognises the growth of electronic payment systems.

3.2.19 This combination of focus on the customer, continuous improvement, management of change and flexibility ensures delivery by Pathway of the highest quality of service to BA, POCL and its clients, customers, staff and agents.

RISK MANAGEMENT

3.2.20 The identification, evaluation and prioritisation of risks and the development and implementation of mitigation plans form a critical input to all phases of development and running of the Pathway service. Responsibility for the risk management process is assigned to the Director - Quality and Risk Management.

3.2.21 A risk register has been established; each risk is assigned an owner at Director level, whose responsibility is to manage the risk by :

- (i) Proof (for example through demonstrations, modelling, analogy or reference)
- (ii) Changing the system or subcontractor
- (iii) Assigning the risk to the organisation best able to manage it, including BA, POCL or subcontractor
- (iv) Using additional resources (for example, more skills in a particular area)

3.2.22 The risk register will be constantly updated. Where we are advised of Pathway risks on the BA/POCL register, they will be matched or added. The management team will review the risk register regularly, highlight the most critical and take steps to eliminate them.

3.3 THE SERVICE PROVISION

3.3.1 INTRODUCTION TO SERVICE PROVISION

3.3.1.1 Our purpose in this section is to explain how Pathway will provide the services required by BA/POCL. We will cover this under the following headings :

Service Elements	- the main services to be offered
Service Creation	- the design, financing and build
Service Proving	- demonstration, pilot and risk management

- Service Implementation - transition, integration and roll-out
- Service Delivery - steady state and operation
- Service Transfer - end of service life approach

3.3.2 SERVICE ELEMENTS

3.3.2.1 BENEFIT PAYMENT SERVICE

3.3.2.1.1 Pathway will provide a Benefit Payment Service (BPS) which meets the objectives stated in the SSR. The BPS will :

- Eliminate existing paper-based methods of payment
- Offer full security, auditability and reconciliation
- Meet BA's critical success factors
- Fully support the needs for end-to-end management of payment
- Guarantee to make the right payment to the right person at the right time

3.3.2.1.2 Pathway will provide the full operational service. We will employ the services of our shareholder companies to provide the following under subcontract :

- De La Rue for magnetic and/or smart card supply, personalisation and distribution
- ICL for TMS and Counter Interface elements
- Girobank for provision of Card and Payment Management Services

3.3.2.1.3 This proposed service will meet the business requirement of BA/POCL. Full details of the service and the Pathway approach will be found in *Section 4.4*.

3.3.2.2 POCL STRATEGIC INFRASTRUCTURE SERVICE

3.3.2.2.1 Pathway will provide a Strategic Infrastructure Service to enable POCL to automate all transactions at the counter. This approach is underpinned by industry-standard technology architecture at every counter position backed-up by high-quality systems providing the management information to allow POCL to both improve the current services to the public and to build new services.

3.3.2.2.2 Pathway will employ a unique distributed architecture which will combine a high-availability solution with automatic back-up and full resilience. The system will ensure fast counter transactions with minimum counter waiting time.

-
- 3.3.2.2.3 We aim to interface easily to all POCL client systems either on-line or in batch mode using appropriate software agents. We recognise that the management information needs of POCL will evolve during the course of the procurement and we will ensure that our approach has the flexibility to cope with this change.
- 3.3.2.2.4 Pathway will automate existing counter products in such a manner as to allow the take-on of new business rapidly, easily and readily.
- 3.3.2.2.5 More detail on the POCL Strategic Infrastructure Service will be found in *Section 4.3*.

3.3.3 SERVICE CREATION

- 3.3.3.1 Based on our understanding of the business needs of BA/POCL, Pathway has placed particular emphasis on matching our architectural solution to these needs. We wish to ensure that at all times, the business drives the architecture, not the other way round.
- 3.3.3.2 We will provide a service to BA/POCL that :
- Enhances the image and raises the level of the service
 - Recognises the importance of the counter as the focal point of service delivery
 - Automates the business processes cost effectively and efficiently
- 3.3.3.3 Pathway has ensured that it has employed the capabilities, skills and experience to design, build, finance and operate the service over the life of the contract.
- 3.3.3.4 We have analysed the requirements, evaluated different options to ensure that our proposed solution takes account of existing product sets and minimises the risks inherent in the development of new systems.
- 3.3.3.5 We have carefully evaluated the finance options and taken advice from Hambros, our financial advisors, and we fully endorse the PFI approach. Pathway's total approach can be characterised as ensuring a service that gives :
- Optimum service availability
 - Cost-effective service
 - Full security and resilience
 - Rapid development and implementation
- 3.3.3.6 Full details on our specific design approach and details of the Pathway solution can be found in *Section 4*.

3.3.4 SERVICE PROVING

- 3.3.4.1 Pathway understands that for a project of this size, proving of the solution is imperative and will lead to increased user confidence that the service really will deliver the key benefits in the required timescales.
- 3.3.4.2 We will undertake this proving exercise using all of the following :
- Demonstrations of existing products where relevant
 - Case studies
 - Reference visits
 - Specific demonstrations prepared for this service
 - Prototyping
 - Operational pilot systems
- 3.3.4.3 These approaches will ensure that we demonstrate existing cases of relevant activity and also that we work closely in partnership with BA/POCL to develop the solution in an interactive way to ensure full adherence to the requirements.
- 3.3.4.4 During the proving period, we will also continue to evaluate and thus minimise risk. Our overall aim is to deliver a quality service in a cost-effective and timely manner.
- 3.3.4.5 The Pathway approach to proving of the service is detailed in *Section 6*.

3.3.5 SERVICE IMPLEMENTATION

- 3.3.5.1 The Pathway approach to roll-out and implementation has concentrated on the best way of delivering business benefit to BA/POCL in the fastest timescale. Within this approach, we have paid particular attention to ensuring control of risk and adopting a cost-effective approach.
- 3.3.5.2 We are recommending a fast-track approach which builds on existing solutions where possible. We will modify these solutions to ensure a fit with the BA/POCL requirement. We will implement the solution on industry-standard hardware in a modular fashion, thus taking advantage of open standards.
- 3.3.5.3 The Pathway roll-out plan, **Stage 1**, will first build on the already successful ESNS systems within the ALPS project. Pathway's experience in high-volume roll-outs in short timescales in the retail environment, such as Sainsbury and Marks & Spencer and in Government projects such as CHOTS, will ensure that the implementation plans are secure. This experience will ensure that we understand the risks and manage them. Further, the infrastructure necessary to handle such a roll-out is already in place.
- 3.3.5.4 Secondly, we will take advantage of the excellent systems already running in An Post. Pathway does recognise and understand the different scales of the two environments and will prove conclusively that scalability is assured.

3.3.5.5 **Stage 2** of the implementation plan will offer the complete Card Management Service while **Stage 3** will see the implementation of Payment Management and positive authorisation.

3.3.5.6 Full details of Pathway's implementation and roll-out strategy will be found in *Section 7*.

3.3.6 SERVICE DELIVERY

3.3.6.1 Pathway will put in place a professional experienced team to manage the day-to-day operation of the service. This team will come under the control of the Director - Operations and principally cover three main areas :

- Client Interfaces
- BA/POCL interfaces
- Day-to-day operation management

3.3.6.2 We will provide the services to BA/POCL on the basis of the following principles :

- Service excellence
- Client and customer requirements focus
- End-to-end performance measures
- Service level agreements
- Clear contractual commitments with penalties for non-performance
- Bias for action
- Continuous improvement
- Priority to identify and bring on new revenue streams

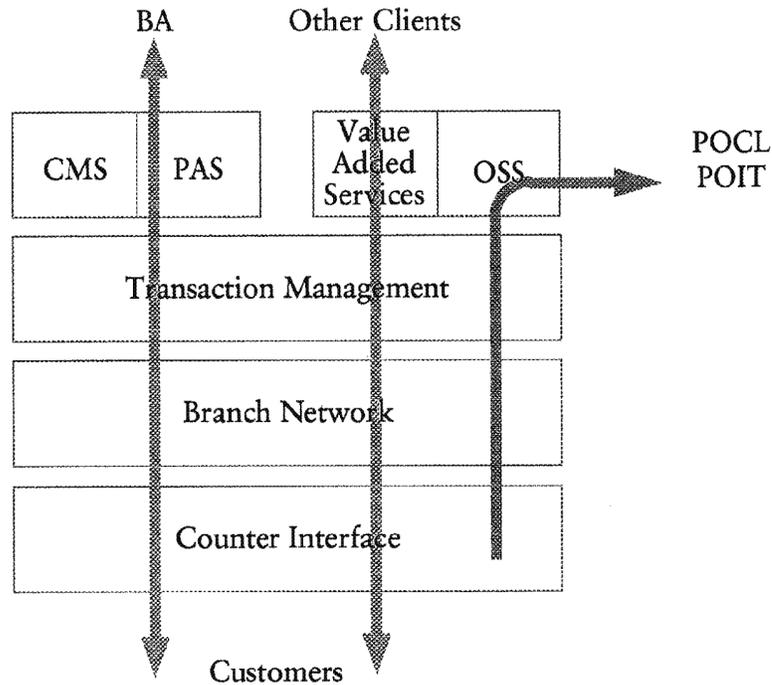


Fig. 5 - Pathway ensures that services will be managed as a discrete whole and will present a seamless face to users, clients and customers

3.3.6.3 Through our experience in the financial and retail markets, Pathway understands the strict service requirements of a point of service system. This experience will ensure that the quality of service to BA/POCL is excellent.

3.3.6.7 *Section 5* details the Pathway approach to service operations.

3.3.7 SERVICE TRANSFER

3.3.7.1 Service transfer assumes the non-renewal of the existing service agreements. In this case, Pathway will engage in the earliest possible discussions with BA/POCL on the one hand and with the new service provider on the other, to assess what elements of the Pathway service could be transferred to the new supplier. This could range from a transfer of the complete Pathway company to a partial transfer of either fixed or human assets.

Further details on this aspect of the service will be found in *Sections 5 and 8*.

SUMMARY OF SERVICE PROVISION

3.3.7.2 Pathway understands the service needs of BA/POCL and has planned each element of the service in a meticulous way to ensure that there are no gaps in delivery. We are also staffing Pathway with high-quality, experienced people who will demonstrate to BA/POCL their understanding of and commitment to the service provision.

3.3.7.3 is in a unique position to deliver a high-quality cost-effective service to BA/POCL in a short timescale in a low-risk manner. Pathway looks forward to discussions with BA/POCL to demonstrate and prove our capability.

3.4 BUSINESS DEVELOPMENT AND RELATIONSHIPS

3.4.1 INTRODUCTION TO BUSINESS DEVELOPMENT AND RELATIONSHIPS

3.4.1.1 The success of this PFI project will be gauged by the quality of the service, the ability of the chosen supplier to build new business streams with POCL and by developing very good working relationships with both staff and clients. Pathway believes it has the skills and resources to ensure this will happen.

3.4.1.2 We do not see it as our role to replace any business development role within POCL, but rather that through partnership, we will provide additional skilled resource to help POCL grow their business and enhance their position as the UK's largest retailer.

3.4.1.3 Pathway is committed to help build new business streams founded on the strengths of POCL and the strengths of the Pathway member companies. We shall provide a proven, flexible counter automation service, allied to the Government's wish to give more freedom to the Post Office. This has been evidenced by the Green paper and the announcements in Parliament within the past month.

3.4.2 POCL'S STRENGTHS

3.4.2.1 Pathway perceives POCL as currently operating from a very strong base within the UK retail market as shown by :

- (a) Broad customer base
- (b) Core client base
- (c) Existing skills base
- (d) Network of secure counters
- (e) Unique community reach

3.4.3 PATHWAY'S STRENGTHS IN BUSINESS DEVELOPMENT

- 3.4.3.1 We will use the commercial experience of our shareholders to share ideas with POCL to help develop a joint business development plan where Pathway can provide the service necessary to support the business initiatives.
- (a) ICL is in the forefront of retail developments worldwide. ICL has already had discussions with POCL in the area of kiosks as information providers. Pathway will be happy to apply this expertise where relevant.
 - (b) Girobank has demonstrated its ability to establish new services with the implementation of an electronic bill payment product for British Gas.
 - (c) De La Rue is in the forefront of developments in magnetic stripe and smart card technology.
 - (d) Both ICL and De La Rue have recent experience of using joint ventures to exploit new business opportunities with Camelot.
 - (e) Above all, each of the Pathway members has the experience of working in consortia either together or separately. We understand the nature of them and are confident of our ability to work together and to work also with POCL in pursuit of building new business opportunities.
- 3.4.3.2 The Pathway Director - Business Development will carry responsibility for this area of activity and further details will be found in *Sections 1 and 8*.

PROVEN AND FLEXIBLE AUTOMATION FACILITIES

- 3.4.3.3 The extensive development and growth of POCL bill payments since 1994 illustrates the potential market opportunity unlocked by the implementation of the right technology in the right markets. This is supported by automation developments in other major retailers, with facilities such as EPOS and in-store computing. Automation provides POCL with the trigger to develop business opportunities with existing and new clients by :
- Opening up the volume growth opportunity for current and new services
 - Enabling growth to be cost effective
 - Improving the ease and simplicity of transactions for the customer
 - Enhancing the speed and quality of management information for both POCL and its clients
 - Providing on-line information based services for clients such as the government, or the travel and entertainment sector

GROWTH OF BUSINESS WITH EXISTING CLIENTS

- 3.4.3.4 Pathway will help POCL and its clients to establish which of these opportunities can be enabled using the new automation facilities and will provide the retail, marketing and IT support to bring them to market.
- 3.4.3.5 Pathway will work with POCL to create an integrated process to unlock the growth potential based on the 'Virtuous Circle' established by POCL and Girobank for the bill payments market. This process is carefully structured and enables continuous improvement of both the business partnership and the results delivered. The key elements are portrayed in Fig. 6, below.
- 3.4.3.6 The shareholders and suppliers of Pathway have the benefit of working with leading retailers who demonstrate this process, and with companies who are centres of excellence in individual parts of the process.

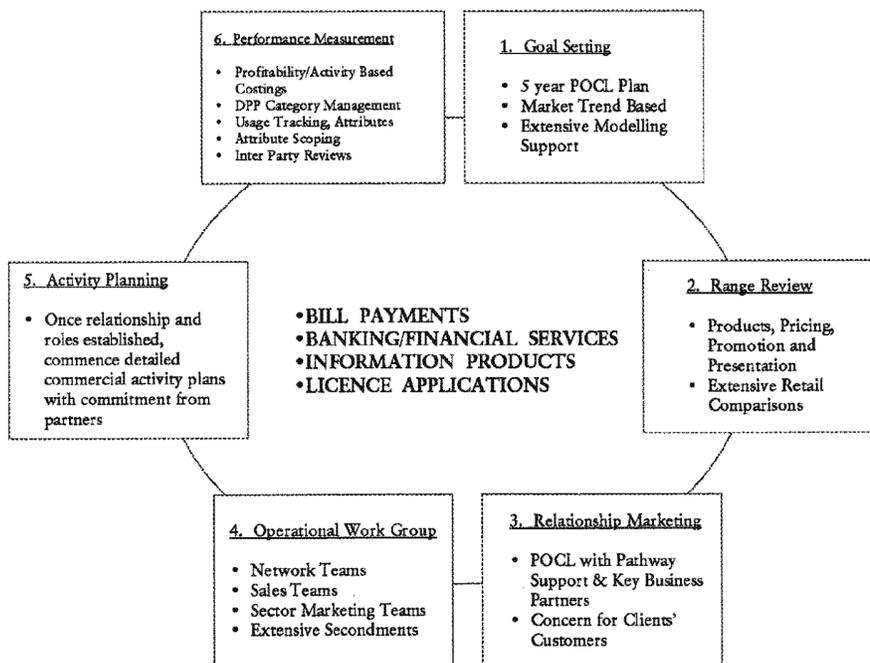


Fig. 6 - The Virtuous Circle

DEVELOPMENT OF NEW CLIENTS AND SERVICES

- 3.4.3.7 Pathway appreciates the major business opportunity POCL presents as a primary route to market for prospective new clients and services. On this basis, we believe that the key to success is establishing a 'filter' for good business opportunities to ensure that our activities are focused as efficiently as possible, thereby delivering the maximum return on our efforts.

3.4.3.8 In order to provide this focus for our joint business development activities, Pathway recommends the use of 'Business Hubs', which would form the business centres for the management of all related business opportunities.

3.4.3.9 The use of the hub concept will help us to analyse and prioritise the extensive business opportunities which we will face. Pathway proposes the following business hubs :

- Communications.
- Personal Financial Transactions.
- Personal Applications.
- Travel and Entertainment.

3.4.3.10 The process for POCL and Pathway to control new business opportunities jointly is comprised of the following activities :

- Identifying all the opportunities in each of the agreed business hubs.
- Prioritising the opportunities
- Planning the activities to exploit the opportunities.
- Resourcing the activities to exploit the opportunities
- Testing and implementing

3.5 FINANCIAL INFORMATION

3.5.1 The latest three years' audited annual reports for British Telecom and Alliance & Leicester are included at *Annex 1*. Annual reports for all the other organisations comprising Pathway were tabled as part of the Statement of Capability.



SECTION 4 - SERVICE AND SYSTEMS ARCHITECTURE

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4 SERVICE AND SYSTEMS ARCHITECTURE

4.1 INTRODUCTION

4.1.1 INTRODUCTION TO SECTION 4.1

4.1.1.1 *Section 4* provides details of Pathway's proposals for the service and systems architecture. The section follows the layout as required in the SSR. *Section 4.1* describes the structure and content of *Sections 4.2 to 4.6* and presents an overview of the Pathway proposal. There is intentional overlap in some areas between *Section 4.2 and Sections 4.3 and 4.4*, to avoid excessive cross referencing and to enable each section to be independently read in conjunction with *Sections 4.1, 4.5 and 4.6*.

4.1.2 THE STRUCTURE OF SECTION 4

4.1.2.1 *Section 4.2* discusses the main determinants which have shaped the architecture and describes the proposed architecture, its constituent service elements and technology components. It identifies the boundaries between service elements and summarises the end-to-end services that can be supported. It describes 'what' functions are included within the service and describes 'how' the architecture addresses end-to-end service delivery and opportunities for a generic approach.

4.1.2.2 *Section 4.3* describes the service elements included within the POCL Strategic Infrastructure, and the contribution each element makes to the delivery of end-to-end services on behalf of POCL and its clients. It provides more detail of 'what' is provided within each service element, 'how' each service element is delivered and demonstrates the 'proof' of Pathway's ability to develop these services. In particular, Counter Infrastructure, Transaction Management Service, Operational Support Services and Value Added Processing are described in *Section 4.3*.

4.1.2.3 *Section 4.4* describes the service elements required to deliver the Benefit Payment Service and how they interact with BA and the POCL Strategic Infrastructure. It provides more detail on 'what' is provided within the Card Management and Payment Authorisation Services, 'how' the overall Benefits Payment Service is delivered and demonstrates the 'proof' of Pathway's ability to develop these services.

4.1.2.4 *Section 4.5* provides answers to the specific questions (SRs 4.1 - 4.28) raised in *Chapter 4.5.2 of the SSR*. Finally *Section 4.6* provides a checklist of the key objectives presented by BA/POCL within the SSR and summarises how each is addressed within the Pathway response.

4.1.3 OVERVIEW OF THE SYSTEM AND SERVICE ARCHITECTURE PROPOSAL

Pathway is a dedicated organisation created to ensure that its shareholders and principal subcontractors have the capabilities, skills and experience required to meet the needs of this specific procurement. These skills and capabilities include the capacity to design, build, finance and operate the services and systems required to meet the current stated requirements of BA/POCL. Pathway's architecture is designed to accommodate change in order to support new business development and increases in business volumes in a low impact manner.

4.1.3.1 SERVICE ARCHITECTURE

4.1.3.1.1 The design approach to the service architecture is summarised in *Fig. 1* below.

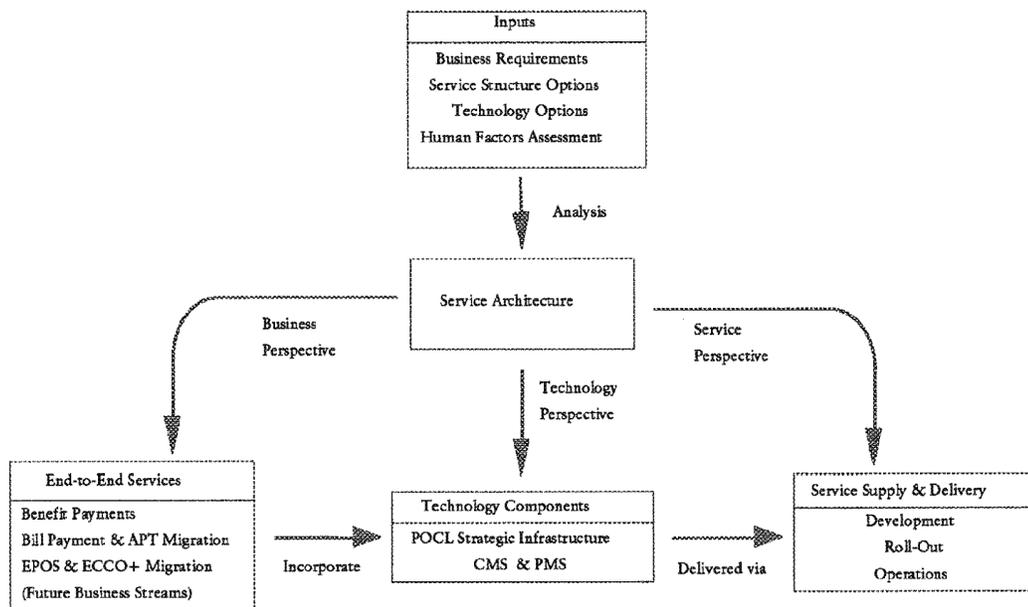


Fig. 1 - Service Architecture Approach

4.1.3.1.2 The architecture has been designed specifically to enhance the image, level and quality of service and to ensure :

- Optimum availability of service at the counter by using built-in redundancy of system components and replication of data within the architecture
- A cost-effective service by using commodity components, modern efficient communications and an intuitive low training interface

SECTION 4 - SERVICE AND SYSTEMS ARCHITECTURE

- A secure and resilient service by incorporating access controls, message authentication, audit and reconciliation mechanisms, and by the provision of automatic synchronisation and recovery of data and services within the architecture
- Speed of implementation and flexibility for the future by using a modular design in the provision of the services and systems, incorporating where appropriate open and industry standards, and by basing the solution on existing proven products and services wherever possible

4.1.3.2 POCL STRATEGIC INFRASTRUCTURE SERVICE

4.1.3.2.1 Our proposal for the Strategic Infrastructure Service is based on the Riposte system from An Post/Escher. The system components will use Microsoft Windows NT running on Intel processors.

4.1.3.2.2 At a counter level the baseline proposal is a 486DX 66Mhz computer using dedicated peripherals. Computers based on Pentium processors will provide central transaction capture and distribution facilities. Offices will be connected through a branch network based on Integrated Services Digital Network (ISDN).

4.1.3.2.3 The counter interface is the electronic desktop upon which counter staff execute transactions. This interface will be graphical and an extension of that already used on the ALPS project for ESNS. The infrastructure will deliver generic applications developed from those already in use at ALPS, An Post and work carried out for the Singapore Post Office.

4.1.3.2.4 The central component of the infrastructure provides a set of generic software agents for capture and distribution of transaction information to POCL, POCL clients and to support OSS and other Value Added Processing.

4.1.3.3 BENEFIT PAYMENT SERVICE

4.1.3.3.1 Our proposal for the Benefit Payment Service (BPS) consists of a dual centralised and distributed design. The bulk processing of information from CAPS and card management functions will be based on centralised Tandem hardware. The payment information will be distributed through the POCL Strategic Infrastructure to allow local positive authorisation. This allows the continued payment of benefit in the event of network, local and central system failures. This is a highly resilient, high-availability and flexible architecture.

4.1.3.3.2 The benefit card will be a high quality magnetic stripe card. The card will be authenticated against information which is part of the payment record. Signature verification will be part of the counter process. The payment service can be migrated to smart cards as part of a planned evolution. The counter infrastructure will be smart card enabled from initial roll-out.

SECTION 4 - SERVICE AND SYSTEMS ARCHITECTURE

4.1.4 BENEFITS OF PATHWAY'S PROPOSED ARCHITECTURE

4.1.4.1 The Pathway approach has been developed to deliver the following benefits :

- Fast, cost-effective and low-risk implementation - The architecture is built upon existing, proven systems and services which have an excellent fit to BA/POCL's requirements
- Specific and exclusive focus - Pathway is an organisation which is dedicated to meeting the needs of BA's benefit payment programme and POCL's Strategic Infrastructure
- Flexibility - The solution is based on generic modules which are easy to change and develop to meet BA's exact requirements, and to support POCL's business development aspirations. The solution will also support self-service delivery mechanisms which will become increasingly important during the life of the contract.



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4.2 SERVICE ARCHITECTURE

4.2.1 INTRODUCTION

- 4.2.1.1 This section describes Pathway's proposal for the service architecture and in particular explains how Pathway will meet the functional requirements of Benefit Agency and POCL as described in *Chapter 4 of the SSR*.
- 4.2.1.2 *Section 4.2.2* contains a description of the architectural approach adopted by Pathway. This approach conforms to the service architecture contained in the SSR. The principal business and operational characteristics required by BA and POCL for each service or system element are assessed in *Section 4.2.3*. *Section 4.2.4* describes the service provision and technology provision objectives of the architecture.
- 4.2.1.3 This is followed in *Section 4.2.5* by an overview of Pathway's proposals for the primary system and service elements together with a summary of how the end-to-end service and transition requirements will be met. The functionality that will be provided by each service element of Pathway's proposal is explained in *Section 4.2.6* to *Section 4.2.11*.
- 4.2.1.4 *Section 4.2.12* describes the nature of the primary service boundaries and interfaces. *Section 4.2.13* contains a summary of the main support processes that Pathway will use to underpin service management and control. *Section 4.2.14* provides a summary of the benefits and unique advantages of the Pathway service architecture.

4.2.2 PATHWAY SERVICE ARCHITECTURE

4.2.2.1 INTRODUCTION TO THE SERVICE ARCHITECTURE

- 4.2.2.1.1 Pathway has based its development of the service and systems architecture on a sound understanding of the business requirements and operational characteristics as set out in the SSR. Pathway has also taken due account of the likely service developments that will be required in the future.
- 4.2.2.1.2 Our proposal for the service architecture is based on the unique insight and understanding that members of the Pathway consortium have of the needs of BA and POCL. Both ICL and Girobank have been trusted business partners of BA and POCL for many years. An Post and Escher bring vision and confidence born of a successful post office counter automation strategy. De La Rue has a unique understanding of card technologies and future developments.

SECTION 4.2 - SERVICE ARCHITECTURE

4.2.2.1.3 A fundamental criterion for a service and systems architecture is its ability to accommodate change whether this occurs within the business, social or technological domains of BA or POCL. Both BA and POCL already have many of the key elements of the business architecture in place. The strategic goals of both organisations and the service architecture for this procurement are expressed in the SSR. Pathway has combined these key elements and the need for accommodating change with its own skills and expertise to develop a service and systems strategy which will :

- Meet the functional requirements of BA for benefit payments
- Meet the strategic requirements of POCL for counter automation
- Allow for business growth in POCL
- Support POCL’s new business development objectives
- Be aligned to existing BA and POCL systems
- Give potential for rapid change
- Be cost effective to install and operate

4.2.2.2 SERVICE ARCHITECTURE OVERVIEW

4.2.2.2.1 Pathway’s proposal for the service architecture conforms to the service architecture described in *Chapter 4.1 of the SSR* and reproduced in *Fig. 1* below. This identifies a number of system services (such as card management) and functional system components (such as the counter interface).

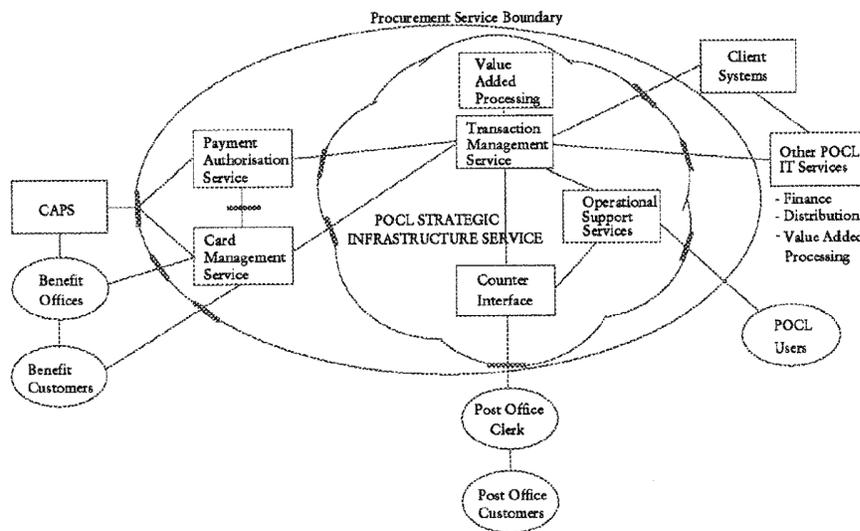


Fig. 1 - The SSR Service Architecture

4.2.2.2.2 Pathway endorses this general architectural framework as the strategic approach for delivery of IT services within POCL, including the payment of benefits on behalf of BA. Pathway's approach is to provide a set of service components with well-defined interfaces which when used together will provide end-to-end service delivery between POCL clients and their customers. This approach supports the cost-effective delivery of the initial service requirements, and also provides a generic framework for the introduction of new client services within a single, consistent overall architecture.

4.2.2.2.3 The initial end-to-end services that Pathway will support through this architecture are :

- Benefits Payments
- Bill Payments including APT migration
- EPOS including ECCO+ migration
- OSS functions

4.2.2.3 BENEFIT PAYMENTS SERVICE

4.2.2.3.1 The Benefit Payment Service (BPS) is separated into the Card Management Service (CMS) and the Payment Authorisation Service (PAS). CMS includes the areas of card production, card personalisation, card collection and management of a cardholder database and provision of a card help desk. PMS includes payment management, payment encashment and help desk. An overview of CMS and PMS is shown in Fig. 2.

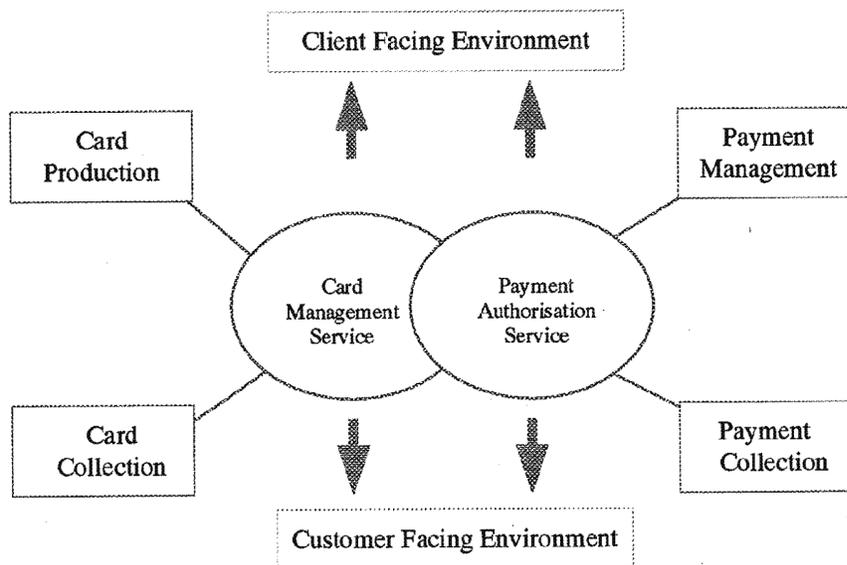


Fig. 2 - The Benefit Payment Service

-
- 4.2.2.3.2 The Transaction Management Service (TMS) functions control the transfer of card and payment information between the customer-facing and client-facing environments in a secure and timely manner.
- 4.2.2.3.3 The key tasks of the Card Management Service (CMS) includes the ongoing management of a cardholder database and all of the bulk processing tasks associated with card production, personalisation and distribution. These activities are well understood by Pathway and will be delivered on a centralised system using established procedures and standards.
- 4.2.2.3.4 Pathway's design for the Benefit Payment Service separates the bulk processing of payment transfer and validation from the processes required to ensure timely and reliable payment collection at the post office counter.
- 4.2.2.3.5 Pathway will implement a centralised system for bulk processing tasks, this component of the service and systems architecture is called the Payment Management System (PMS).
- 4.2.2.3.6 PC-based technology and peripherals will be delivered as part of the Pathway proposal for the POCL Strategic Infrastructure. Payment will take place at the post office counter and Pathway will distribute all the data required for benefit encashment to the point of payment based on the very strong relationship between the benefit customer and their nominated post office (the customer/post office relationship is not absolute and the design also supports instances where the relationship is non-existent such as foreign encashments).

4.2.3 KEY BUSINESS AND OPERATIONAL FACTORS

4.2.3.1 BUSINESS PERSPECTIVES

- 4.2.3.1.1 By developing the service architecture in the light of the rich body of experience available, Pathway has set stringent selection criteria for its constituent service and system elements. These criteria will ensure that the architecture delivers reliable, cost-effective services that conform to the corporate requirements of BA and POCL and are acceptable and useable at the individual level by customers and employees.

SECTION 4.2 - SERVICE ARCHITECTURE

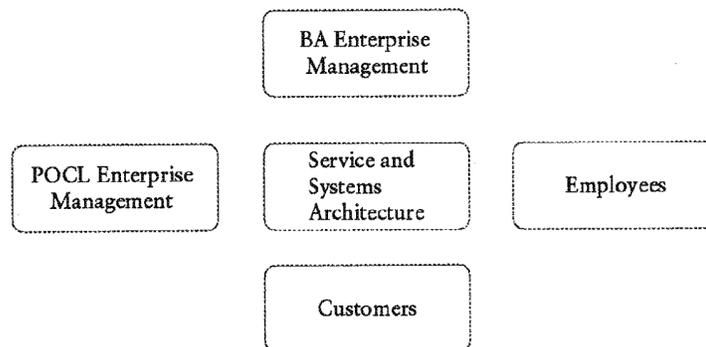


Fig. 3 - Business Perspectives

4.2.3.1.2 Each of the groups of service users shown in *Fig. 3* will have a different view, or perspective, of the services or systems within the architecture which must reflect the business trends and personal expectations of the people in these roles. A summary of the key perspectives which Pathway has considered for each of these groups is presented in *Section 4.2.3.2 to Section 4.2.3.5*.

4.2.3.2 BA ENTERPRISE MANAGEMENT

4.2.3.2.1 BA's strategic goal is to provide an efficient and reliable one-stop service for its customers. The overall Benefit Payment Service (BPS) must deliver the right money to the right person at the right time.

4.2.3.2.2 BA expects significant cost reductions through a reduction in the administrative costs of running the current benefit system and a major reduction in fraud.

4.2.3.2.3 There is increasing pressure to exercise stricter controls over the DSS budget and accordingly, full accountability for all the benefit payments awarded and subsequently encashed is a primary requirement.

4.2.3.2.4 BA wishes to take advantage of the benefits that service-quality and usage-based charging mechanisms can bring within an overall PFI procurement.

4.2.3.3 POCL ENTERPRISE MANAGEMENT

4.2.3.3.1 POCL wishes to maintain and develop the range of business services currently provided for their clients.

4.2.3.3.2 POCL wishes to become the leading provider of benefit distribution, postal service, banking and bill payment facilities and to use counter automation technologies to achieve these goals.

4.2.3.3.3 Continuous improvement in customer service remains a high priority, as does the most effective utilisation of the nationwide network of Post Office outlets.

POCL Organisation

4.2.3.3.4 The benefit payment system will operate across the Post Office network of approximately 19,700 locations, supporting approximately 40,000 counter positions.

4.2.3.3.5 The post office network has a diversity of locations, counter positions, social importance and physical characteristics. Some post offices provide essential services to small rural communities yet conduct comparatively low business volumes. Others in major city centres and urban areas conduct much larger volumes of business in terms of number and value. An overview of the post office counter distribution is presented in Fig 4

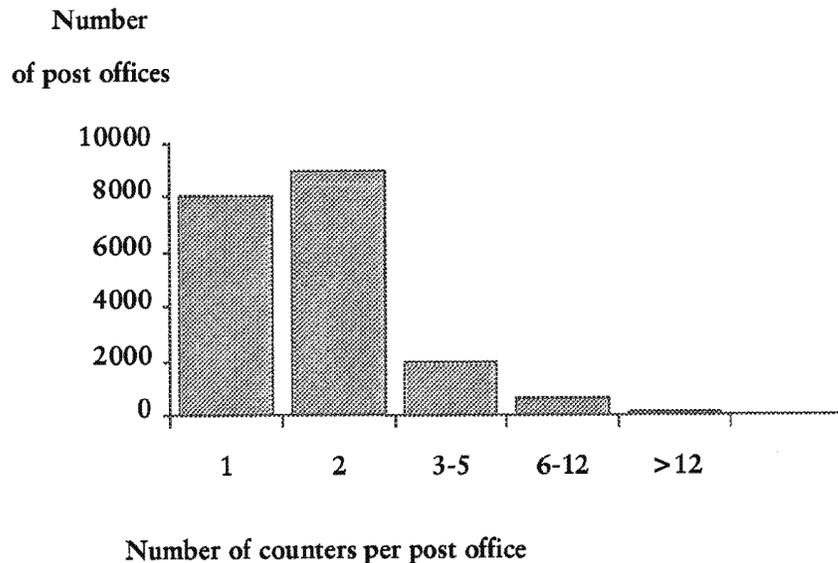


Fig. 4- Distribution of post offices

4.2.3.3.6 Pathway research indicates the distribution of post offices is skewed towards a large number of agency offices (range 1 - 3 counters) undertaking the bulk of POCL business. The relatively few large post offices, those with 6 and more counters, carry out about a third of the business transactions and are most efficient in terms of counter time.

4.2.3.3.7 The chart includes 5,000 of the smallest rural sub-post offices which together are responsible for only 1% of all post office business (This information has been extracted from 'Rural Benefits' a report, dated Feb. 1995 by the National Association of Citizens Advice Bureaux). This report is available upon request.

4.2.3.3.8 Pathway has assessed the cost/benefit implications of these estimates in determining a strategy for counter infrastructure. Whilst supporting the principle of universality, Pathway's systems architecture will allow a flexible approach to be taken in supporting the benefit payment process at the counter.

4.2.3.3.9 Different levels of counter infrastructure can be accommodated in order to support the POCL critical success factor of affordability. The F85 device from De La Rue Fortronic deserves further investigation as a viable counter option. Details of the De La Rue Fortronic F85 device are given in *Annex 4 - Baseline Proposal Summary and Options*.

4.2.3.4 EMPLOYEES

4.2.3.4.1 Post office counter staff expect the new systems and processes to improve their ability to serve the customer, and to reduce administration tasks.

4.2.3.4.2 The design of new systems and processes must not be adversely intrusive and should inspire confidence and acceptance. Pathway will ensure that the system processes do not create barriers between customers and counter staff. The system will inspire staff confidence and pride and enhance the long established post office reputation for friendly efficient service.

4.2.3.4.3 As part of its continuous information acquisition process, Pathway has participated in events organised by the National Federation of Sub-postmasters (NFSP) and has received useful feedback on their needs and concerns. One area of concern relates to personal and premises security. Pathway would like further discussion with POCL and NFSP to assess how best security monitoring could be integrated into the infrastructure.

4.2.3.4.4 BA staff who interact with the benefit payment system (through help desks, emergency payment procedures, and so on) must encounter effective and efficient procedures and systems that aid their overall responsibilities, effectiveness and ability to deliver customer service.

4.2.3.5 CUSTOMERS

4.2.3.5.1 Customers of BA and POCL represent a broad social spectrum with a wide range of requirements and expectations.

4.2.3.5.2 BA customers expect the introduction of the BA card to be personally and socially acceptable and they expect that the obligations it places on them to be just and reasonable. The changes in the payment process must be simple, efficient and seen to be of benefit.

4.2.3.5.3 Other POCL customers will expect overall service quality to improve. Counter time and queue time must not be jeopardised, and there must be demonstrable reasons for continuing to use the Post Office network.

Social Factors

- 4.2.3.5.4 Pathway understands that there is a strong association between the BA customer and a nominated post office for benefit collection. The SSR estimates this at between 90% and 95% of all encashments.
- 4.2.3.5.5 The association between customer and nominated office is part of the social environment within which benefit payments take place and the strength of this association provides one of the key foundations supporting this procurement and Pathway's proposal. The Benefit Payment Service proposed by Pathway is optimised to exploit this relationship whilst providing full support for agents and foreign encashments that in no way inhibits service quality.
- 4.2.3.5.6 Pathway is particularly mindful of the broad social spectrum that will be affected by the introduction of the new card-based Benefit Payment Service. In order to ensure that we have the fullest understanding of the needs of all groups in society Pathway has conducted market research and has met with many groups in the voluntary sector.
- 4.2.3.5.7 Among the groups surveyed and consulted were Age Concern, MENCAP, and the Carers National Association. The findings from these studies are contained in *Annex 8 - Research Programmes* and provide a valuable insight into the factors that must be considered in the final service design and roll-out.

4.2.4 SERVICE ARCHITECTURE PERSPECTIVES

4.2.4.1 INTRODUCTION TO SERVICE ARCHITECTURE PERSPECTIVES

- 4.2.4.1.1 The architecture developed by Pathway may be viewed from two perspectives : service provision and technology provision. Both views have common unifying objectives but the architectural choices provided by each perspective are driven by different considerations.

4.2.4.2 SERVICE PROVISION OBJECTIVES

- 4.2.4.2.1 In terms of service provision, the key objectives of the architecture are to define clear and efficient service boundaries. Each service boundary must :
- Support effective delivery of end-to-end service through the constituent components
 - Provide effective separation between Service Provider and service user responsibilities
 - Support an appropriate range of options for service and pricing levels
 - Provide a clear boundary for reconciliation and settlement between the parties
 - Facilitate change in existing or new service components
 - Support contract exit or transfer for the various constituent services

Service Boundaries and End-to-end Service Delivery

- 4.2.4.2.2 The end-to-end services are the Information Systems and operational procedures which support the overall business processes required to accept a request for service from a customer (for example a benefit customer) and to deliver the information to the client (in this case return of encashment details to BA).
- 4.2.4.2.3 The delivery of such end-to-end services requires that each service organisation operates to an agreed service boundary. This service boundary will define the means by which financial reconciliation, service monitoring and service charging are provided between the service element providers. Service boundary definitions and SLAs will apply within Pathway and between Pathway and the contracting authorities. Typically these definitions will consist of agreements on the service metrics shown in *Fig. 5*.

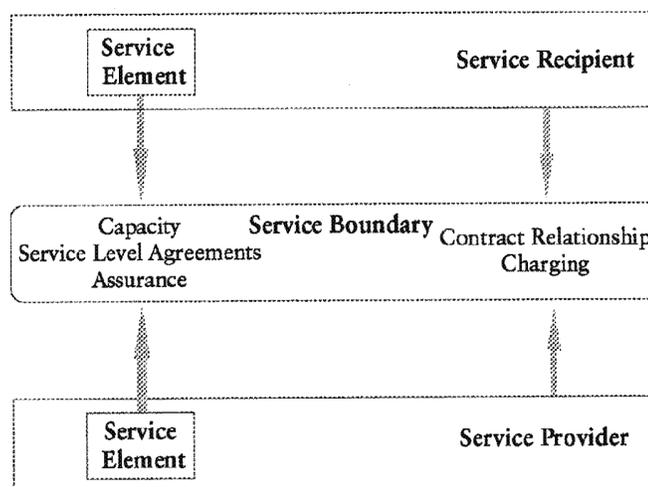


Fig. 5 - Service Boundaries

Service Boundary elements

- 4.2.4.2.4 The primary elements that will define a service boundary are :
- Capacity** - A definition of the information flows that the service boundary must support. This will include volumetrics, time constraints, and physical characteristics of the information flow including the type of IT systems and protocols used.
 - Service Level Agreements** - A definition of the metrics and methods of assessing whether the service boundary is meeting the requirements of the service user. In addition the responsibilities of the Service Provider and the Service Recipient will be defined in the context of the end-to-end service.
 - Assurance** - The definition of the processes that will ensure information flows across the service boundary are accurate and reconcilable.

- (d) **Contract Relationship** - A description of the means by which either party can terminate the agreement or be substituted. Depending on the nature of the Service Boundary this may form part of the legal definition of the service responsibilities.
- (e) **Charging** - This will include details of the metrics and methods to be used for charging for the service. This will also include the circumstances under which any penalty clauses may be invoked and how these process should be managed.

4.2.4.3 TECHNOLOGY PROVISION OBJECTIVES

4.2.4.3.1 The key objectives are to support efficient technology integration over the life of the service, and to deliver the required system characteristics in a cost-effective way. Pathway has selected technology which has the following objectives :

- To exploit proven and cost-effective industry standard components
- To facilitate the integration of existing system components
- To facilitate the fast and efficient introduction of new technology and applications
- To deliver end-to-end systems performance in the most cost-effective manner
- To deliver end-to-end systems availability in the most cost-effective manner
- To provide the requisite levels of system security
- To provide high levels of usability at the boundary between the system and its users
- To eliminate any system management responsibilities from the counter staff or the Postmaster

Pathway System Architecture Design

4.2.4.3.2 The system architecture shown in *Fig. 6* illustrates Pathway's approach to system design and construction. The architecture provides a rich, flexible and resilient counter infrastructure linked through a Transaction Management Service to a wide range of enterprise-level services. These include central POIT services and the specific Card and Payment Management Services operated by the Service Provider to support BA benefit payments.

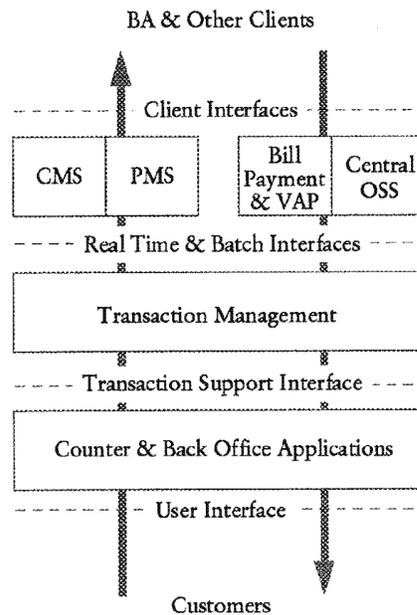


Fig. 6 - Pathway System Architecture

- 4.2.4.3.3 Each service layer within the architecture provides a set of generic facilities to support its role within the end-to-end service-delivery model. Specifically this means that the interfaces at a technology level are defined as generic and that the components of the service layer are driven by parameters where possible. The interface supports transactional and batch data flows to and from BA, POCL and other clients. The transaction support interface provides a generic set of facilities for the development and operation of counter applications. The introduction of new applications will in general only require a non-programming definition of the new application using the parameters.
- 4.2.4.3.4 An example of the high level of parameterisation for the introduction of new bill payments at the counter is discussed in *Section 4.3.3.4*.
- 4.2.4.3.5 The same parameterised architectural model is followed for all service functions including all Value Added Processing, internal OSS processing or other Service Provider functions.
- 4.2.4.3.6 During transition to the full strategic infrastructure and counter systems, Pathway's roll-out strategy anticipates interfacing TMS and the counter interface to existing POIT services including Host Polling. This is discussed further in *Section 7 - Roll-out and Implementation* and in *Section 4.5 SR4.3 and SR 4.4*.

4.2.5 PATHWAY'S SERVICES PROPOSAL**4.2.5.1 INTRODUCTION**

4.2.5.1.1 *Section 4.2.5* provides a summary of Pathway's proposal for each of the service elements contained in the service architecture. We describe the physical systems architecture and we map the key system processes onto the architecture.

4.2.5.1.2 More detailed information of how Pathway's services proposal will be provided is contained in *Section 4.3 - POCL Strategic Infrastructure Service* and *Section 4.4 - Benefit Payment Service*.

4.2.5.2 OVERVIEW OF PATHWAY'S SERVICE PROPOSAL

4.2.5.2.1 Pathway has selected the following organisations from within the consortium to take responsibility for delivery of the key service components as shown in the table below.

5.2.5.2.2 This selection has been based on their proven expertise and track record, together with the general philosophy that service ownership should be placed with the organisation best able to manage the associated risks.

This Service Component :	Will be based on these elements :	Delivered by this part of Pathway:
Payment Management Service	New development based on existing Girobank systems	Girobank
Card Management Service	GENcard - the card management system from Applied Communications Inc Card production, personalisation and distribution	Alliance & Leicester De La Rue
Transaction Management Service	The Riposte distributed messaging system from An Post/Escher and supporting services	ICL and Girobank
Counter Interface	PC infrastructure and counter applications from An Post/Escher	ICL
Operational Support Services	New developments based on existing applications from An Post and Girobank	Girobank

4.2.5.3 PHYSICAL ARCHITECTURE

4.2.5.3.1 The physical architecture can be considered across three primary layers together with the network infrastructure which links them. These layers are shown in Fig. 7 and comprise :

- The Central layer - which provides the primary links with POCL clients
- The TMS layer - which will utilise the Riposte distributed messaging system
- The Post Office layer - which supports the POCL counter infrastructure

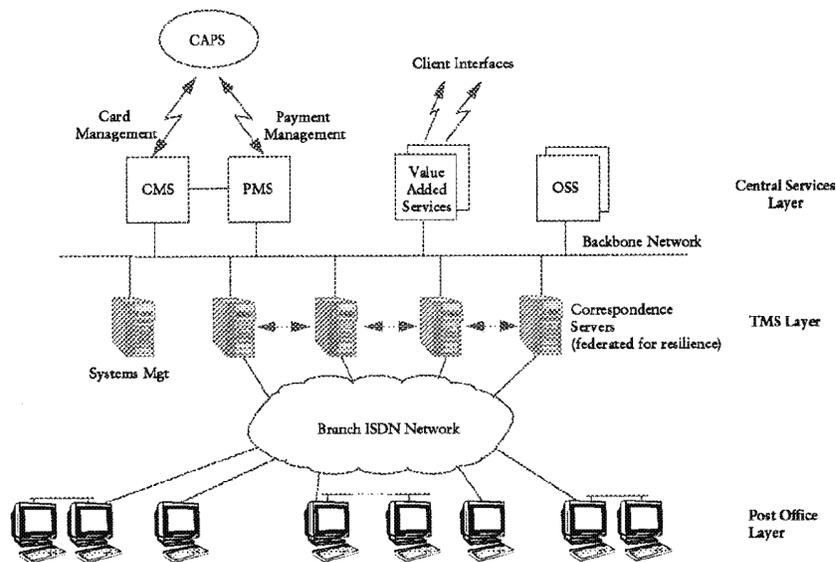


Fig. 7 - Pathway physical architecture

Central Layer

4.2.5.3.2 The central systems running at this layer will be the CMS, PMS and the central functions of OSS. These services will be operated by Alliance & Leicester and its subsidiary Girobank. These are centralised systems and they will be based on Tandem Himalaya hardware. These central systems will be located in secure data centres and will utilise the standard resilience features of Tandem including fail-safe operation and data duplication. Multiple data centres will be used to ensure service availability in the event of physical disaster.

TMS Layer

4.2.5.3.3 The TMS layer is composed of a number of Windows-NT servers running the An Post/Escher Riposte distributed messaging system. These are known as correspondence servers and each server will have responsibility for a group of post offices.

- 4.2.5.3.4 Pathway's design for TMS is based on grouping together correspondence servers to form a resilient hierarchy with each group located in separate secure data centres. The Riposte system replicates all transactions that occur within an individual post office across the WAN to its primary correspondence server and this in turn replicates the transactions to other correspondence servers in the same and separate groups.
- 4.2.5.3.5 This approach ensures that all transactions are completely secure and are always available for recovery should a failure occur in any server or post office.
- 4.2.5.3.6 Additional servers will provide the facilities to extract information from TMS. These will run generic software modules, known as TMS software agents, which are dedicated to particular POCL clients. These software agents will cater for particular transaction transfer service levels and data formatting requirements.

Post Office Layer

- 4.2.5.3.7 The Post Office layer consists of the PC-based counter infrastructure together with the counter peripherals required for the initial services being deployed. These will include magnetic stripe and smart card readers, OCR and bar code readers, a desktop receipt printer and a compact monitor and compact keyboard. A printer suitable for 'back-office printing' will be supplied for each post office.
- 4.2.5.3.8 This infrastructure supports the counter applications, the local OSS functions and also uses the local layer of Riposte to manage the transaction replication within a post office and across the WAN to the TMS layer.

4.2.5.4 DELIVERY OF END-TO-END SERVICES

- 4.2.5.4.1 All the components of the service layers combine to provide reliable and efficient delivery of end-to-end service. The initial set of services is described below. The architecture is open and extensible to enable additional services to be added as required.

Benefit Payment Service

- 4.2.5.4.2 The Benefit Payment Service is delivered efficiently and in a highly controlled way through the service layers. Authorised payments from CAPS are pre-processed through PMS (which uses CMS verification data). The authorised payments are distributed to the customers' nominated post offices using TMS.
- 4.2.5.4.3 The payment process is supported at the counter where, for the majority of encashments, payment will take place using locally held authorised payment details. Foreign payments are supported by using TMS to retrieve details from the customer's nominated post office. Pathway's choice of Riposte for TMS will enable foreign payments to take place in a seamless and timely fashion with no explicit action required by either the customer or post office counter staff.

- 4.2.5.4.4 The counter interface application is based on the existing benefit payment application in use in An Post and operates within the set of generic transaction types provided by Riposte. The application manages the payment process and details of encashments and exceptions are fed back to CAPS via TMS.
- 4.2.5.4.5 Riposte provides a high-speed distributed messaging environment which is already proven within An Post and forms the basis of the ESNS system. A detailed description of the Riposte system is provided in *Sections 4.3.4.2 to 4.3.4.9*.
- 4.2.5.4.6 The service supports both the customer in providing an efficient and reliable benefit payment process and BA in ensuring timely access to payment details (for enquiry and stop placement) and encashment information.

Bill Payments

- 4.2.5.4.7 The Pathway bill payment application is based on an existing Bill Payment application in use in An Post and already satisfies the needs of the majority of bill types and payment methods. This application operates within the generic set of transaction types provided by Riposte.
- 4.2.5.4.8 The flexible nature of the bill payment module and the ability to introduce new bill payment streams for other utilities or companies is discussed in *Section 4.3.3.4*.
- 4.2.5.4.9 The OCR line of the Bill is read (or keyed) at the counter, the payment (or part payment) is typed in and the transaction is routed to the correspondence server. A TMS software agent will aggregate the bill payment details for each client and will typically route all the payments for the day to the client as part of an overnight Value Added Process. The transaction details and moneys received at the counter will be recorded locally for inclusion in the end-of-day balancing and Cash Account.

EPOS

- 4.2.5.4.10 Pathway will re-use and enhance an existing post office EPOS application for use by POCL. This will enable the counter staff to record all transactions (including sales of products) and accumulate cash received against product codes. This information is fed into the end-of-day processing for Cash Account production and office reporting. The information captured will be available to other applications including stock control. Pathway envisages that a number of the transaction types initially captured via EPOS will be developed further to provide more advanced transaction capture facilities (e.g. use of bar-coded client forms).

4.2.5.5 TRANSITION OF EXISTING SERVICES

Automated Payments Terminal (APT)

4.2.5.5.1 The APT supports bill payments and pre-payments. Bill payments will be supported in the new counter application described in *Section 4.2.5.4.7 to 4.2.5.4.9*. The pre-payment aspect comprises two activities.

(i) Utility stamps -This will be covered by the new EPOS application described in *Section 4.2.5.4.10*.

(ii) Smart card and Schlumberger key re-charging

4.2.5.5.2 Pathway wishes to discuss the possible re-use of the existing re-charging equipment. Options include the retention of some or all of the current counter equipment or the inclusion of their functionality within the new counter equipment.

4.2.5.5.3 The British Gas Quantum system invokes its own ISDN link to British Gas. Pathway will investigate with British Gas how this link is best incorporated into the new counter infrastructure.

ECCO+

4.2.5.5.4 ECCO+ is an EPOS system, and equivalent functionality is being implemented in the new EPOS application.

CRISP

4.2.5.5.5 Pathway recognises that Post Shop has already made a significant investment in the RIVA point of sale system and that in general there are a number of key differentiators between this retail operation and the counter automation requirement. Pathway understands that a new range of RIVA EPOS systems is likely to be deployed in Post Shops in parallel with this procurement. In any event discussions with Post Shop will be needed to understand the range of current operations and the requirements for a consistent set of stock codes within POCL.

4.2.5.5.6 Pathway has entered into preliminary discussions with RIVA Systems Limited to assess the opportunities for integration of the Post Shop EPOS application with the wider counter interface environment. It is anticipated that this could occur at two levels :

(a) The first level would be aimed at rationalising the use of LANs and network access, to avoid equipment duplication and support consistent network access from the post offices.

- (b) The second level would be aimed at application-level integration between the two systems, in the areas of stock management and cash balancing/reconciliation.

CAPTURE

- 4.2.5.5.7 Capture is a back-office cash accounting package which is in widespread use and produces a number of reports required by POCL. The functionality of Capture will be replaced by the new OSS system.

ESNS

- 4.2.5.5.8 Pathway's roll-out strategy recommends extending the use of an enhanced ESNS to all post offices as the first step towards the automation of benefit payments. This will enable the advantages and benefits of ESNS already achieved to be rapidly extended across all post offices. ESNS will remain in use until the final cut-over from paper-based to card-based payments has occurred.

4.2.6 PAYMENT MANAGEMENT SYSTEM

4.2.6.1 PMS OVERVIEW

- 4.2.6.1.1 This central system controls the input of the payments and related information from CAPS through to the distribution of payment authorisation information to the post office counter systems. PMS also receives feedback from the counter systems on changes to payment status. It notifies CAPS of all payment encashments and expiries and satisfies related information needs.
- 4.2.6.1.2 PMS merges the payment information (from CAPS) with the card information (from CMS) required for authentication and verification. It records the status of issued cards, controls exceptional card usage (including the use of temporary tokens), and ensures that changes in personal details are properly managed. PMS maintains a payments database which is used in a number of central functions, such as overall BA/POCL payment reconciliation, audits, MIS queries and reports.

4.2.6.2 SYSTEM DESIGN FOR THE PAYMENT AUTHORISATION SERVICE

- 4.2.6.2.1 The operational characteristics of payment authorisation separate into two distinct classes. The requirement for PMS to bulk process approximately 20M payment records per week, together with any associated verification data from CMS clearly requires a central data processing capacity. A central processing model is required in order that a single interface with CAPS can be developed and managed. This will facilitate any data archive, analysis and audit tasks that will be required.

- 4.2.6.2.2 The payment process at the counter, however, is one that has a highly predictable association between the customer transaction and the point of encashment with more than 90% of payments occurring at the nominated post office. An Post's experience also supports POCL's view that payments for a number of benefit types are made within a few hours of them becoming due, resulting in a demand for speedy and reliable payment authorisation.
- 4.2.6.3.2 Pathway has adopted the localised data option for benefit encashment. Once the bulk receipt and validation of benefit payments from CAPS has occurred, files of payments for each post office will be created, secured and distributed. The benefit encashment process will then take place locally using the PC-based counter infrastructure. Foreign payments will be supported by using the high-speed data retrieval mechanism of TMS to access payment data outside of the local data store.
- 4.2.6.2.4 This approach reduces the complexity and cost of the central systems to those tasks involved in managing the bulk processing and transfer of data to and from CAPS and the counter environment (via TMS). This decentralised approach provides very high levels of resilience and concurrent processing at lower cost. The system is also readily scaleable allowing additional counter positions to be added in post offices without any impact on central systems. Additional post offices may be added to the network with relative ease.
- 4.2.6.2.5 In addition the network costs associated with bulk data transfer to 20,000 post offices are significantly lower than handling 20,000,000 on-line encashments per week. Counter transaction time will be reduced and predictable since there will be no external factors such as the surges in CPU usage normally associated with morning processing in central systems affecting the response times of any single counter position.
- 4.2.6.3 PATHWAY PROPOSAL FOR PMS**
- 4.2.6.3.1 PMS will be developed and operated by Alliance & Leicester. This system will be developed from the existing girocheque system which is a proven set of applications responsible for the management of approximately 100 million girocheques per annum. Girobank's development capability is illustrated in the case study on the BA/Girocheque project. This project is described in *Annex 6.7 - BA Project*.
- 4.2.6.3.2 That component of the BPS associated with authorisation and encashment at the post office counter will be based on the An Post/Escher Riposte system.

4.2.6.4 PMS OPERATIONAL CHARACTERISTICS

4.2.6.4.1 The operational characteristics of PMS used as input to the design process are listed in the following table :

This PMS process :	Has these operational characteristics :
Payment management - covers the receipt of payments from CAPS, their validation and acceptance or rejection	Processes between 1.6M and 6M records per day and caters for low-volume, high-priority emergency payments
Payment verification - covers the linking of payment records with additional verification data	Uses card details held within CMS
Payment distribution - makes the payment information available at the point of encashment	Enables each post office to access payment records
Payment encashment - covers the processes of identification (of benefit), authentication (of card) and verification (of customer)	Enables each post office to encash benefits in an efficient and low-risk manner and will cope with the encashment volumes expected in large post offices
Payment expiry - ensures that details of expired benefit payments are returned to BA	Enables each post office to automatically return expired payments to BA via TMS

4.2.6.5 PMS SERVICE QUALITIES

4.2.6.5.1 The service qualities which were analysed and used as part of the criteria for PMS are described in the following sections.

Availability

4.2.6.5.2 Pathway's design for PMS will ensure that benefit payments can be made in all circumstances. The design will be flexible and robust such that benefit payments are not dependant on any single service component. A modular and hierarchic architecture will be used to ensure that a service-component failure within the layers of the architecture can be accommodated without the overall service being jeopardised.

4.2.6.5.3 Pathway's design removes single points of failure through the use of a proven distributed architecture for the counter infrastructure. The central PMS will be developed from Girobank's existing girocheque system which meets and exceeds all service levels required by BA.

Performance

- 4.2.6.5.4 Speed and efficiency are essential aspects of all post office counter transactions. The introduction of a new BPS must not jeopardise POCL's standards for customer service, and must result in a more efficient process for the overall management of benefit payments and all other transaction types.
- 4.2.6.5.5 Pathway's architecture supports performance improvement and will ensure that overall customer service capability of an individual counter and at each post office is enhanced.
- 4.2.6.5.6 By using Girobank's unique operational expertise as a business partner of BA, and by adopting an overall systems architecture which maximises concurrent processing over the distributed counter infrastructure a high level of end-to-end performance will be achieved.

Security

- 4.2.6.5.7 The security attributes of PMS will conform to an overall security strategy for all service components within the Procurement Service Boundary. This is described in *Annex 5 - Pathway Security Policy*.
- 4.2.6.5.8 Specific security measures include :
- (a) **Confidentiality** - Pathway will ensure that information is only disclosed to authorised users by using secure access techniques including user roles and strict password controls. This will apply to all users, including post office counter staff, help desk staff and any external users.
 - (b) **Integrity** - Pathway will ensure that the integrity of information contained within PMS, TMS and distributed to the post offices is maintained by ensuring that modifications can only take place by users or systems with the right to do so, and only in authorised ways. CRCs and digital signatures will be applied to provide the required level of protection. This is discussed further in *Section 4.3.4.8*.
 - (c) **Accountability** - Pathway will ensure that all activities having a material effect on the service will be recorded in audit logs. These will be retained and archived for subsequent analysis if required.
- 4.2.6.5.9 By using secure data techniques and access controls, Pathway will ensure that the operation of PMS will conform to the high operational standards expected by BA and POCL.

4.2.7 CARD MANAGEMENT SYSTEM

4.2.7.1 CMS OVERVIEW

4.2.7.1.1 The Card Management Service will manage the production, issue and distribution of cards and pick up notices (PUNs) to a card population of approximately 25M people. It will maintain sufficient and timely data on cards and tokens to ensure that authorised cards and tokens are issued only to approved customers and their agents, and that they are only available for use for customers to receive authorised benefits.

4.2.7.1.2 CMS will provide efficient processes for handling card enquiries from BA and reports of lost, stolen and damaged cards from customers. The service will also provide secure interfaces to the Payment Management Service (for the supply of card verification details) and with the Post Office network (for the distribution and issue of cards).

4.2.7.1.3 Pathway's proposal for the initial release of the BA card is to use magnetic cards with a paper signature panel which is indent printed. Pathway believes that during the life of this procurement there will be a migration to smart cards. Pathway's card migration strategy and an assessment of the merits of magnetic stripe and smart cards is summarised in *Section 4.2.7.5*. Further details are provided in *Annex 9 - Technology Trends*.

4.2.7.2 PATHWAY PROPOSAL FOR CMS

4.2.7.2.1 Pathway proposes to use the ACI's Card Management System (GENcard) to provide a cardholder database and manage the process of card production, dispatch and activation.

4.2.7.2.2 Pathway has assigned responsibility for the operation of this service to Alliance & Leicester, because of its proven capability and adherence to quality standards. Alliance & Leicester will provide all required services including the management of the cardholder database, management of the information flows with BA and with the card producer, technical support and operation of the CMS help desk.

4.2.7.2.3 Pathway has selected De La Rue to manage the production, personalisation and distribution of the BA Card and the pick up notice (PUN). De La Rue is the UK's leading provider of magnetic cards with greater than 60% of the UK market. De La Rue has the capacity and quality processes in place to meet the requirements for providing approximately 25 million BA cards and their subsequent renewal. De La Rue's capability is illustrated in the case studies for PostBank and De La Rue Card Technology which are described in *Annex 6.6 and 6.16*.

4.2.7.2.4 De la Rue is heavily involved in the development of smart card standards and technology and has an expandable production capacity to meet BA and other POCL clients' requirements as they emerge.

4.2.7.3 CMS OPERATIONAL CHARACTERISTICS

4.2.7.3.1 The CMS operational characteristics which were used as input to the system design for PMS are listed in the table below :

This CMS process :	Has these operational characteristics :
Card preparation - covers the receipt of card details from CAPS, their validation and acceptance or rejection	The receipt of approximately 50k card details per day average and up to 100k cards per day peak
Card & PUN production - covers the transmission of card details for physical card and PUN production	The production and personalisation of approximately 50K cards and PUNs per day
Card & PUN distribution - covers the batching and secure delivery of cards (to post offices) and pick up notices (to the customer)	The production and distribution of approximately 50K PUNs together with their unique card code to BA customers. The co-ordinated distribution of card batches to post offices
Card collection - covers the counter processes of card issue and card activation	To ensure that a secure process is used so that cards delivered to post offices cannot be used before issue to the customer

4.2.7.3.2 Operational volumes will be much higher during initial card introduction. Lost, stolen and damaged rates of renewal are also likely to be higher during this period of public acceptance. Pathway will plan to have sufficient stock in place to support these high-volume phases.

4.2.7.4 CMS SERVICE QUALITIES

4.2.7.4.1 In the following sections we examine the service qualities that were considered in the initial design.

Security

4.2.7.4.2 By basing CMS on ACI's industry-leading card management system, a secure, reliable and auditable service is assured. Secure access techniques for all user access will be used. In addition all CMS data will be subject to the Data Protection Act. Further details of Pathway's security strategy are contained in *Annex 5*. The complete production and personalisation process for cards is given in *Section 4.4.4.4*.

Usability

- 4.2.7.4.3 There is a strong association between the service that benefit customers receive from CMS and their perception of BA. Pathway will ensure that the service levels provided by the public face of CMS (card issue and collection, use of the help desk and the process for lost, stolen and damaged cards) will live up to the high standards of quality and customer service already provided by BA.
- 4.2.7.4.4 One of the critical success factors of this procurement is the gaining of public acceptance for a card-based payment system. Pathway will use the primary market research and the application of quality methods to ensure that end-to-end system usability is built in to the service.

Potential for Change

- 4.2.7.4.5 During the life of this procurement, the introduction and use of smart cards will increase in the UK and some or all of POCL's clients may wish to take advantage of their facilities. It may be appropriate to migrate particular benefits to smart card technology. By exploiting De La Rue's capabilities in all forms of card technology and Alliance & Leicester's innovative developments in customer service, Pathway will have potential for change designed into the overall service.
- 4.2.7.4.6 The baseline counter infrastructure proposed by Pathway (see *Section 4.2.9.2* and *Section 4.3.7.3*) will support smart cards from initial roll-out.
- 4.2.7.4.7 ISO standards for smart cards are fully defined and published. Application standards are soon to be published by CEN the European Standards Organisation. Pathway expects that the EMV joint specification issued by Europay, MasterCard and Visa to be influential in developing the use of smart cards in the UK's financial sector.
- 4.2.7.4.8 Pathway is uniquely positioned to take advantage of these developments as a De La Rue subsidiary company will be involved in the definition of the functional requirements for the UK banks. De La Rue will also be involved in the EMV joint specification group to promote standardisation of global payment systems.

4.2.7.5 CARD TECHNOLOGY OPTIONS

- 4.2.7.5.1 The variety of technologies associated with fraud reduction (particularly card technology) presents BA and POCL with many opportunities in the selection of the BA card both now and during the life of the procurement contract. The expertise within the Pathway consortium (in particular De La Rue) has enabled an objective analysis of the key business and technical trends to take place. A summary of the following areas is provided :
- Pathway's proposal for the BA card
 - Magnetic Card Technology
 - Smart card Technology

- Options for Fraud Reduction
- Migration

4.2.7.5.2 *Annex 9* contains a more detailed discussion of these issues and also a complete set of card specimens that Pathway can offer. The different features and functions of these card types and the roles they play in Pathway's migration strategy for cards is fully explained in this Annex.

Pathway's Proposal for the BA Card

4.2.7.5.3 Pathway proposes that the BA card should be a valueless token. It will be a magnetic stripe card with appropriate security facilities encoded on the stripe, a paper signature panel and embossed printing.

4.2.7.5.4 This decision is based on a pragmatic assessment of the costs and risks associated with the various technologies. This initial position provides the best compromise between the following constraints :

- Economic : what is the best ratio for card cost versus security
- Ergonomic : the requirement to deliver benefit payments effectively
- Availability : the same IOP procedure must be available to all post office locations
- Reliability : The service must be reliable and upgradable

Magnetic Stripe Cards

4.2.7.5.5 Magnetic stripe technology has matured to such an extent that most people now use it in one form or another. It is a simple, reliable, and widely understood technology. The increasing use of electronic terminals at the point of sale means that the magnetic stripe is now used for data capture in preference to the embossing features.

(a) Advantages for BA/POCL :

- Proven technology (25 years of experience and infrastructures)
- Robust (reliable, durable, flexible)
- Readily available from manufacturers and suppliers
- Inexpensive by comparison to smart cards
- International standards exist (also compatible with laser engraving)

(b) Disadvantages for BA /POCL :

- Growing vulnerability to fraud through illegal reading of card data
- Limited data storage space
- Data on the stripe can be erased by household objects including fridge magnets
- No secure upgrade path is available

Smart Cards

4.2.7.5.6 The smart card market is still developing, particularly in the banking field. Outside the financial industry, smart cards are already widely used in a range of high-volume applications which includes Pay TV, healthcare, mobile communications, telecommunications and Utilities. Pathway recognises that high-profile smart card initiatives such as the Shell loyalty scheme and the Mondex (electronic purse) pilot in Swindon are making the public more aware of the potential uses of smart cards.

(a) Advantages for BA/POCL

- Ideal technology to introduce a biometrics for cardholder verification including digitised signature or photograph
- Provides opportunities to develop a more flexible solution to benefit encashment
- Data storage capacity and resistance to fraud/counterfeit is significantly greater
- Adaptability of the card would allow the delivery of new services/applications
- Standards exist for smart cards in payment systems (1994 EMV Joint Specification)

(b) Disadvantages for BA/POCL

- Higher initial investment required
- This technology may not prove suitable for all customer groups
- The smart card market is still emerging

Options for Fraud Reduction

4.2.7.5.7 Some of the fraud issues influencing the choice of card and card holder verification are presented in the following sections.

(a) Background to plastic card fraud

Today in the UK plastic card fraud levels have been reduced by almost 40% since the peak years of 1990 and 1991. Initiatives driven by APACS and the UK's banks and building societies have proved successful in reducing the levels of fraud. More alarming however, is the rise in plastic card counterfeiting which has increased by nearly 10 times in the same period.

The UK banks along with the rest of Europe are preparing to embrace smart card technology. This technology is not only seen as a solution to defeat fraudsters and counterfeiters but also as a means of delivering new value added services.

(b) Cardholder Verification Method (CVM)

Various methods for verifying customer identity are available including :

- (1) Signature strip. This approach is simple and well understood.
- (2) A PIN system. Pathway believes this would be unsuitable for some user groups.
- (3) Photocards. Pathway's research (See *Annex 8*) suggests that the use of photocards is broadly acceptable but care would have to be exercised with some customer groups.
- (4) Biometrics using a smart card. This would undoubtedly provide the most reliable method of CVM. The major drawback to its early introduction is the scale and cost of collecting the required data, including signature of record and photograph.

The use of biometrics would have to be phased in over a period of time, having first ensured that the maximum data-collection and use requirements have been considered for all uses of the card. In addition a continuing problem with biometrics is the unacceptable level of false accepts and false rejects.

(c) Counterfeit cards

Traditional security features will be used to counter the threat of counterfeit cards. These features include :

- The use of a Sherman security value on the card (See *Section 4.4.4.4.3*)
- Card inspection when presented for benefit encashment

4.2.7.5.8 Pathway has identified that magnetic stripe cards will be prone to the same risks as bank cards and therefore supports a migration to smart cards as this will reduce significantly counterfeiting.

Migration

4.2.7.5.9 Pathway's fraud reduction strategy is committed to enabling BA to migrate the benefit payment system from its present reliance on paper to a more dynamic system that initially uses magnetic stripe card technology. Further developments could include more advanced magnetic cards using laser-engraved signatures and photographs, and the introduction of smart cards.

- 4.2.7.5.10 Pathway is committed to enabling the introduction of evermore sophisticated techniques to stay one step ahead of the fraudster. This strategy will enable further fraud reduction to be realised by addressing the two key areas of exposure within encashment fraud, namely cardholder verification and counterfeit or forgery of the IOP.
- 4.2.7.5.11 Pathway's migration strategy to new fraud-resistant technologies will ensure that the best and most cost-effective methods are used to authenticate the card and to verify the identity of the cardholder.
- 4.2.7.5.12 The move from a magnetic stripe IOP to a smart card will provide a means to upgrade the security of benefit payments. The cost of this migration cannot be justified on fraud alone but on the added functionality which smart cards can provide by using verified card-based data such as identification, benefit status, Utility details. Despite the initial investment costs for BA/POCL this added functionality can be delivered more cost-effectively with smart cards than any other proposed IOP format.
- 4.2.7.5.13 If BA/POCL are to realise the business opportunities and service benefits arising from the migration path then they will have to align themselves with a Service Provider capable of delivering a seamless and managed migration path within the desired time constraints. Pathway is such an integrated Service Provider.

4.2.8 TRANSACTION MANAGEMENT SERVICE

4.2.8.1 TMS OVERVIEW

- 4.2.8.1.1 TMS provides a secure and efficient mechanism for linking POCL clients to counters. This will be achieved by providing a scaleable, fault-tolerant and secure environment for routing messages and files. Pathway proposes that the internal structure of TMS is provided by the Riposte messaging software. Riposte provides detailed time-based logging of all counter transactions. Riposte is used within the existing ESNS application and An Post systems.
- 4.2.8.1.2 TMS will operate to a number of different service levels depending on the nature of the transaction it is supporting and will manage the network connections such that the transaction flow between the counter and the client systems can be real time, bulk transfer or trickle-feed.
- 4.2.8.1.3 Components of TMS run on the counter infrastructure and on a number of central servers, known as correspondence servers, which form the core of the Transaction Management Service. The scope of TMS is presented in *Fig. 8*.
- 4.2.8.1.4 Message routing and data file distribution are spread across this layer of correspondence servers, which are linked by high-speed LANs to form a resilient backbone. Journal files of all transactions and system events are maintained, providing audit trails and data stores for system recovery and enquiries.

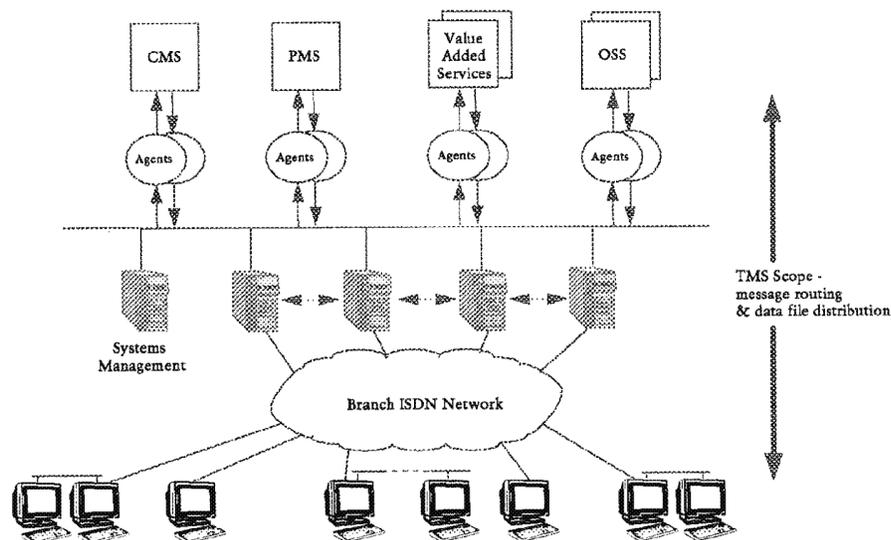


Fig. 8 - Scope of TMS

Functions of the Correspondence Server Layer

4.2.8.1.4 The functions provided by the correspondence server layer include :

- Distribution of payment data and other files to the relevant post offices to allow card-based payments to be made
- Capture of all messages related to benefit payments, bill payments and other applications
- Replication of messages across nominated correspondence servers to support back-up and recovery facilities
- Broadcast facilities between correspondence servers and over the WAN to post offices, to support enquiries and other on-line transactions such as foreign encashments
- Software agents to provide transaction details and other on-line transactions
- Archive of transactions for retrieval and subsequent off-line storage

Functions of the Local Layer

4.2.8.1.5 The major functions of the local layer are to :

- Support the counter interface services (see *Section 4.2.9*)
- Capture of all transaction details to support reconciliation and audit
- Replicate transaction messages to all other office workstations to support back-up and recovery
- Replicate (on-line or trickle-feed) of transaction messages to the correspondence server layer to support central functions and to provide additional recovery facilities

- Store of payment files in a secure manner for local authorisation of payments and continued operation of the BPS in the event of network or central system component failures

A generic POCL interface

4.2.8.1.6 Pathway will develop a set of generic TMS software agents which will control the processes concerned with client data receipt and delivery and transaction archiving. The development of these agents together with the transaction interfaces provided at the counter will provide a generic set of interfaces for use by all POCL clients. A wide variety of clients are already supported by An Post's implementation including batch services (for Utility bill payments) and on-line services (for links to National Savings).

4.2.8.2 PATHWAY PROPOSAL FOR TMS

4.2.8.2.1 TMS will be based on the Riposte product set from An Post/Escher operating under Windows-NT. It provides a distributed, replicated message-based architecture. This architecture provides a high degree of resilience at very low cost. Riposte is a proven product that extends the design principles used in typical retail systems to operate effectively across thousands of locations.

4.2.8.2.2 Riposte will operate at two physical levels. The local layer operates on the PCs in each post office and provides fail-safe transaction replication and management at all counter positions. The central layer operates on a number of central servers which links all post offices together to provide a seamless, fully resilient nationwide network.

4.2.8.3 TMS OPERATIONAL CHARACTERISTICS

4.2.8.3.1 The operational characteristics used as input to the design of TMS and the choice of Riposte are listed in the following table.

This TMS process :	Has these operational characteristics :
Bulk Data handling - covers the secure and reliable distribution of bulk data to and from the counter infrastructure	Between 1.5M and 6M payment records to be distributed daily to 20,000 post offices
Real time links to client systems - covers the support of a time-critical transactional service between client applications within the counter infrastructure and server systems within or external to the Procurement Service Boundary	To cover exception conditions for BA transactions including : <ul style="list-style-type: none"> • urgent payments (approximately 0.5%) • foreign payments (approximately 4% - 10%) • payment enquiries • stop notices (approximately 6%)

This TMS process :	Has these operational characteristics :
Trickle-feed - enables small batches of transaction data to be fed from the counter infrastructure and client applications, typically during the working day	To enable encashed and expired BA payment details and bill payment records to be returned from all post offices during the day
Data archive - enables the selective storage of transactions for subsequent retrieval	To enable periodic archives to be taken of all transaction data from TMS for storage on on-line and progressively off-line media

4.2.8.4 TMS SERVICE QUALITIES

4.2.8.4.1 The service qualities which were considered as part of TMS design and which have influenced the choice of environment for TMS are discussed in the following sections.

Security

4.2.8.4.2 TMS will apply different levels of security control to the data within its domain depending on the security classification of the transaction or data type.

4.2.8.4.3 Pathway's design and implementation of TMS will use data security measures including CRCs and digital signatures to protect all data within the system from unauthorised modification. In addition data encryption can be selectively applied within TMS as needed. The security facilities within Riposte are described in detail in *Section 4.3.4.8*.

Performance

4.2.8.4.4 TMS will support a wide range of transaction types, each with different requirements for storage and onward transmission. In some cases performance will be determined by the service requirements of the specific POCL client. In other cases the inherent requirement for a robust and resilient service will influence how, where and when data is moved by TMS.

4.2.8.4.5 TMS will be capable of optimising the movement of data between customers and clients, according to the required service levels. These will include the on-line placement of stop notices, the 30-minute cycle for emergency BA payments and the daily bill payment details required by the Utilities.

Potential for Change

4.2.8.4.6 The transaction profiles currently identified by BA and POCL may change over time. For example, an increase in the number of on-line services to POCL clients or an increase in the volume of data associated with each transaction. Pathway's design for TMS is both modular and hierarchical in order that growth can be accommodated without risk, and to ensure that changing transaction patterns do not jeopardise existing services.

4.2.9 COUNTER INTERFACE SERVICE

4.2.9.1 COUNTER INTERFACE OVERVIEW

4.2.9.1.1 The Counter Interface Service comprises the range of hardware and software components (known as the counter infrastructure) that will be installed in each post office to meet the requirements of POCL's counter automation strategy. This is shown in Fig. 9. Pathway's baseline counter proposal will meet the functional requirements of the benefit payments, bill payments and EPOS applications and provide a growth path for additional client transaction types in the future. The software architecture used within the counter interface will enable the baseline hardware proposal to be enhanced to provide increased peripheral functionality if required.

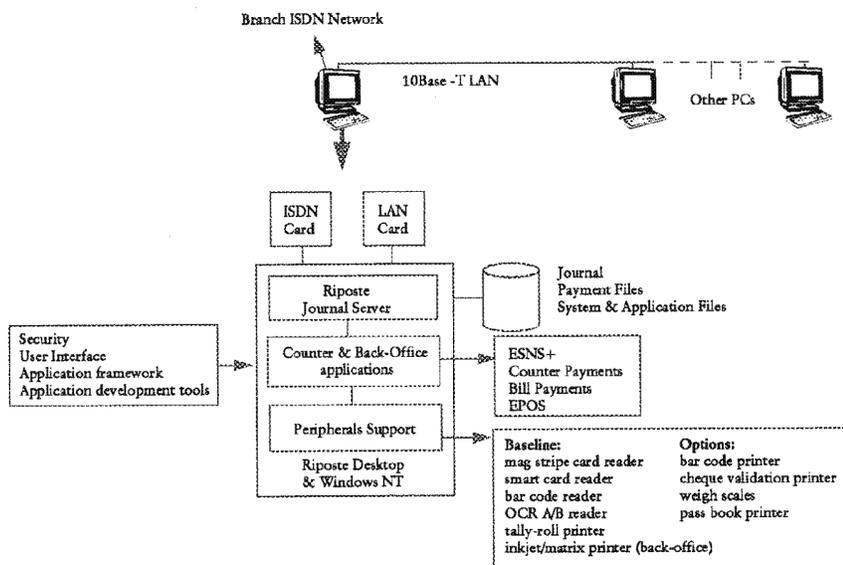


Fig. 9 - Scope of Counter Infrastructure

- 4.2.9.1.2 Part of the Riposte product set, the Riposte Desktop, provides a framework for the easy and consistent development and implementation of complex financial transactions. Desktop supports state-of-the-art interface controls (action lists, on-screen keyboard, buttons, menus, screen help) which enable transactions to be presented to counter staff in an intuitive and consistent way. Desktop also supports Rapid Application Development (RAD).
- 4.2.9.1.3 The counter applications proposed by Pathway will be constructed in sets which allow generic transactions to be built. *Section 4.3.3* describes Pathway's proposal for the construction of generic transactions.
- 4.2.9.1.4 Each workstation in a post office runs a journal server which manages the journaling, retrieval and data replication functions at the local level.
- 4.2.9.1.5 Key functions of the counter infrastructure are :
- To provide access control, user authorisation and password security
 - To present transactions to counter staff in an intuitive fashion
 - To support a wide range of peripherals needed to enable electronic transactions
 - To manage journaling (audit trail) and data replication at the local level
 - To manage communications with the correspondence server (components of journal server exist on all workstations in the workgroup although one workstation normally handles all the WAN functions)
 - To administer data integrity (through CRCs and data encryption) as required
 - To check that distributed files have not been tampered with by using digital signatures
 - To provide uninterrupted payment authorisations in the event that communications to the central location are not available

4.2.9.2 PATHWAY PROPOSAL FOR THE COUNTER INFRASTRUCTURE

- 4.2.9.2.1 Pathway's proposal for the counter interface covers the counter hardware and operating software, the counter peripherals and the application software for benefit payments, bill payments and EPOS.

Counter Hardware

- 4.2.9.2.2 The baseline counter hardware will comprise industry-standard 486-PCs running Windows-NT. The counter peripherals will include 9' colour monitor, keyboard, reading devices (magnetic card, smart card and OCR) and a counter-top receipt printer. A printer for back-office tasks will be provided for each post office.
- 4.2.9.2.3 Pathway will ensure that all units are compact and acceptable to users, and where feasible will provide combined-function units such as a single device incorporating all electronic reading functions. This will minimise the counter space requirements.

Counter applications

4.2.9.2.4 The counter applications will all be based on the generic transaction set supported by Riposte and will draw on the proven capabilities of the CounterAction system in use in An Post. Details of this project are presented as a case study in *Annex. 6.12 - An Post CounterAction*. The counter applications will consist of :

- Benefit Payments - Order Books. This will be based on the existing ESNS system
- Benefit Payments - Electronic Payments. This will be developed from the existing card based benefit payments application in use in An Post
- Bill Payments. This will be developed from the existing bill payments system in use in An Post
- EPOS. This will be based on the developments currently underway for the Singapore Post Office

4.2.9.3 COUNTER INTERFACE SERVICE OPERATIONAL CHARACTERISTICS

4.2.9.3.1 The operational characteristics considered as part of the selection and design of the counter interface are presented in the following table :

This counter interface process :	Has these operational characteristics :
Transaction activation	Must be capable of supporting a wide variety of peripherals
Transaction presentation	Must be capable of being used by a wide variety of post office counter staff
Transaction execution	Must provide the fastest possible transaction time
Back-up and recovery	Must complete unaided or with minimal human intervention
Payment authorisation	Must be available in the event of central or network component failures

4.2.9.4 COUNTER INTERFACE SERVICE QUALITIES

4.2.9.4.1 The counter interface qualities which were addressed during the selection and outline design phase are considered in the following sections.

Usability

4.2.9.4.2 Acceptability and usability of the counter interface by post office counter staff represents two of the major elements in ensuring a successful and efficient service. The counter applications provided by Pathway will be produced with an intuitive user interface which will facilitate user acceptance and minimise training requirements.

- 4.2.9.4.3 Pathway will seek to actively involve the counter staff community in the customising the counter interface and in the final selection of counter infrastructure. Pathway's objective is to ensure that users are effective in carrying out their work, are efficient in terms of their time and effort, and are satisfied with the system's physical attributes and appearance.

Availability

- 4.2.9.4.4 Pathway has identified that a guarantee of benefit payment is a primary requirement and consequently all service components will contribute to achieving this objective. The design of the counter interface will ensure that the failure of a counter position will not prevent the post office from providing the BPS. The counter interface will automatically recover from any failure of a counter position with no loss of transaction data.
- 4.2.9.4.5 If communications with the central system are not available, then payment can continue uninterrupted (for up to 2 days) for customers who are associated with the local nominated post office. This is possible as payment information is stored locally. Fall-back procedures (described in *Section 5.5*) will enable foreign encashments to continue in this scenario.

Security

- 4.2.9.4.6 The user interface supports differing user roles together with full password controls. Specific user roles (SUPERVISOR and TELLER) will be provided to ensure that specific counter applications and data are only accessed by authorised users.

Potential for Change

- 4.2.9.4.7 The introduction of additional client business is recognised by Pathway as a major POCL objective. The design of the counter interface will enable business opportunities to be realised quickly and introduced into the Post Office network with a minimum of cost and disruption. By providing an industry standard software and hardware infrastructure Pathway can ensure that the counter interface will readily accommodate new services and peripherals including electronic weigh scales.

4.2.10 OPERATIONAL SUPPORT SERVICES

4.2.10.1 OSS OVERVIEW

- 4.2.10.1.1 The Operational Support Services consist of an initial set of systems to assist the Postmaster in the management of his post office and to provide central information and reporting for POCL. These services will be provided in part by back-office systems running within the local post office and in part by central service functions which together will cover the end-to-end service requirements.

Central Service functions

4.2.10.1.2 The following system functions will be provided by central management information systems :

- Central cash management
- Central stock management
- National Cash Account reconciliation
- Other management information

Back-office functions

4.2.10.1.3 Back-office functions will be provided at the local post offices by the counter infrastructure itself, or by using application packages that access the captured data. These back-office functions include :

- Local cash management
- Local stock control
- Local Cash Account and office balancing
- Postmaster remuneration

4.2.10.2 PATHWAY'S PROPOSAL FOR OSS

4.2.10.2.1 Pathway will develop the applications required to meet the OSS requirements. The local applications will, in part, be based on the functionality already available from An Post.

4.2.10.2.2 The central systems will be developed by Girobank using their specific expertise in reconciliation and cash management.

4.2.10.3 OSS OPERATIONAL CHARACTERISTICS

4.2.10.3.1 Pathway has identified the following operational characteristics which must be provided by the OSS. These characteristics have been used as part of the input to OSS selection :

This OSS process :	Has these operational characteristics :
Postmaster remuneration - covers the calculation of fees payable for all transactions completed over the counter	Each post office will use a formula to calculate 'unit credits' based on transaction type. Both electronic and non-automated transactions will be supported. Information will be provided locally and transmitted to POCL via TMS
Cash account reconciliation - covers the automated production of a Cash Account	Each post office will capture transaction type and value and produce a weekly Cash Account. This will be transmitted to POCL via TMS

This OSS process :	Has these operational characteristics :
Reporting and MIS - systems to provide local and central sales, service and contribution analysis	Daily and weekly reports produced in each post office and centrally

4.2.10.4 OSS SERVICE QUALITIES

4.2.10.4.1 The OSS covers both central and local functions. The operational service qualities are different for both locations. The service qualities are listed below :

Usability

4.2.10.4.2 The local OSS functions (for Cash Account production, balancing and transaction analysis) will be easy to use and operate with the minimum of delay since they will typically be run at end-of-day. The local OSS functions will use the same intuitive and proven counter interface as is proposed for all counter applications.

Availability

4.2.10.4.3 Both central and local OSS services must operate within acceptable levels of availability. The resilient design of the counter infrastructure will ensure that local OSS services, have the same high levels of availability as the counter applications. Central services will be supported on resilient hardware to ensure maximum service availability.

Security

4.2.10.4.4 Both central and local OSS must operate with a high degree of security. The security will be provided using the resilient counter environment for local OSS and by the security inherent within TMS and the central computing platforms.

4.2.11 THE NETWORK INFRASTRUCTURE

4.2.11.1 PATHWAY'S PROPOSAL FOR THE NETWORK INFRASTRUCTURE

4.2.11.1.1 Pathway is working with BT, who have been given responsibility for designing the Branch Wide Area Network which will link all post offices with the centres of operation. Investigations have shown that Integrated Services Digital Network (ISDN) is the preferred network architecture to support the Pathway service architecture and the distributed authorisation service. ISTN provides high reliability, low error rate, fast connection time and high bandwidth. ISDN will achieve 100% geographic coverage by early 1996.

- 4.2.11.1.2 Pathway recognise that certain high usage or low usage post offices may justify alternative network connections (i.e. permanent circuit or PSTN). These will be determined following discussions on expected transaction volumes with POCL. Through BT's Communications Management division, Pathway can offer a managed service covering all of these network options and including PSTN calls to the Pathway Call Reception Centre for help desk support.
- 4.2.11.1.3 Pathway's proposal for the network infrastructure is based on a design across three levels as shown in *Fig. 10*. The network infrastructure for each of these levels is described below.

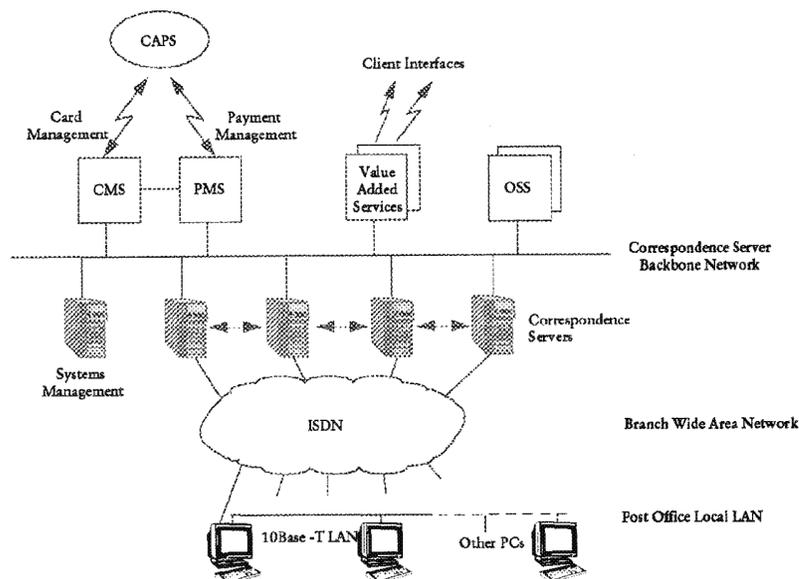


Fig. 10 - Pathway Network Infrastructure

4.2.11.2 POST OFFICE LOCAL AREA NETWORK (LAN)

- 4.2.11.2.1 Post offices with multiple PCs will have LANs. These will support automatic data communication between PCs in the post office, enabling all PCs to communicate with the branch network through the communications PC. This PC will contain an ISDN card. The LAN will also enable central systems management tools to monitor activities on individual PCs.

4.2.11.3 BRANCH WIDE AREA NETWORK (WAN)

- 4.2.11.3.1 The branch WAN connects all the post offices to the central systems. This will be based on the modern ISDN system. This will be provided by BT whose total quality services cover the design, marketing, sale, provision, operation and maintenance of telecommunications networks throughout the UK.

- 4.2.11.3.2 Each post office will have an ISDN 2 link to the branch network, giving each office two high-speed channels (2 x 64 kbit/s) for data, or voice traffic (very large post offices may have a second ISDN 2 line). The correspondence server backbone network will support multiple ISDN 30 connection points spread over 4 locations (each providing 30 channels) to ensure ample channels are available to support post offices during peak periods.
- 4.2.11.3.3 The technology is well proven and provides very clean, efficient and reliable communications links for data, voice, text and graphics. With ISDN 2, dialled calls can be made to other devices on ISDN 2, ISDN 30 or analogue PSTN lines. Depending on needs, up to 8 separate pieces of equipment such as PCs, digital telephones, fax or video conferencing terminals, can be connected to a single ISDN 2 line. Up to two of them can be used simultaneously. It has ample scope for growth and is inherently resilient through techniques such as diverse routing, automatic transfer of calls to an alternative answering point if the ISDN lines are busy or an integrated services private branch exchange fails.
- 4.2.11.3.4 ISDN provides a particularly good fit to the style of working within post offices. The fast call set-up, fast and reliable operation lends itself to short calls being made during typical counter operations without any perceived delays. Lines do not have to be kept open while lengthy transactions are completed, and a tariff structure based on per-second charging means that call charges are kept to a minimum. The high speed available with ISDN means that additional benefit can be achieved by saving non-urgent data within the POCL counter infrastructure until connections have been established for an urgent transmission, and then transmitting a small burst of this data on the back of the primary transmission. This technique is referred to as trickle-feeding transactions.
- 4.2.11.3.5 TMS enables all transactions to be given priorities, which include : urgent, which activates an on-line query, non-urgent, which will transmit the transaction by trickle-feed or end-of-day which ensures that all transactions are replicated to the central location. While supporting trickle-feed, TMS will open a line every few minutes in the absence of an urgent transaction (the period can be predetermined for each post office). This ensures each line is monitored regularly and that the correspondence servers remain synchronised with the post offices. This technique is highly efficient, tailorable (by re-defining the priorities of individual transactions), and exploits the high speed and the tariff structure of ISDN.

4.2.11.4 CORRESPONDENCE SERVER BACKBONE NETWORK

- 4.2.11.4.1 This a high-speed, secure network that acts as the focal point for all the post office connections. It connects all the correspondence servers, which by using Riposte, provide a transaction management capability together with a high degree of resilience. It gives access to any correspondence server from any post office (and vice versa).

4.2.11.4.2 The ability of correspondence servers to replicate data and select optimum data-transfer routes will be exploited by distributing the backbone network physically across a number of major nodes. Correspondence servers within each node are inter-linked on high-speed networks such as FDDI, and the nodes are interconnected by high-speed BT services such as Megastream or SMDS.

4.2.12 SERVICE BOUNDARIES AND INTERFACES

4.2.12.1 INTRODUCTION

4.2.12.1.1 Pathway’s strategy for the service architecture is to provide a set of service components with well-defined interfaces which will be used together to provide end-to-end service delivery between POCL clients and their customers.

4.2.12.1.2 The service boundaries and interfaces will be explicitly defined and service level agreements formed to ensure that all parties (both within Pathway and between Pathway, BA and POCL) and have a clear understanding of their role and responsibilities in the provision of end-to-end services.

4.2.12.2 SERVICE INTERFACES

4.2.12.2.1 Each of the primary service interfaces shown in *Fig. 11* is summarised below.

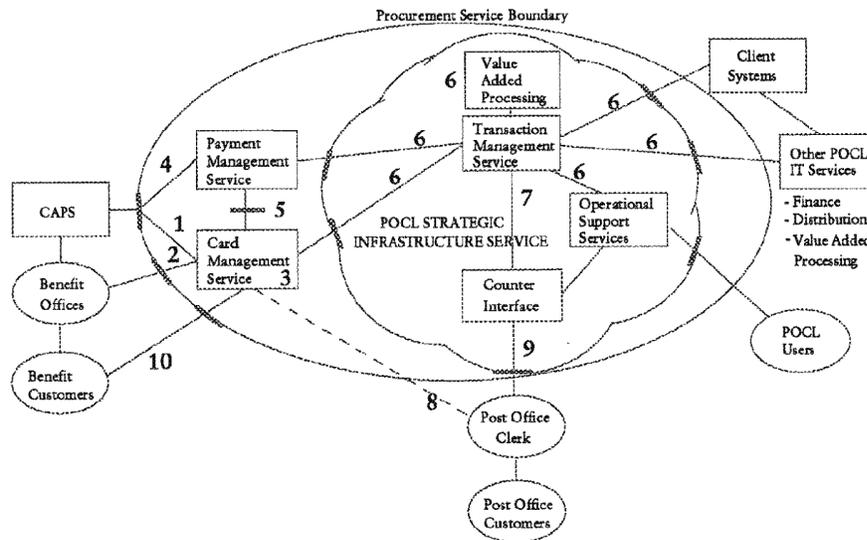


Fig. 11 - Service Interfaces

Interface 1 : CAPS-CMS

- 4.2.12.2.2 This supports the transfer of new and amended cardholder information using file transfer. The question of referential integrity between CAPS or other BA customer database will require discussion and agreement. As a guide, it is assumed that CAPS is the master source of all information relating to the customer except card-related data. All amendments other than card details will always be supplied via CAPS. This includes name, address, and nominated post office.
- 4.2.12.2.3 Volumetric information applicable to charging will be derived from counts of new and amended card details passed from CAPS.
- 4.2.12.2.4 Service level data relating to the interface will include CMS service availability for processing CAPS files and processing time as a component of the end-to-end card issue service.

Interface 2 : BA Offices-CMS

- 4.2.12.2.5 This supports interactive access from BA to enquire about customer card status and place restrictions or stops on card usage. CMS can provide this access for BA staff, subject to appropriate security constraints, although further discussion will be required on the technical options for implementing communications such as decisions on protocols and network routing.
- 4.2.12.2.6 Volumetric information relating to interface usage will be derived from counts of transactions types entered across the interface.
- 4.2.12.2.7 Service level data relating to the interface can include service availability, response times for enquiries and acceptance times for the processing of card stop requests.

Interface 3 : CMS - Card Production

- 4.2.12.2.8 This is an internal Pathway boundary between the card management and card production and delivery processes. It will utilise a secure communications link between Pathway's subcontracting organisations. Separate service levels for card production and delivery are identified in *Section 4.5 SR 4.23*, as components within the end-to-end service for new and replacement cards.

Interface 4 : CAPS - PMS

- 4.2.12.2.9 This interface supports file-based transfer of payment authorisation files to PMS and of payment encashment and expiry files to CAPS. In addition a transaction-based interface service will support urgent payment authorisations, payment stops, and enquiry transactions from CAPS to PMS. Other transaction notifications from PMS to CAPS to support card usage alerts and payment encashment alerts will require similar facilities.

-
- 4.2.12.2.10 It is envisaged that control totals will be used across this interface to detect discrepancies. Detailed validation requirements and exception procedures will be agreed between Pathway and BA. Further discussions will also be required on the technical communications options for supporting these flows.
- 4.2.12.2.11 This boundary must support transaction reconciliation between the parties and it is proposed that all operations across this interface be logged, in addition to the maintenance of an auditable database of the status of all payment authorisations and associated encashment (or expiry).
- 4.2.12.2.12 Transaction-based charging information will be derived from the use of this interface, specifically relating to the number of payments made, broken down by benefit type and timeliness (urgent/routine). Other factors include the number of enquiries made and the number of reports produced.
- 4.2.12.2.13 Service levels relating to the use of this interface are based upon the availability of the PMS service and its performance (response/throughput) as a component of the end-to-end Payment Authorisation Service.

Interface 5 : CMS - PMS

- 4.2.12.2.14 This interface is internal to Pathway and provides a formal boundary between the card and payment management services. The two functions supported are :
- a) PMS access to card verification data during the processing of payment authorisation data prior to its distribution.
 - b) A transactional interface to enable CMS to report card stop or monitoring events requiring an immediate update to the status of authorised payments.

Interface 6 : TMS - Central Services

- 4.2.12.2.15 This interface is designed to support generic operations between TMS and all central services (CMS, PMS, Value Added applications and central OSS applications) as well as to the various POCL clients and internal systems.
- 4.2.12.2.16 The TMS architecture supports a range of generic software agents to transfer information to and from TMS via the Riposte API. These include functions for file transfer and real time transactions. The Riposte API provides facilities for the use of retrieval indexes to support the extraction of information according to the needs of the particular host application.
- 4.2.12.2.17 Generic agents can be customised by the use of parameters to the needs of the individual, central or client applications or by adding the appropriate file transfer or transactional support. This will include support for XCOM, FTP or agreed alternatives to enable files to be transferred between TMS and the Host Polling Centre. This interface will be subject to service level constraints and reconciliation needs.

- 4.2.12.2.18 Pathway will use the TMS interface to extract information on transaction volumes and to provide audit and archiving facilities.

Interface 7 : Counter Interface - TMS

- 4.2.12.2.19 This is an internal Pathway interface to support the transfer of information between TMS and the counter interface. This interface is designed to be generic for all counter or back-office applications, using the Riposte API to support file and transaction operations. Transactions are automatically replicated to provide back-up and recovery. By specifying message priority, transaction replication to TMS and file transfer operations can be immediate, trickle-feed or deferred to a time deadline, typically end-of-day.

Interface 8 : Card Production - Post Offices

- 4.2.12.2.20 This is a procedural interface supporting the transfer of benefit cards between the card production service and post offices, where they are stored for subsequent issue to customers in accordance with the counter procedures. This interface will form part of the end-to-end service for card issue and will require agreement on security procedures for acknowledgement of receipt of card batches and their safe storage.

- 4.2.12.2.21 Each card batch will be bar-coded and this information will be read and returned to CMS to register receipt.

Interface 9 : Counter Interface - Post Office Clerk

- 4.2.12.2.22 This interface is the Human Computer Interface (HCI) between the counter infrastructure and system users within the post offices. Pathway proposes that a generic approach is used, based upon the graphical user interface style adopted for the ESNS application. This is built upon the Riposte Desktop, with the extensive use of peripheral-driven operations to minimise the use of the keyboard.

- 4.2.12.2.23 All counter and back-office applications within the Pathway proposal are based upon a generic HCI. We would expect to discuss and agree the details of the specific HCI components during the prototyping and demonstration phase and document this in an HCI style guide which will be used for all counter application development.

- 4.2.12.2.24 The baseline proposal incorporates a standard colour monitor, with the option of touch screen operation as an efficient alternative to keyboard usage. The HCI will support both options.

- 4.2.12.2.25 Service levels to be agreed will include discussion on availability and transaction performance.

**Interface 10 : Benefit Customer - CMS**

- 4.2.12.2.26 This interface allows the customer to report loss, theft or damage of cards to CMS via the help desk. It also supports the distribution of pick up notices to benefit customers.
- 4.2.12.2.27 Service levels will include an assessment of the system performance and help desk response.

4.2.13 PATHWAY SUPPORT SERVICES**4.2.13.1 INTRODUCTION**

- 4.2.13.1.1 Pathway will implement a set of support services to manage the availability and service quality for both the current and future service requirements. The principal services required for steady state are help desks and overall systems management.
- 4.2.13.1.2 These will be supplemented during the roll-out by a range of training and specialist support services. These are described in *Section 5 Steady State Services* and *Section 7 Roll-out and Implementation*.

4.2.13.2 HELP DESKS

- 4.2.13.2.1 Help desks are needed for a number of specialised areas, for example : card management, post office support for the software application, hardware support, and installation teams during the roll-out.
- 4.2.13.2.2 All calls will be handled through a single point of contact, the Pathway Call Reception Centre (PCRC), where the caller may ask for advice or for fault resolution. The PCRC confirms the identity, location and nature of the call, and the caller's entitlement to assistance. For example, a member of the public will have access only to the CMS help desk. The call is then automatically routed to the appropriate specialised help desk. An overview of Pathway's help desk structure is shown in *Fig. 12*.

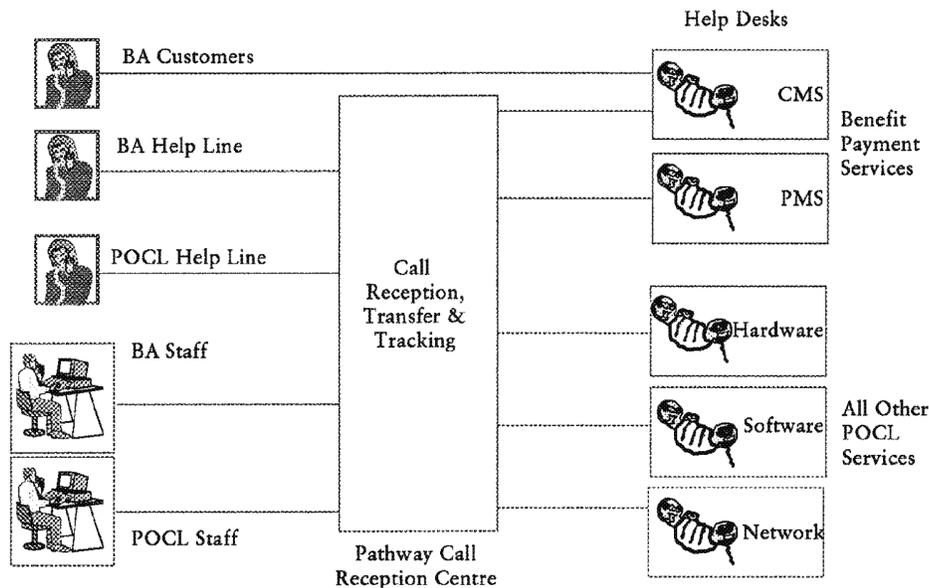


Fig. 12 - Pathway Call Reception Centre

4.2.13.2.3 Individual help desks will be backed up by support teams. The service management function covers configuration management, change requests, training, documentation requests, and so on.

Key functions of Help Desks

4.3.13.2.4 The key functions that will be provided by the help desks include :

- Call security identification
- Call categorisation, prioritisation and registration
- Progression to appropriate help desk or direct to support team
- Call follow-up and automatic escalation
- Regular reports (statistics, performance against SLAs)
- Ad hoc reports

SYSTEMS MANAGEMENT

4.2.13.3.1 The systems management functions consist of monitoring the in-built integrity features on all the managed components of the service, and checking that the operational processes are working effectively and efficiently. The major service areas include :

SECTION 4.2 - SERVICE ARCHITECTURE

1. **Daily operational control** The day-to-day operational control of the distributed system components (the equipment at the post offices, the networks, the correspondence servers) and the central system components including PMS, CMS and links to client systems.
2. **Help desk support** The recording and progression of problems.
3. **Operational statistics** Covers operational statistics on transaction types and volumes, system incidents, resource usage and performance (deadlines and responses).
4. **System security** Covers auditing of the privacy and security aspects of the system, data back-up recovery and archiving.
5. **Configuration management** Needed on all components.
6. **Software distribution** Installation and configuration version control.
7. **Change controls** This covers the controls needed for system enhancements, post office changes and new installations during the roll-out phase.
8. **Billing and service level reporting** Relates to contract management and service level agreements.

4.2.14 SUMMARY

- 4.2.14.1 Pathway has analysed the performance characteristics and service qualities required for each of the components of the service architecture. Using the results of this analysis Pathway has created a design which is resilient, secure and extensible. The service architecture proposed by Pathway is cost effective both in terms of initial investment and ongoing operation.
- 4.2.14.2 Pathway has chosen a centralised Payment Management System and a distributed authorisation service for the Benefit Payments Service. No single or multiple infrastructure failure can completely disrupt the BPS. As a result Pathway guarantee the payment of benefit to legitimate customers at all times.



SECTION 4.2 - SERVICE ARCHITECTURE

-
- 4.2.14.3 The architecture has unique advantages in terms of its resilience and the low cost associated with extending the infrastructure at the point of service delivery. This includes the addition of new post offices and increasing the number of counters at particular offices. This extensibility will support business-volume growth without major impact within the overall end-to-end service.
- 4.2.14.4 By using generic interface components at all levels, the architecture will support new business development without the need for large-scale developments at any point within the service architecture.
- 4.2.14.5 Pathway's design is based on the extensive and unique knowledge that Pathway brings to the business and service requirements of BA and POCL. It is also built upon an in-depth understanding of the social environment within which these services will be operating. Customer acceptance issues have been researched by Pathway and the service architecture has been refined to take account of these issues.
- 4.2.14.6 One component of the service architecture, the choice of benefit card, is a balance between customer acceptance, usability, cost and resistance to fraud. Magnetic cards are highly acceptable but as smart card usage grows their superior capability will be accommodated within the service architecture.
- 4.2.14.7 Pathway proposes a workable and low-risk system and service components. Pathway has a dedicated organisation which will manage each of these system and service components in a seamless and professional manner to meet the needs and objectives of BA, POCL, their customers and clients.



SECTION 4.3 - POCL STRATEGIC INFRASTRUCTURE SERVICE

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4.3 POCL STRATEGIC INFRASTRUCTURE SERVICE

4.3.1 INTRODUCTION

4.3.1.1 This section describes Pathway’s proposal for the POCL Strategic Infrastructure. The section is organised to provide an overview of the proposed infrastructure and follows with a description of the components of the infrastructure in detail.

4.3.1.2 This section contains the following principal sections :

- An overview of the complete strategic infrastructure proposal and the Riposte system on which the infrastructure is based
- Pathway’s proposal on the generic transaction approach
- A detailed discussion on the transaction management system and the functionality provided by Riposte
- A discussion on the counter interface and how the Pathway solution is suitable for the wide variety of counter staff
- A mapping of the BA/POCL information needs and how they will be satisfied

4.3.2 SUMMARY OF POCL STRATEGIC INFRASTRUCTURE PROPOSAL

4.3.2.1 INTRODUCTION PATHWAY’S STRATEGIC INFRASTRUCTURE PROPOSAL

4.3.2.1.1 It is Pathway’s sole mission and objective to deliver the end-to-end service and to provide value for money throughout the life of the contract. In providing the strategic infrastructure for post offices, Pathway will provide competitive advantage to POCL by enabling POCL to provide improved service to all their clients and in particular will enable POCL to provide an improved payment delivery mechanism for benefit payments. Our infrastructure enables POCL to support all of the current post office products (and is future proofed to support new products as they are created). The infrastructure also allows POCL to migrate existing functionality to the new infrastructure. The proposed infrastructure supports the achievement of the following POCL critical success factors :

This critical success factor :	Will be given this Pathway support :
Adherence to industry standards	All of the hardware, peripherals and software proposed by Pathway is of industry standard, giving POCL a high degree of flexibility in the choice of future counter equipment
Affordability	Pathway has chosen a PC architecture based on Microsoft and Intel products to deliver the POCL Strategic Infrastructure. This is the most cost-effective route for processors, related peripherals and application development



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This critical success factor :	Will be given this Pathway support :
Business development	Pathway’s proposal will allow POCL to seek out new business and will encourage clients to conduct business with POCL, due to the highly efficient nature of the solution and our capability for rapid roll-out of new services
Customer service	Pathway’s proposal will maintain and enhance customer service by providing a high level of accuracy in data capture and by improving the speed of transactions at the counter.
Profitability	Pathway’s solution will contribute to the profitability of POCL by removing operational costs and adding operational integrity to the business environment
Support existing information strategy	Pathway’s proposal clearly supports the POCL Information Systems Strategy
Universality	Pathway’s solution can be implemented at every post office. Pathway can also propose alternatives as needed, bearing in mind the desire for the critical success factor of Affordability. This may be appropriate in small/rural post offices
Versatility	Our proposal allows for the addition of new peripherals to support new services and as it is based on the most commonly available hardware and operating system software, support for future needs is guaranteed

4.3.2.1.2 The transaction management system and the counter interface components of the strategic infrastructure are based on PC hardware and the Microsoft product set. The transaction environment is provided by Riposte, which is described in overview in *Section 4.3.2.5*.

4.3.2.2 OVERVIEW OF THE TRANSACTION MANAGEMENT SERVICE

4.3.2.2.1 The function of TMS is to accept transaction information from the counter applications and to provide guaranteed replication of this information at the central server level. It is also responsible for the distribution of information from a central location to individual post offices. The transaction details are captured by counter applications and are passed into Riposte. The Riposte system ensures that every transaction is executed in an accurate, secure and auditable fashion.

Functions provided by TMS

- 4.3.2.2.2 TMS is responsible for moving data between central sites and the post offices. Data movement is both inbound and outbound.

Inbound Data Flow

- 4.3.2.2.3 TMS accepts data from the counter applications. This data is formatted in a particular format and is passed to the journal message store as a journal message. Periodically the journal messages are replicated to the central location. The messages are then passed to client systems following formatting or other processing.

Outbound Data Flow

- 4.3.2.2.4 TMS accepts data from client systems at a central location. The information is then distributed to local post offices and made available to the counter applications. The information being distributed from the central site includes payment data, configuration information and information related to variable prices or rates.
- 4.3.2.2.5 Riposte guarantees that the transport of data is carried out in a secure and fully auditable manner. In particular TMS will provide :
- Security of data (digital signature and/or data encryption)
 - Recovery and back-up facilities
 - Interface to client systems
 - Interface to counter applications

The TMS and the Counter Interface Boundary

- 4.3.2.2.6 The boundary between TMS and the counter interface is represented graphically in *Fig. 1* below :

SECTION 4.3 - POCL STRATEGIC INFRASTRUCTURE SERVICE

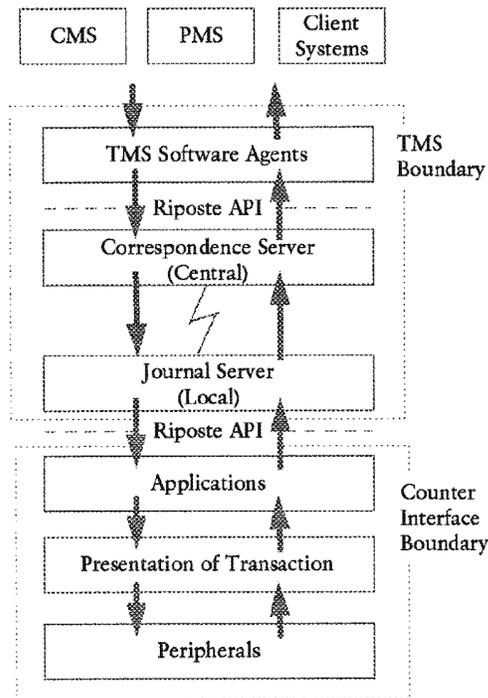


Fig. 1 - TMS & the Counter Interface Boundary

4.3.2.3 OVERVIEW OF THE COUNTER INTERFACE

4.3.2.3.1 The counter interface is the means by which the counter staff at the post offices interact with the counter system. The interface covers the :

- Visible face of the software, which reinforces the counter staff's conceptual model of the transactions being executed
- Data capture component of the interface, which is the interaction of the counter staff with the peripherals on the desk
- General human-factor engineering of the entire countertop
- Interaction of the counter staff with customers

4.3.2.3.2 Factors that affect the conceptual model include :

- Presentation of information
- Readability of information
- Ease of navigation
- Speed of response
- Logic of the approach
- Accuracy of the system
- Ergonomics of the workplace

SECTION 4.3 - POCL STRATEGIC INFRASTRUCTURE SERVICE

4.3.2.3.3 The counter interface is the visible presentation of all transactions to the counter staff and customers. The counter interface functions include :

- Provision of an electronic workspace for the execution of counter processes
- Provision of security and access controls
- Data capture using a wide variety of peripherals
- Applications to process the required transactions

4.3.2.4 OVERVIEW OF OPERATIONAL SUPPORT SERVICES

4.3.2.4.1 POCL has specified that the operational support services required as part of the procurement are :

- Outlet Remuneration and Reconciliation
- Reporting and MIS

4.3.2.4.2 Pathway will provide a set of reporting modules at the counter which will provide summaries of transactions to assist the teller in balancing. A 'batching' facility also exists which is used by An Post to produce a summary of each of the automated products after a certain number of transactions have been produced. This facilitates balancing by the counter staff.

4.3.2.4.3 When all office products are automated the production of the cash account will be a highly efficient process relying on summaries produced as part of the counter staff's end-of-day activities. In the transition period where there are both automated and non-automated products at the counter, Pathway will incorporate the functionality of Capture and ECCO+ to enable the cash account to be produced.

4.3.2.5 OVERVIEW OF RIPOSTE ARCHITECTURE

4.3.2.5.1 While the components of Riposte are described in detail later in this section, it is useful to give an overview of the overall design at this point, to promote understanding.

4.3.2.5.2 Riposte is implemented as a distributed and replicated message-based architecture. The Riposte messaging architecture is designed to provide a high level of resilience at very low cost. This is achieved by using a peer-to-peer messaging protocol to maximise system availability and reduce overall cost of ownership by using widely available hardware and industry-standard software components. The system consists of two layers which are presented graphically in *Fig.2* below :

SECTION 4.3 - POCL STRATEGIC INFRASTRUCTURE SERVICE

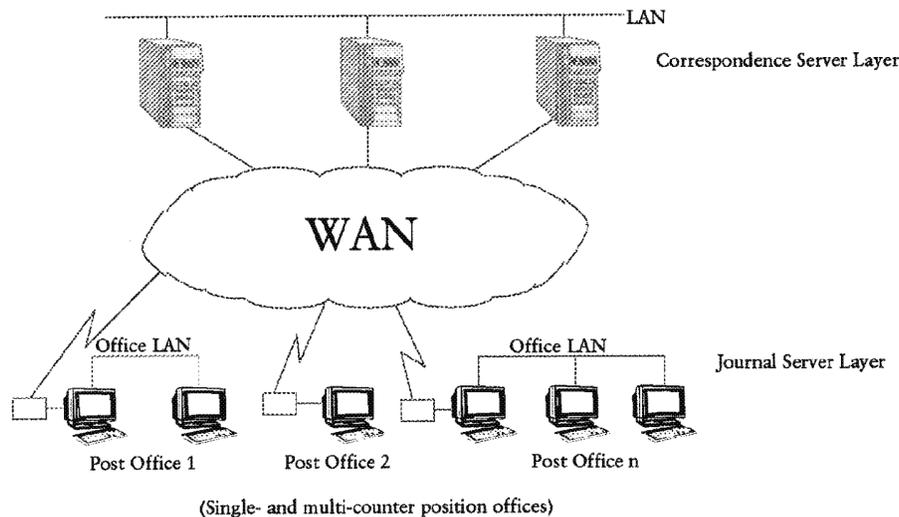


Fig. 2 - The Two Layers of Riposte Architecture

Correspondence Server Layer

4.3.2.5.3 The major functions of the correspondence layer are :

- Distribution of payment data (files) to the relevant post offices to allow card-based payments to be made
- Capture of all transaction messages related to benefit payments, bill payments, and other applications
- Replication of messages across other correspondence servers to support back-up and recovery facilities
- Provision of broadcast facilities to support enquiries and other on-line transactions
- Provision of software agents to provide transaction details to various client systems

Journal Server Layer

4.3.2.5.4 The major functions of the local layer are :

- Presentation of transactions to counter staff in an intuitive fashion
- Support of a wide range of peripherals needed to enable electronic transactions
- Capture of all transaction details to support reconciliation and audit
- Replication of transaction messages to all other office workstations to support back-up and recovery

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- Replication (on-line or trickle-feed) of transaction messages to the correspondence server layer to support central functions and to provide additional recovery facilities

4.3.2.5.5 Single workstations where journal messages are not replicated to other local workstations are considered to be a special case. In this situation an alternative strategy, such as replicating messages to a second hard disk, can be implemented (this is similar to implementation on the ALPS project). Other recovery strategies can also be considered in this special case.

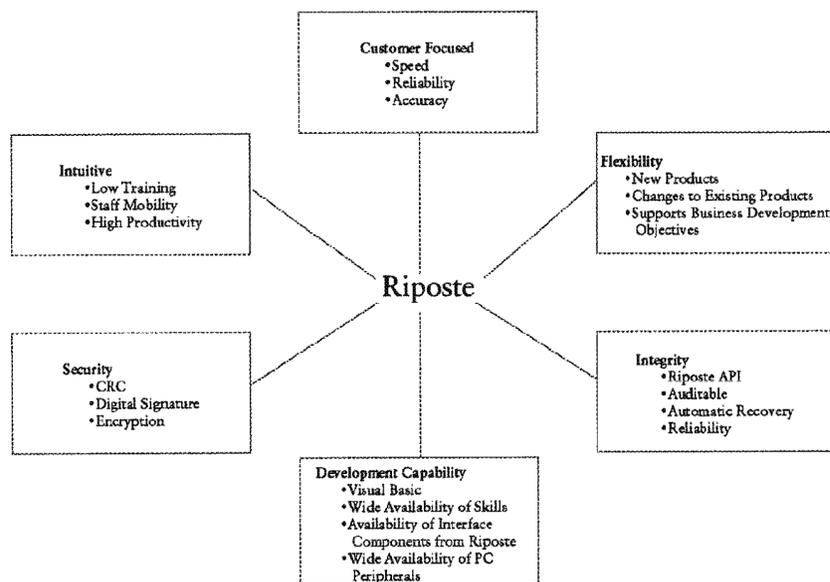


Fig. 3 - The Benefits of using Riposte as part of POCL Strategic Infrastructure

4.3.3 GENERIC APPROACH

4.3.3.1 INTRODUCTION TO PATHWAYS PROPOSAL FOR A GENERIC APPROACH

4.3.3.1.1 Pathway supports POCL's objective of realising all of the counter applications through the use of generic transactions. Riposte is based on a generic transaction concept. All transactions fall into the categories of 'in-payment' or 'out-payment'. Riposte also supports 'transactions' where there is no monetary value involved. This could be a query on an account or the posting of interest to a savings account book or a request from a benefit customer to change their nominated post office.

4.3.3.1.2 All transactions are implemented using counter applications and Pathway is taking account of POCL's desire to use applications that are currently in existence.

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4.3.3.1.3 Supporting these two objectives, Pathway proposes a development of POCL's 'Generic' model. This development is primarily concerned with the implementation of applications on the counter. Pathway proposes grouping applications into generic types. Generic types of transactions are transactions that are logically similar. For example, all bill payment transactions are similar and hence it is easier to implement a generic bill payment application.

4.3.3.1.4 'Generic applications' are listed below with a statement of their current status :

Generic Applications	Status	Principal Functions
Benefit Payment	Currently in use for magnetic stripe card-based payments	Positive Authorisation Stop Application Emergency Payments Household Budgeting
Transcash (in-payment and out-payments)	Currently in use for magnetic stripe card-based bill payments, OCR-based bill payments and bar-coded bill payments, cheque cashing and postal order cashing	Supports a wide variety of bill formats and multiple/mixed payment types
Savings Account	Currently in use for book-based Savings Account	On-line account look-up Interest Posting Electronic Funds Transfer
Investment Products	Currently in use for Savings Bonds, Savings Certificates and Instalment Savings products	Includes a sales aid to assist counter staff to provide information
EPOS	Prototype available now. Delivery scheduled Q1 1996	
Postal Applications	Delivery scheduled Q1 1996	
Stock	Delivery scheduled Q2 1996	

4.3.3.1.5 Proposed groupings are mapped against transactions in the following table. (In this instance Transcash is defined as any in-payment or out-payment supported by a voucher.) Exact groupings will be agreed with POCL.

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Logical grouping of transactions

Transactions	Groupings					
	Benefit Payment	Transcash	Savings Account	Investment Products	Postal Service	EPOS & Stock
Benefit Payment	√					
Issue of first card	√					
Change of address	√					
Bill Payment		√				
ECCO+ replacement						√
Benefit OB Distn	√					
BT bill payments		√				
Cash cheque		√				
COD delivery service					√	
Compensation Fee parcel					√	
Datapost					√	
Deposit			√			
DVLA V11		√				
Electricity tokens						√
Franking machine meters					√	
Girocheque		√				
National Saving Certificates				√		
New account			√			
Packets/parcels					√	
Postage stamps						√
Postal Order encashment		√				
Postal Order sale						√
Poste Restante					√	
Premium Bond repayments		√				
Rail cards						√
Recorded Delivery					√	
Registered Delivery					√	
Savings bank account			√			
Saving stamps (sales)						√
Saving stamps (redeem)		√				
Transcash (general)		√				
TV licence		√				
Undelivered Mail items P739					√	
Withdrawal			√			

4.3.3.2 DEVELOPMENT OF THE POCL GENERIC APPROACH

4.3.3.2.1 Having established that the transaction should be grouped logically into similar types, Pathway proposes to create generic parameter-driven modules for each generic transaction type. These modules will be based on applications already in use.



SECTION 4.3 - POCL STRATEGIC INFRASTRUCTURE SERVICE

4.3.3.2.2 The Riposte architecture proposed by Pathway has, in itself, a high degree of generic functionality. Every transaction developed will use the Riposte environment and will therefore benefit from all of the audit, security, reliability and recoverability features inherent in the Riposte architecture.

4.3.3.3 **ADVANTAGES OF THE EVOLVED POCL GENERIC APPROACH**

4.3.3.3.1 Pathway supports the generic approach for the following business reasons :

- Easier to navigate manually through the transactions
- Easier and less costly to develop when dealing with transactions of a similar nature
- Easier to implement specific interface requirements for transactions of a similar nature
- Simpler construction of parameter files for similar transactions
- Faster roll-out of new applications is enabled by the distribution of new parameter files. This can be done by using the Riposte architecture
- Lower start-up costs than with a total 'Generic' approach
- Lower risk is involved because it is based on existing production applications already in use

4.3.3.3.2 Some of these advantages are very important in making the applications acceptable to counter staff. Two of these importance features are explored further :

Manual Navigation

4.3.3.3.3 Using the logical grouping approach facilitates navigation through the applications by the counter staff in the event that manual navigation is required. The Riposte environment is normally driven by the occurrence of external events. To activate a particular transaction the counter staff swipe a magnetic card, read a smart card, scan a bar code or read an OCR line. This external event automatically navigates the counter staff to the relevant application and initiates the printing of a receipt, or carries out other relevant actions. During normal operation, counter staff need little information about how to navigate through applications.

4.3.3.3.4 Our proposal to group similar transactions into logical groupings is important where the external event fails to navigate the counter staff automatically to the relevant application. (Such a failure could be due to card damage, failure to read the OCR line because it is smudged or creased, or failure of the counter-top peripheral itself.) In this scenario the counter staff can navigate to the relevant transaction screen by using the keyboard or touch screen depending on hardware chosen. The transactions are then presented in order of likely occurrence, and the counter staff select the application and key in the card number or details as appropriate.

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Consistent User Interface

- 4.3.3.3.5 In addition to the proposed logical grouping of transactions, Pathway proposes logically consistent user interfaces that vary depending upon the transaction involved. This philosophy is explored further in the description of Pathway's development approach. In particular, all transactions will have a similar consistent and recognisable interface. The development ensures that the interface is appropriate to the transaction being executed. Some examples of this approach are described below.
- 4.3.3.3.6 During the benefit payment process the counter staff make (for a normal positively authorised transaction) only one keystroke (or one touch on the touch screen) to complete the transaction.
- 4.3.3.3.7 A normal, positively authorised transaction follows this pattern :
1. The magnetic card is swiped.
 2. The stop list of cards and payments is checked; payment details are retrieved; a receipt prints.
 3. The counter clerk confirms payment on the screen.
- 4.3.3.3.8 The only interactions the counter staff have with the system are to swipe the card and confirm (or not) the payment. (The counter staff will also carry out other validation checks such as signature verification - this is not an interaction with the system.) A very specific and simple interface is required. This simple interface supports the desire to process counter transactions as quickly as possible.
- 4.3.3.3.9 In contrast, for a withdrawal from a savings account, the counter staff electronically read or key in the account number. The book balance is confirmed and the counter staff key in the withdrawal amount. In this scenario there is greater interaction with the system, and an appropriate interface is needed.
- 4.3.3.3.10 In the case of stamp sales, counter staff input the types and quantities of stamps needed. In the case of a postal service application, the choices offered by POCL and the cross-selling of other services needs to be supported by the interface. These other postal services include :
- Guaranteed delivery
 - Air/land
 - Registered
 - Insured



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4.3.3.3.11 Again, there is a significant difference in the level of interaction needed in delivering this customer service from that in a straight in-payment. Similar considerations need to be taken into account where counter staff are involved in the sale of investment products and the system must support and guide them through delivery of customer service.

4.3.3.3.12 In light of the above, Pathway wish to confirm that the generic transaction approach is valid but that its deployment will be different to that proposed by POCL in the SSR. This difference is significant but reflects the true nature of POCL's business. POCL is not just a retailer dealing with off-the-shelf products. POCL is also a provider of services and the infrastructure must enable the delivery of customer service, while supporting POCL's business development objectives.

4.3.3.4 BILL PAYMENTS

4.3.3.4.1 This example of Pathway's generic approach is based upon the bill payment module used at An Post in Ireland. There is no apparent difference in functionality compared to that required in the UK. It conforms to the proposed functional generic design and is in use today, satisfying the POCL goal of re-using proven applications.

4.3.3.4.2 The complete bill payment process is driven by parameters. This enables new bill types to be added for existing or new clients, without re-programming, which reduces the risk of bugs. In addition, the parameter file can be distributed to local post offices using the Riposte architecture, thus eliminating a software distribution problem.

4.3.3.4.3 Each bill is defined by an entry in the parameter file. The format of this entry is :

A = B, C, D, E, F, [G], [H], [I], [J], [U]

Parameters B to F must always be present. The other parameters are used to describe more fully the details of the bill payment transaction. A simple bill payment can thus be described as follows :

```
33109=,Standard,In,Transcash,Both,
Full+Mod10,8,8,10000000,89999999,7.70,88.00,,,,,,CABLE.bmp,
&CableCompany
```

4.3.3.4.4 The parameters are used to describe the nature of the bill payment being automated and they include :

- The transaction code
- The text describing the transaction
- The MSR/OCR or bar code format
- The transaction type (in-payment or out-payment)



SECTION 4.3 - POCL STRATEGIC INFRASTRUCTURE SERVICE

- The application name to be recorded in the journal entry
- The check digit calculation
- Maximum/minimum length of acceptable account number
- Minimum amount payable on bill
- Maximum amount accepted without warning
- Whether personal details (name and address, etc.) must be captured
- Whether there is an additional fee to be collected
- Whether a company logo for the client is to be displayed on the screen during the transaction

4.3.3.4.5 The use of the generic approach as described in the above section will have a positive impact on the timescale as it will to a large extent be using or will be based on applications already in use.

4.3.3.5 ECCO+ REPLACEMENT

4.3.3.5.1 As with Bill Payments, an application built to the generic design standard already exists. The functional fit will be less than that of Bill Payments, but should be better than 50% as a minimum, and could be as high as 70%.

4.3.3.5.2 More work is required to qualify the work required to meet POCL's requirements, but the elapse time to completion is estimated at not more than eight weeks.

4.3.3.6 ENHANCED ESNS BENEFIT AGENCY SYSTEM

4.3.3.6.1 Pathway has a clear view as to how the Electronic Stop Notification System (ESNS) as implemented for ALPS could be strengthened ahead of positive authorisation being available, which will depend on the availability of CAPS. At present the ESNS system is based on negative authorisation. Possible strengthening of the ESNS system which can be agreed with BA and POCL will include :

- Capture of payment book details including number of payable orders at point of issue
- Verification of encashments against the database of payment books issued
- Management of foreign payments electronically with on-line verification of all books not issued at office of encashment

4.3.3.6.2 The above proposals are based on upgrading the existing ESNS business processes and software infrastructure. As an alternative, in advance of the availability of CAPS, Pathway will consider taking payment information from BA to enable limited function card-based payments. This could involve the interception of the electronic print stream and the creation of payment records for distribution to the post offices.

4.3.3.6.3 Pathway through ICL (the contractor on the ALPS project) is well positioned to implement any or all of the above enhancements to the ESNS.

SECTION 4.3 - POCL STRATEGIC INFRASTRUCTURE SERVICE

4.3.3.6.4 Pathway is also investigating the possibilities of reading the counterfoil plain text electronically and therefore allowing full reconciliation without upgrading the paper-based system.

4.3.4 TRANSACTION MANAGEMENT SYSTEM

4.3.4.1 INTRODUCTION TO TMS

4.3.4.1.1 The key objectives of Pathway's proposed architecture for supporting POCL are :

- To provide a stable and flexible environment that facilitates the growth in volume of existing transaction types and the introduction of new transactions with a minimum of change
- To provide a secure environment that is resistant to fraud
- To remove operational costs and add operational integrity
- To support full audit and reconciliation of all transactions
- To provide an environment that facilitates optimum performance of staff, network and equipment
- To support the sharing of functionality among application subsystems
- To support a speedy response to business needs
- To provide an environment requiring minimum maintenance

4.3.4.1.2 Pathway is using the Riposte system from An Post/Escher as an integrated component of the solution because it provides a high degree of support for the above objectives. The transaction management system has a functional objective to take the transaction from the counter system and convey it to the designated client system in a secure and auditable manner. The facilities of Riposte will enable this functionality and in addition will enable POCL to provide additional value to clients while satisfying its own internal needs.

4.3.4.2 INTRODUCTION TO RIPOSTE

4.3.4.2.1 Riposte provides a framework to allow for the easy development and implementation of complex financial transactions. Riposte provides an environment that ensures every transaction is implemented in a secure, auditable, reversible and, when required, recoverable manner. Because of its unique design, Riposte can handle every new transaction in the same consistent manner, regardless of its complexity. By using the Riposte framework POCL can guarantee that every transaction embodies the same high level of security and financial integrity. A graphical representation of the Riposte components is shown in *Fig.4*.

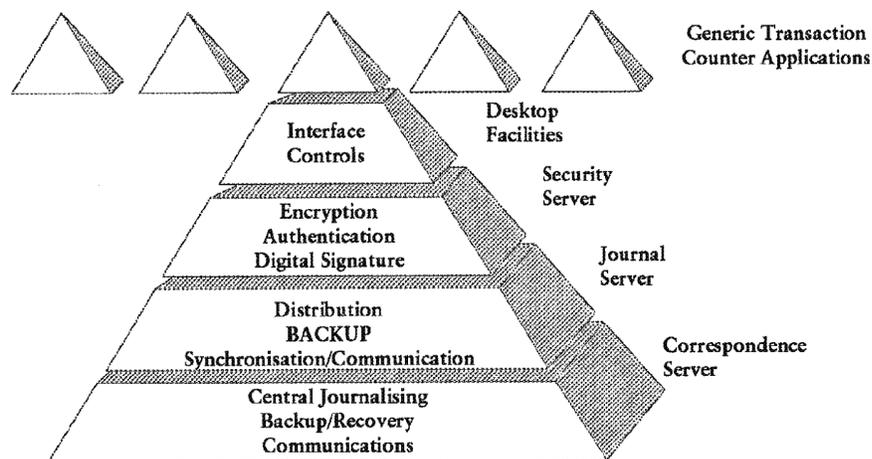


Fig. 4 - Overview of Riposte Components

4.3.4.3 RIPOSTE - DESKTOP

4.3.4.3.1 The Riposte Desktop is a very important keystone in the transaction development environment. The Riposte Desktop is an application development standard. Using the Desktop the customer application has access to state-of-the-art interface controls. These controls enable the application developers to provide a very intuitive application which is consistent across all transactions. The Desktop also provides for rapid application prototyping, which encourages a more interactive application design methodology. It provides users with an early view of the application, ensuring buy-in at an early stage and therefore helping to achieve one of our major goals - user acceptance.

4.3.4.3.2 Desktop development aids and features include :

- Context-sensitive help balloons
- Elevator control button menus
- On-screen keyboard
- Action lists
- Desktop buttons
- Overlaid image labels

4.3.4.3.3 Desktop provides a suite of software agents for device management. These facilitate the integration of various peripheral devices into the counter applications. These software agents free the application developer from tedious system development. Typically transactions include the use of magnetic swipe readers (MSRs), optical character recognition (OCR), bar code readers, magnetic ink character recognition (MICR), smart card readers and printers.

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4.3.4.4 RIPOSTE - SECURITY AND INTEGRITY

4.3.4.4.1 As required by any financial transaction environment, Riposte provides security at many levels within the application. Riposte's security server facilities provide security and integrity normally associated with transaction environments, including :

- User authorisation and password security
- Access control
- Digital signature
- Encryption of data, as required
- Integrity, including 32 bit Cyclic Redundancy Checking (CRC)
- Authentication to ensure that distributed files have not been tampered with

4.3.4.5 JOURNAL SERVER

4.3.4.5.1 The journal server is a critical component of the Riposte software. The journal server manages the journaling, data distribution and data replication functions at a local level within a post office. In the situation of a single-counter office and where a workstation is designated as the communications workstation (normally position 1 in the LAN is designated as the communications workstation), then the journal server is also responsible for managing communications with the central correspondence servers and replicating messages to the correspondence server.

4.3.4.5.2 The journal server also provides a set of independent functions for administering data integrity, including the application of CRCs at a transaction level. The journal server may operate in an environment where there is a permanent on-line connection to a remote (central) location or in a situation where only periodic dial-up facilities are provided. The journal server operates in a transaction environment where there is one or more local workstations.

4.3.4.5.3 This workgroup represents a typical front-office transaction configuration. The journal server operates on all workstations in the workgroup, however a single workstation handles the wide area network communication functions. Multiple network protocols and topologies are supported. Pathway is proposing ISDN as the preferred method for communication with post offices.

4.3.4.5.4 Each workstation in the journal server workgroup has information about its neighbours, (see *Fig.5*) comprising the name and address of each of their nodes. The communications workstation has information about a remote node, in other words, the correspondence server.

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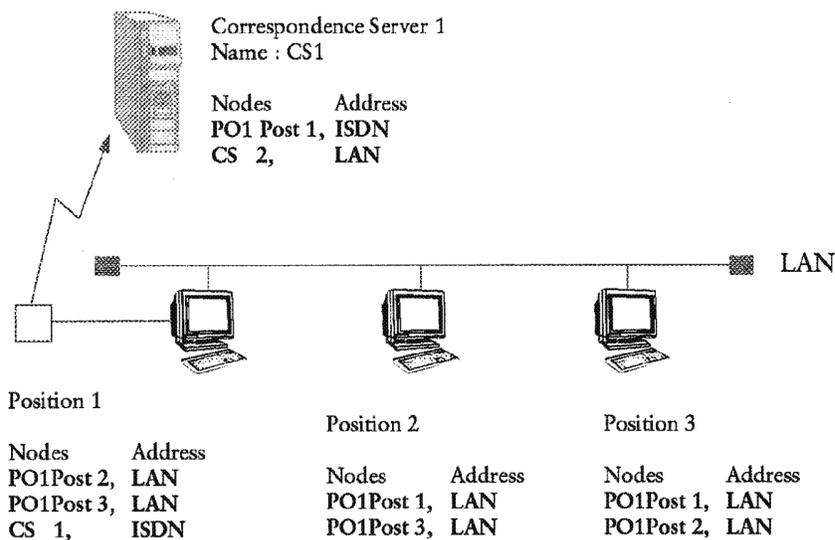


Fig. 5 - Overview of a Journal Server Workgroup

4.3.4.5.5 Using the node information, every message generated at one of the positions is replicated to all the known nodes in the node list.

Attribute Grammar

4.3.4.5.6 Attribute grammar is the technique used for storing data within the Riposte environment. In particular, each journal message is in attribute grammar format. In attribute grammar both the description of the data item and its associated value are stored in the data file. Using attribute grammar allows message formats to be changed or new messages for new applications to be added without modifying the applications already in use at the counter. The facility allows software upgrades to be implemented on a rolling basis, and adequate field testing on a small sample of offices in parallel with ongoing operation, if desired.

4.3.4.5.7 The structure of journal messages generated by different applications can vary greatly but the messages are processed in precisely the same manner. This allows POCL to specify at an application level the information to be captured by any particular transaction at the counter. Riposte will cater for virtually an unlimited number of attributes.

Sample Journal Message Attribute Grammar

```
<Message:<Group:GROF3050><Node:POST1><Id:1><Num:38210><Date:23-Jun1995>
<Time:08:57:39><User:ANNE><Debit:6100><Application:Postdraft><TranDate:23-Jan-1995>
<Data:<PaymentNumber:B9232765><NINO:5146317654><RecipientName:JOHN LANDIS>
<TranType:Cashed><ReceiptsPrinted:1><OcrData:<Date:3050><AcctNo:00029873952>
<Amount:6100><TranCode:98034>><File:PAY00146.TXT>><CRC:5395E710>>
```



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4.3.4.5.8 Attribute grammar is also used to describe the data elements that make up other information files, for example benefit payment files.

4.3.4.6 KEY FUNCTIONS PROVIDED BY JOURNAL SERVER

4.3.4.6.1 The functions provided by the journal server are described in the following sections :

Audit Trail Of all Transactions

4.3.4.6.2 As each counter application performs a transaction, it informs the journal server via the Windows DDE (Dynamic Data Exchange).

4.3.4.6.3 The transaction sent to the journal server is formatted as a single text string called a journal message, but the content of each journal message varies depending on the application and the transaction. The following is a typical example message :

```

POST OFFICE ID
POSITION ID
TRANSACTION ID
DATE
TIME
USER
APPLICATION
TRANSACTION DETAILS 1
.
.
.
TRANSACTION DETAILS N

```

4.3.4.6.4 Transaction details for a typical out-payment can include :

- Payment ID : A unique payment number
- Debit amount : Amount paid
- National Insurance Number
- Transaction type : Out-payment
- Transaction code : Specific benefit ID
- Receipt details : If one or more receipts were printed
- Keyed ID : If keying of the transaction took place
- Keyed Reason : The reason the transaction had to be keyed

4.3.4.6.5 The journal message is output to the local workstation journal file, and replicated to all workstations in the journal workgroup. The message replication concept is illustrated in the *Fig. 6* below.

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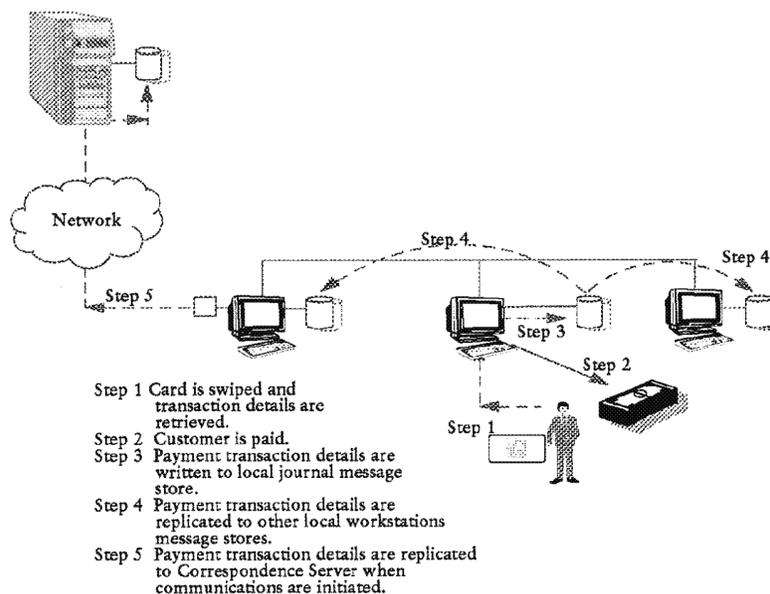


Fig. 6 - Message Replication

Journal Entries and User Security Validation

- 4.3.4.6.6 A cyclic redundancy check (CRC) is applied to all journal entries. On receipt of a request for an entry, the journal server validates the CRC on the entry before returning it to the application.
- 4.3.4.6.7 All user authorisation functions are logged to the journal file including logon, logoff, add user, modify user and delete user. Password management and password expiry are also delivered by the journal.

User Authorisation

- 4.3.4.6.8 The Desktop provides facilities to maintain and control user access to the system. Multiple user types are supported and access to different functions can be restricted by these user types. Complete control over password changes (for example, minimum password lengths, preventing re-use of old passwords) and automatic password expiry are also provided. Users are informed prior to password expiry. The Desktop also provides password encryption.

Logon processing

- 4.3.4.6.9 The Desktop prevents a user from simultaneously logging on to multiple workstations within the same workgroup whenever it can positively confirm that the user is logged on to another workstation.
- 4.3.4.6.10 Whenever an asynchronous event (an asynchronous event includes the swipe of a magnetic card or the reading of a bar code) occurs while no user is logged on, the Riposte Desktop automatically prompts for a user logon.



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Synchronise all Workstations on the LAN

- 4.3.4.6.11 On receipt of a journal message from an application running on the current workstation, the journal server replicates that transaction, via Windows DDE, to the journal servers running on the other workstations on the office LAN. On receipt of the journal message, each workstation journal server writes it to its own local journal file.
- 4.3.4.6.12 At regular intervals each workstation in a journal server workgroup sends a state message to all other workstations in the workgroup. The state message contains information about the workstation's current state and the last known state of each of the other workstations. Specifically the state information refers to the last journal message sequence number.
- 4.3.4.6.13 On receipt of the state message, the individual workstations check the state information. If the last known journal message sequence number indicates that journal entries are missing from one or more of the other workstations, then the workstation requests them. Using this facility all workstation journals on the LAN remain synchronised.

Synchronise the Office Workgroup and the Correspondence Server

- 4.3.4.6.14 Every workstation in a journal server workgroup (in other words, on the same LAN) knows the ID and address of all other workstations in the workgroup. This is the way the LAN synchronisation described above is carried out.
- 4.3.4.6.15 In each office one workstation is nominated the communications workstation. This workstation knows about all local workstations and in addition it has node and address information about a correspondence server. The result of this is that all transactions performed at the office, on all workstations, are forwarded to the correspondence server. In an on-line environment this replication takes place continuously. In the situation where offices are off-line, the replication to the correspondence server takes place whenever communications are established.

Synchronisation of the Date and Time on all Workstations

- 4.3.4.6.16 The journal server provides a function that synchronises the date and time on each PC in the office with the date and time on the correspondence server.

File Distribution

- 4.3.4.6.17 File distribution on the journal server supports the distribution of files from the correspondence server and the replication of them across all workstations in the LAN. Typically these files contain either payment information data or information controlling the operation of the counter applications, such as parameter files.

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4.3.4.6.18 To distribute a payment file from a central correspondence server to an office, the system completes the following steps :

1. The correspondence server creates a CREATE file journal message, places it in the journal file, and places the file in a data directory.
2. Upon synchronisation, the post office communications workstation recognises a state mismatch with the correspondence server and updates its local journal with the journal messages from the correspondence server.
3. Upon receipt of the CREATE file journal message, the workstation checks for existence of the file locally. If it does not exist it requests and downloads the file.
4. In the same way, all other workstations in the journal server workgroup detect the CREATE file journal message and replicate the payment file from the communications workstation.

File Deletion

4.3.4.6.19 In a similar manner to file creation, when a file is to be deleted, a DELETE entry is logged in the journal and acted on by each of the workstation journal servers.

Recovery

4.3.4.6.20 In the situation where there is a state difference between journals on the local workgroup LAN and the correspondence server journal, the synchronisation process takes place as described above. An extreme case of this situation is where the journal needs to be completely restored. Such a situation may arise in the unlikely event of a hard disk failure or the destruction or theft of the workstation.

4.3.4.6.21 In this situation the faulty workstation is typically replaced by one with the operating system and application software already installed. The only further information that needs to be added is the personality information relating to the workstation. This includes identification information and information about other local workstations and correspondence servers. The journal file will however be absent. In addition to recovering the journal messages from all other workstations it must recover the messages that originated from the failed workstation.

4.3.4.6.22 The recovery is handled using the synchronisation protocol, with the exception that no new messages can be generated by the new or replaced workstation until all the messages originated by its predecessor are fully recovered. It is not necessary to recover all messages originated at other workstations before commencing operations, as these will be recovered as part of the normal synchronisation process.

4.3.4.6.23 No central or local human intervention is required to complete this recovery process. As well as recovering the journal file, other information such as payment files is also recovered.

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- 4.3.4.6.24 A special case of recovery is needed for catastrophic failure of a workstation in a single-counter office. If dual hard disks are not supported (as in the ALPS project), when the workstation is replaced, the journal server detects the absence of the journal file and recovers the complete journal from the correspondence server.
- 4.3.4.6.25 In the scenario where all workstations in a multi-counter office suffer catastrophic failure such as fire, flood or theft and need to recover, the communications workstation recovers from the correspondence server and the other workstations recover from the communications workstation in parallel.

Provide on-line Services from Post Offices to Central Systems

- 4.3.4.6.26 A journal message is generated by the application requiring the on-line service. This message is replicated over the office workgroup. When received by the communications workstation, the message is recognised as 'on-line', the communications channel is opened and the message is again replicated to the correspondence server. On arrival at the correspondence server, a software agent detects the message and sends it for processing to the appropriate system. The response is returned to the correspondence server and is replicated back to the office, to the waiting application. On-line services include lookup of balance for savings account, lookup of interest on savings account, check on foreign encashments and other queries. At An Post in Ireland an on-line query or transaction completes in less than two seconds in 95% of cases.

Archiving

- 4.3.4.6.27 The journal server currently provides local archiving facilities for the journal file. At present the journal archive is performed at file level. The archive period is configured as a parameter within Riposte. Archive files are also managed by Riposte (for example archive files can be automatically discarded after a designated period of time). A more fundamental archiving strategy will be implemented based on the concepts of 'incept and mortality' at the journal message level. Incept allows a message to remain dormant until the incept date has been reached. The journal will be aware of such messages before the incept date but this information will not be available to the counter applications. Mortality allows messages to exist and be available to applications until they die or expire. Using these concepts messages will be archived dynamically.

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Transactioning

- 4.3.4.6.28 Multiple journal messages may be committed to the local message store as a single atomic operation. In the event of a system failure, the journal server ensures that either all of the messages have been stored, or that none of the messages has been stored.

Attribute Indexes

- 4.3.4.6.29 Due to the nature of attribute grammar, Riposte allows indexes to be built by the application, which support retrieval by a particular attribute or combination of attributes.
- 4.3.4.6.30 An attribute index is a permanent index that is dynamically maintained to improve the performance of queries against the message store. Attribute indexes may be created on any message attribute, and are added or removed dynamically as required by the application.

Retrieval Indexes

- 4.3.4.6.31 A retrieval index is used to allow the retrieval of a selected set of journal messages in a specified sort order. Compound keys are supported and an arbitrary number of attributes are allowed. Retrieval indexes provide a consistent snapshot of the message store so that reporting can be performed while the message store is still being updated without danger of inconsistency in totalling or ordering. Retrieval indexes may be created dynamically on demand, as required. Retrieval indexes can be built as either hash tables or b-tree indexes, depending on the type of access required.

Operational Integrity

- 4.3.4.6.32 Each message is automatically appended with a 32-bit CRC (Cyclic Redundancy Check) attribute. Whenever a message is received from another workstation or retrieved from the local message store, the CRC attribute is validated to ensure that the message has not been damaged or modified. CRCs are also applied to all index pages to ensure the integrity of all attribute indexes.

4.3.4.7 CORRESPONDENCE SERVER

- 4.3.4.7.1 As described in *Section 4.3.4.6.5*, the journal server provides messaging support and replication at the office workgroup level. The correspondence server is a version of the journal server, providing centralised network facilities and connectivity to other client support systems. The correspondence server participates in multiple workgroups simultaneously by communicating with the journal servers in each of the multiple workgroups. The messaging model and communications protocol between a correspondence server and a journal server is identical to that between two journal servers in the same workgroup (even though the network topology may be different).

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- 4.3.4.7.2 The consequence of this consistent messaging protocol is that all of the synchronisation and recovery facilities provided by the journal server are provided by the correspondence server to its workgroup members. The most obvious benefit of this is that a single-station office can be recovered from the correspondence server in the same way that a workstation can recover from its peers in a multi-counter office.

Replicated Correspondence Servers

- 4.3.4.7.3 The same messaging protocol that is used to provide replicated messaging among members of a workgroup can be used to replicate messages among a group of correspondence servers. Operating multiple replicated correspondence servers ensures the resilience and recoverability of the central network services.

Optimised Correspondence Server Recovery

- 4.3.4.7.4 Where there are multiple correspondence servers (more than two), then a strategy for replicating transactions can be implemented that allows a correspondence server to recover without unduly loading other correspondence servers in the same group. This is achieved by replicating journal messages for each correspondence server selectively across each of the servers in the group. This strategy is represented in *Fig.7*.

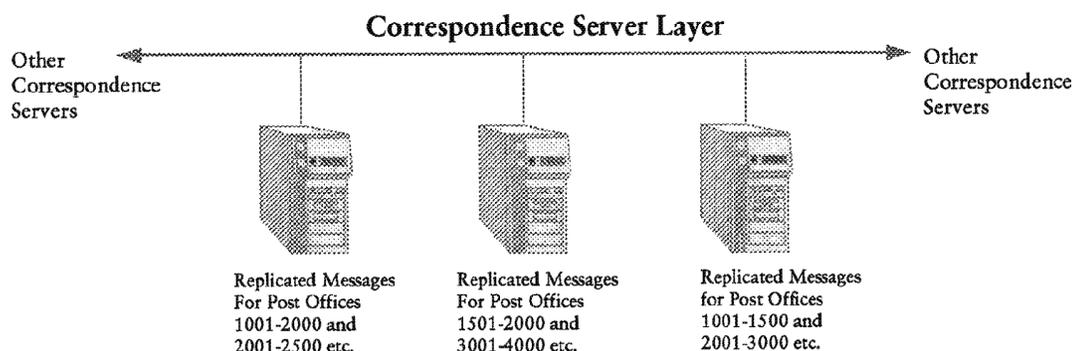


Fig. 7 - Replicated Transactions

Data Distribution

- 4.3.4.7.5 In our proposed architecture, payment information is made available from PMS, it is then digitally signed and replicated to the target post office by use of the CREATE file journal messages.

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Archiving

- 4.3.4.7.6 Archiving at the correspondence server level is totally independent from the archiving strategy adopted at the counter level. In practice Pathway in conjunction with POCL may decide not to archive at the counter level but implement all archiving at the correspondence server level. The principal need for archiving is to support after-the-fact fraud investigations and intensive off-line analysis for management information. Pathway is investigating several options for archiving which will probably include the use of write-only optical disks and associated juke-box library technology.

Memo Facilities

- 4.3.4.7.7 Using the correspondence server, memos can be delivered to individuals or selected post offices. A memo is created using a simple text editor. The memo application then places a CREATE file message in the correspondence server journal. When a communications session is established with the relevant office, the memo will be available to the memo application at the counter.

4.3.4.8 OPERATIONAL INTEGRITY

- 4.3.4.8.1 For a system to be truly fault-tolerant in a real-world environment, it is not sufficient just to be able to recover from system crashes and network failures. It is also necessary to be able to safeguard the operational integrity of the system from the wide range of everyday errors that occur in any production system, many of which are not caused by hardware failures. The operational integrity of a system may be violated by a modification to the application data, system configuration or the application itself. Such modifications may be due to hardware failures, but are more commonly the result of faults in the application or system software or both, or as a result of operator error (unintentional or malicious). The Riposte messaging and data distribution facilities provide a number of features designed to preserve the operational integrity of a system.

Cyclic Redundancy Checks

- 4.3.4.8.2 The primary tool used by Riposte for detecting data corruption is the CRC (Cyclic Redundancy Check). A CRC algorithm translates a string of data into a binary integer. (Riposte uses a 32-bit CRC algorithm supplied and licensed by PK Ware Inc.) By computing the CRC of a data string (for example, a message), the CRC can later be used to detect whether the data string has been modified. This is achieved by re-computing the CRC and comparing it to the initial value.
- 4.3.4.8.2 If the re-computed CRC differs from the original CRC, then the system considers the data string to have been modified in some fashion. With a 32-bit CRC the probability of not detecting a random modification is less than 1 in 4,000,000,000.



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4.3.4.8.3 The Riposte messaging system automatically applies a CRC to every message when it is originated. This CRC is then validated any time the message is accessed, whether the message is retrieved from the local message store or the message is received over the network. If a CRC validation fails for a message received over the network, the message is discarded and automatically re-requested. If a CRC validation fails for a message retrieved from the local message store, then the local message store is considered to have been compromised. In this situation the local message store is invalidated and recovery is initiated from another member of the workgroup.

4.3.4.8.4 In addition to the CRC validations performed on messages and distributed files, CRCs are also used to validate the integrity of various internal Riposte data structures, such as attribute indexes and internal message caches. In the event that a CRC validation fails on an internal data structure, the data structure is invalidated and re-constructed automatically.

Digital Signatures

4.3.4.8.5 While CRCs provide a simple and efficient way to detect most types of data corruption, they are not sufficient to ensure that critical data is protected from a malicious adversary with access to high-speed computing facilities. In order to protect vital data files from any type of tampering, Riposte includes a security subsystem that provides 'public key' digital signature facilities. Critical data files (such as benefit payment files) may be digitally signed by their originator. These digital signatures are then authenticated whenever the signed data file is distributed or access is requested by the application. With the ability to generate pairs of keys of any desired length, the system designer can select the level of protection desired for different components of the system. If a digital signature fails authentication, the data file in question is invalidated and automatically recovered from another member of the workgroup. In addition, an audit message containing details of the authentication failure is logged and transmitted to the correspondence server for review by the system security personnel.

4.3.4.9 RIPOSTE - UTILITIES

4.3.4.9.1 Riposte provides a set of utilities that operate independently of all customer applications. These utilities enable a highly available and fault-tolerant application to be developed, tested and operated. A selection of these utilities is described below :

- (a) **Log Spy** : Provides a dynamic display of all journal log entries as they are created.
- (b) **Message Spy** : Provides a display of all messages generated by multiple workgroups of journal servers with suitable filtering, as defined by the user.
- (c) **Journal Client** : A test suite to simulate the activity of a journal server. This is useful for testing network and correspondence server performance.

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- (d) **Speedometer** : Provides a real time display of message processing by the journal or correspondence servers. This provides useful information for performance enhancement and can be used with the journal client to assess the impact on performance of new applications.

4.3.4.10 VALUE ADDED PROCESSING AND INTERFACE TO CLIENT SYSTEMS

- 4.3.4.10.1 One of the key functional roles of the correspondence server is to provide an interface to different client systems. To carry out these functions 'software agents' are used to interface to the different client systems. Upon startup each of the software agents registers with the correspondence server informing it of the application and type(s) of transaction(s) that it is interested in. One variation of the software agent is responsible for real time on-line transactions discussed earlier. This software agent type is presented graphically in Fig. 8.

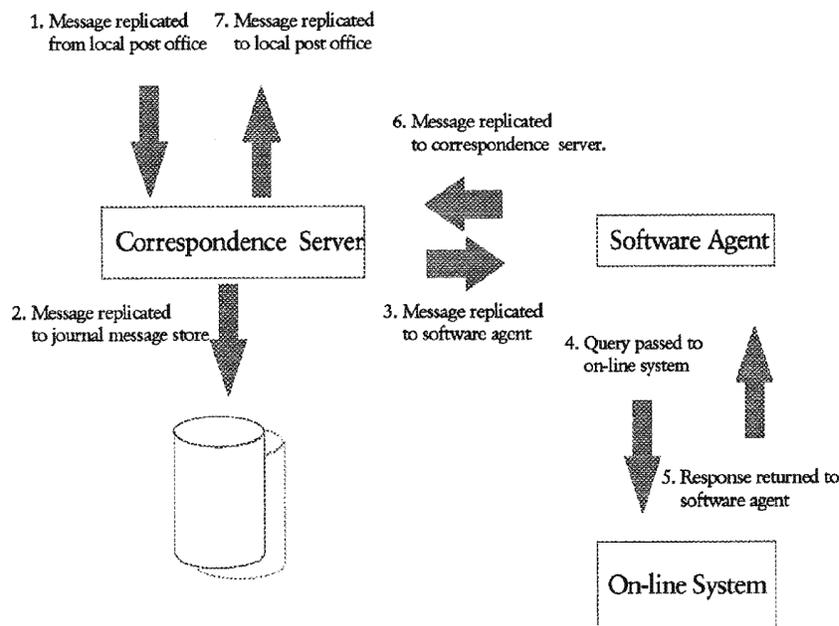


Fig. 8 - Software Agent for On-line Query

- 4.3.4.10.2 In addition to the on-line type of transaction, Pathway will collect client transactions using other software agents as shown in Fig. 9. Once a client transaction arrives at the correspondence server it is written to the journal message store in the normal fashion and replicated to other correspondence servers as required. The correspondence server can also pass the journal message to any software agent that has registered its interest in this type of transaction; the software agent can then pass the transaction to the client system in real time. This retrieval of transactions from the correspondence server can also take place on a periodic basis in batches, or in batches as the result of the correspondence server receiving an end-of-day marker from a post office.

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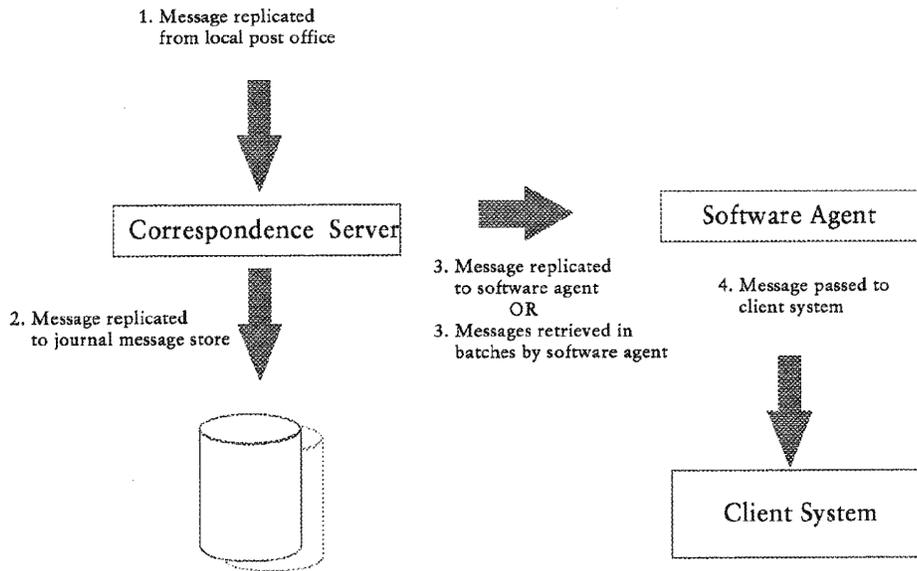


Fig. 9 - Software Agent for Collecting Client Transactions

4.3.4.10.3 A software agent for processing on-line transactions together with a system for aggregating client transactions in batches is already in use at An Post. Pathway will further develop these software agents to develop a set of generic software agents for collecting transactions from the correspondence server for clients and handling the different client system interactions required. These software agents have been divided into the following generic categories :

This Software Agent :	Has this Function :
File Distribution	Acquisition of data from client systems and creation of a file for distribution through the Riposte architecture
Client Processing	Collection of transactions for client systems, formatting transactions in format required and passing of this information back to the client host
On-line	Providing on-line queries from the strategic infrastructure to the client system or providing queries from the client system to the strategic infrastructure

4.3.4.10.4 Prior to dispatch of files to the client system the infrastructure will allow POCL to provide additional processing of the transactions to add value to clients.

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4.3.4.11 INTERFACE TO POCL SYSTEMS

4.3.4.11.1 POCL has indicated that separate projects are addressing the areas of transaction information processing, distribution and financial administration. The type of interface required by these systems will be determined by the processing constraints on these systems. Given that information can be passed to clients using any of the above software agents, Pathway will be capable of addressing POCL's requirements.

4.3.4.12 END TO END BILL PAYMENT SERVICE

4.3.4.12.1 As an example of the Transaction Management Service, we examine and present a standard bill payment process below :

Step	Action By	Standard Bill Payment	Comment
1	Customer	Presents Bill	The bill is encoded with the account number/amount/company identifier
2	Counter Staff	Scans document	If document cannot be scanned, a key entry facility is also available. Similarly if the amount is not on the document counter staff can key in the amount
3	SYSTEM	Accepts information (The system also calculates fees if appropriate for the transaction.)	The system validates the account format and check digit, the size of account number upper and lower bounds on the account number and the minimum/maximum amount payable
4	SYSTEM	Displays information from scan on screen for the counter staff	Including any fees calculated if appropriate
5	Counter staff	Accepts payment (The system can accept partial payment if required)	The system will accept payment amounts different from the scanned amount and multiple payment types. For example the system accepts both cash and cheque for the same bill payment
7	SYSTEM	Prints receipt	The system will also endorse the cheque if appropriate
8	SYSTEM	Creates journal entry	The journal message contains the complete transaction details. The message is replicated to the other counter workstations in the office. This information will be used for teller and office balancing
9	SYSTEM	Transmits transaction to central correspondence server	Journal message is replicated to the correspondence server as soon as connection is established
10	END		The counter component of the strategic infrastructure has now completed its task

4.3.4.12.2 An example screen from the Bill Payments application running in An Post is shown in *Fig. 10* on the next page.



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4.3.4.12.3 The transaction is now handled by the correspondence server. The following table presents the further processing of the transaction :

Step	Action By	Standard Bill Payment	Comment
11	TMS	Collates all information for one or more POCL clients from all correspondence servers	
12	TMS	Prepares data as appropriate	Company format may be created at this stage through Value Added Processing or POCL may decide to undertake this task
13	TMS	Makes data ready for collection/transmission to POCL and/or POCL client	Data for client will need to be individual transactions, however POCL may only require transaction summaries broken down by client by individual post office for reconciliation
14	<u>TMS</u>	creates correspondence server journal entry recording status of transactions processed	

4.3.4.12.4 A sample bill payment transaction record is provided below, showing the attributes and transaction details :

```
<Message:<Group:GROF3050><Node:POST2><Id:2><Num:36701><Date:23-Jan-1995>
<Time:09:30:22><User:DENISE><Credit:1753><Application:Transcash><Data:<TranType:BillPay>
<Tendered:1753><Payment Method:01><OcrData:<Date:0195><AcctNo:00270267577>
<Amount:1753><TranCode:05103>><Full:Yes><All Payment Methods:<Description:Cash>
<Payment Method:<Type:01> <Amount:1753>>>><CRC:D17F8433>>
```

4.3.5 COUNTER INTERFACE

4.3.5.1 INTRODUCTION

4.3.5.1.1 Another of the key features of Pathway's solution is the counter interface, which enables POCL staff to deliver the highest level of customer service. The interface is proven and implemented in the ALPS project and is also implemented at An Post in Ireland. The counter interface is based on the Riposte system, which was developed by An Post/Escher.

4.3.5.1.2 The complete interface is event-driven. The act of swiping a magnetic card or reading either a bar code or a line of OCR, automatically navigates the counter staff to the required menu screen and kicks off an appropriate action, such as printing a receipt.

4.3.5.1.3 In addition to the normal event-driven process, the user may navigate through the applications using the keyboard or touchscreen. It may be necessary to do this in the event of a card-read failure or inability to read the appropriate bar code or OCR text, or both.

4.3.5.1.4 An example of the Encashment screen from ESNS is shown in *Fig. 11* on the next page.



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4.3.5.2 BUSINESS NEEDS

- 4.3.5.2.1 The counter interface is designed to allow the wide variety of staff encountered in post offices to become familiar with all electronic transactions very quickly. The intuitive nature of the interface will reduce costs (facilitating a rapid roll-out) due to lower training requirements.
- 4.3.5.2.2 The principles of good interface design must be the foundation of application design where the users of the system are principally non-technical and vary greatly in age and previous computer experience. These principles include
- Adequate feedback
 - Simple instructions
 - Quick recovery from keying mistakes
 - Event-driven
 - Simple to navigate and discover
 - Quick and invisible recovery from infrastructure failures
 - Quality on-line help available as required
- 4.3.5.2.3 The principles are supported by the development approach (*discussed in Section 4.3.5.5*) and by the use of carefully chosen peripherals. Pathway is continually examining the market for counter devices that will bring maximum benefit to POCL while balancing the needs of cost, reliability, usability and at the same time optimising the counter space.
- 4.3.5.2.4 Based on the principles of good graphical-user-interface design, Pathway's solution provides a consistent interface to all transactions. In summary, the benefits of good interface design are :
- Easy roll-out due to lower training requirements
 - Rapid introduction of new products and services, with zero or minimal re-training
 - Easy transfer of staff from reduced-product-set offices to offices with the full range of products
- 4.3.5.2.5 The graphical nature of the interface supports the POCL critical success factor of Universality.
- 4.3.5.2.6 An example of the on-line help facility currently in use in An Post is shown in *Fig. 12* on the next page.



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4.3.5.2.7 In addition, Pathway is able to demonstrate the substantial functions of the initial BA/POCL programme (bill payment and benefit payment) in operation in the An Post environment. While the Riposte architecture allows to develop and implement any transactions they choose by using the Riposte application program interface (API), where appropriate Pathway is proposing to use applications or components of applications already in use. These components are in use at :

- ALPS London area
- An Post, Ireland

4.3.5.2.8 Case studies for both of these projects are included in *Annex 6.5 and 6.12*. Building on this experience means that the Pathway solution can be delivered to the short time scale required by BA/POCL.

4.3.5.3 IMPLEMENTATION OF COUNTER INTERFACE - TECHNICAL

4.3.5.3.1 Riposte provides an end-to-end secure transaction environment. The function of Riposte is to provide a secure and intuitive front end to transactions at the counter level, in order to :

- Deliver payment information to the counter in a secure fashion
- Provide a high degree of reliability and recovery
- Provide a consistently high degree of auditability for all transactions implemented in the Riposte architecture
- Provide balancing of automated transactions

4.3.5.3.2 In terms of the counter interface, Riposte provides a number of Desktop modules that can be incorporated into the application design in order to provide consistency.

4.3.5.3.3 The interface can be driven by a keyboard or by a touch screen. Touch screens optimise the counter real estate and complement compact keyboards, instead of full-size, conventional keyboards. Pathway is not proposing touch screens as part of the base configuration but would like the opportunity to discuss the use of touch screens further with POCL.

4.3.5.4 SOFTWARE ENVIRONMENT

4.3.5.4.1 The counter solution is currently implemented using the Windows for Workgroups environment from Microsoft. This platform was chosen for its wide usage and its wide availability of support skills. Riposte has been tested on Windows NT and Pathway is proposing the installation of Windows NT at the local layer. As Windows NT is certified on the Intel platform to US Department of Defence C2 security level this is a consideration in the choice of platform. The appropriate releases of the Microsoft operating systems will be used for implementation during the course of this project.

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4.3.5.4.2 By using the combined Intel and Microsoft product set, POCL will be able to take advantage of new developments in software, hardware and peripherals. Manufacturers invariably produce the first release of their products and software drivers for this platform. In addition the skill set for development in this environment is widely available and is being used as the platform for an ever-increasing number of retail solutions.

4.3.5.4.3 The Intel and Microsoft combination is a living system of hardware and software which has constantly developed since its first introduction in 1978. Current Windows installations exceed 40 million. By 1998 the installed base of Windows systems will exceed 80 million systems. This compares very favourably with competing systems such as OS/2 which has significantly fewer installed systems and hence support and releases of drivers for newer peripherals can be a problem.

4.3.5.5 DEVELOPMENT ENVIRONMENT AND APPROACH

4.3.5.5.1 All counter applications are constructed using the Riposte API. The use of the API gives all transactions the same high degree of security, reliability and auditability. The API allows the application developer to concentrate on the look and feel of the application, while Riposte takes care of all the audit-recovery and security features of the transactions.

4.3.5.5.2 Visual Basic was chosen for the application development because of its highly productive development and prototyping capability. In addition to the Desktop controls provided by Riposte, there are extensive third-party interface components available for Visual Basic. As needed Visual C/C++ is used to create DLLs for use within the Visual Basic code (see Fig. 13).

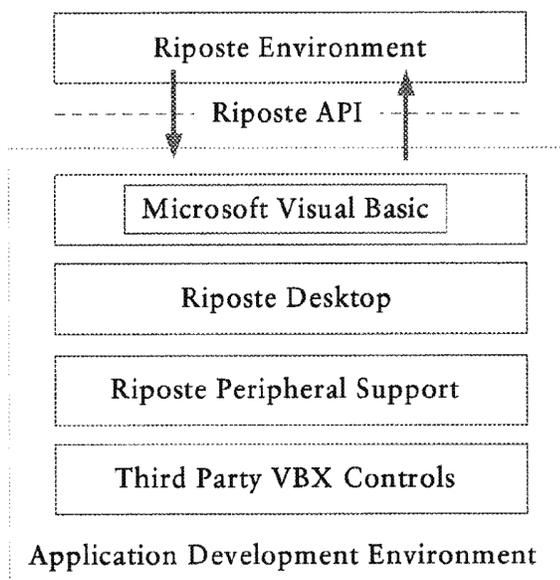


Fig. 13 - Riposte Application Development Environment

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- 4.3.5.5.3 Visual Basic combined with the Riposte Desktop facilities allows new transactions to be prototyped and refined in conjunction with external clients. The rapid prototyping facilities will facilitate new business development.
- 4.3.5.5.4 The application development approach is defined as 'trust-based rapid application development'. This approach varies significantly from traditional development methodologies. In a traditional development environment the user is charged with defining the requirements. This is a high-pressure task and the risk of getting it wrong is significant. In response, the user asks for everything to ensure that nothing, however spurious, is omitted. During the development cycle the user is insistent that all the requirements are met and 'blames' the developer for all problems. When an item is omitted from the requirements definition the developer cites this as a reason for other delays. This is development by conflict.
- 4.3.5.5.5 The trust-based approach requires a high-level statement of business requirement from the user management group. This is followed by users defining the required business rules. The designer takes both needs and constructs a prototype. The prototype is constructed using a set of interface standards that are appropriate to the functionality being developed. The user then reviews the prototype with the developer and refines the business rules and the user interface. Once the prototype has reached a stable state, application development starts.
- 4.3.5.5.6 By making the developer and the user feel comfortable, this approach brings considerable proven benefits to the resulting application. These advantages include :
- More efficient code, due to a clearer understanding of the actual requirements
 - More useful design because the designer is not constrained by the user-defining components of the system
 - More user-acceptable system because the designer and the user both worked on the interface
 - Faster development because time is not wasted on spurious user needs
 - Less fear of getting it wrong because the user can initiate change as part of the prototype review
- 4.3.5.5.7 Application development using the Riposte environment supports the trust-based approach because the Riposte infrastructure significantly reduces the systems design component of application development, allowing the developer to concentrate on the interface design.

4.3.6 OPERATIONAL SYSTEMS SUPPORT

- 4.3.6.1 The components of operational systems support that are required as part of the procurement are Outlet Remuneration and Reporting and MIS.

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- 4.3.6.2 The Riposte architecture allows the Transaction Management Service to collect transaction information at a very detailed level. Once collected through the automated products at the counter the information is available for use by different systems. In particular at the office for teller balancing, production of the Cash Account and calculation of the Postmaster remuneration.
- 4.3.6.3 At a central level the detailed information collected by the Transaction Management Service will enable the production of a wide variety of reports and management information. In particular TMS will produce information to assist and facilitate the distribution system.
- 4.3.6.4 It is important to state that the infrastructure does not restrict the means by which POCL can process the information collected. Standard reports will be developed and a variety of ad hoc reporting can take place.

4.3.7 HARDWARE AND PERIPHERALS**4.3.7.1 INTRODUCTION TO HARDWARE AND PERIPHERALS**

- 4.3.7.1.1 Pathway will use the combined Intel and Microsoft product set for implementation of the Transaction Management Service and the counter interface. This combination reflects a very cost-effective solution. Pathway is unconstrained in the choice of equipment and will deliver equipment from any manufacturer, that reflects the best value for money while giving due consideration to the environmental, health and safety, ergonomic and performance factors.

4.3.7.2 TMS HARDWARE

- 4.3.7.2.1 The message replication architecture employed within TMS enables its capacity to be adapted to meet required transaction loads by increasing or decreasing the number of correspondence servers supporting the post office branches. In addition the capability of individual correspondence servers may be extended by substituting larger Intel series processors.
- 4.3.7.2.2 It is envisaged that initially such servers will be based on dual Pentium processors with evolution to 2- or 4-way Intel P6 processors. For counter transactions, correspondence servers based on Pentium processors can support between 1000 and 2000 counters per server depending upon the precise transaction mix and rate, whilst providing full transaction replication, back-up and recovery facilities. Such servers are Configured with RAID disk storage subsystems.



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4.3.7.3 COUNTER INTERFACE HARDWARE AND PERIPHERALS

4.3.7.3.1 The following represents examples of the counter hardware that Pathway envisages using to meet the needs of the POCL counter automation strategy. Pathway anticipates final selection of specific devices will take place following the pilot demonstrator phase and discussions with BA and POCL.

Baseline Proposal	Illustrative Technology
At each Counter : Counter PC	ICL ErgoPro e440/66 running Windows NT and comprising : Intel DX2-66 processor, 16MB RAM, 540MB Hard Disk, four ISA slots, two I/O interfaces, LAN card
Colour Monitor	ICL 9" SVGA colour monitor
Keyboard	Compact Keyboard from Alphameric
Counter printer	Ithaca 50plus , a tally-roll impact printer
Reader devices (Mag. Stripe, Bar Code, OCR and Smart Card reader/writer)	DOCUmatic 7000 - a combined motorised reader for multiple font OCR, Magnetic stripe, MICR and attached bar code wand. (Smart card reader/writer to be incorporated.)
At each post office : Back office printer	Fujitsu DL3700 dot matrix printer
ISDN card	Eicon DIVA

4.3.7.3.2 Pathway can also provide a number of options to the counter devices above. These include touch screen monitors, thermal printers, combined counter printers (forms, receipt and slips). There are also a number of combinations for the reader devices both in their physical position (associated with the keyboard, associated with the monitor), and in their technical specifications (2-D bar codes).

Annex 4 provides further details of the above equipment and options.

4.3.7.4 COUNTER INFRASTRUCTURE OPTIONS - F85 TERMINAL

4.3.7.4.1 The counter infrastructure proposed is based upon the Microsoft operating system and Intel processor family of products. This approach provides POCL with the widest range of options in relation to peripherals and application software. The use of this combination of products provides POCL with great flexibility in particular :

- Access to a wide range of peripheral equipment
- Scaleable architecture
- Wide availability and skills for application development

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4.3.7.4.2 In smaller post offices it may be difficult to justify investment in such premier infrastructure when transaction volumes are considered. In the absence of funding from the EU for rural infrastructure it may be appropriate for POCL to consider other infrastructure options.

4.3.7.4.3 Several options has been investigated by Pathway and one option in particular merits further consideration. This option proposes to use a small low-cost integrated terminal called an F85 supplied by De La Rue Fortronic. This terminal will provide the capability to smaller offices to automate a selected set of products. The terminal supports magnetic-stripe, smart-card and bar-code reading. The terminal, which is programmed in standard C, will be integrated into the Riposte architecture by using a simpler version of the journal server. The same message replication facilities will be supported by the terminal. The complete details of the terminal and its applications is provided in *Annex 4 - Baseline Proposal Summary and Options*.

4.3.7.5 POST OFFICE BRANCH NETWORK

4.3.7.5.1 Each post office will have an ISDN 2 link to the branch network, giving each office two high-speed channels (2 x 64 kbit/s) for data, or voice traffic (very large post offices may have a second ISDN 2 line). The correspondence server backbone network will support multiple ISDN 30 connection points (each providing 30 channels) to ensure ample channels are available to support post offices during peak periods.

4.3.7.5.2 ISDN provides a particularly good fit to the style of working within post offices. The fast call set-up and the fast and reliable operation result in short calls being made during typical counter operations without any perceived delays. Lines do not have to be kept open while lengthy transactions are completed, and a tariff structure based on per second charging means that call charges are kept to a minimum. The high speed available with ISDN means that additional benefit can be achieved by saving non-urgent data within the POCL counter infrastructure until connections have been established for an urgent transmission, and then transmitting a small burst of this data on the back of the primary transmission. This is referred to as 'trickle - feeding' transactions.

4.3.8 SATISFYING BA/POCL INFORMATION NEEDS

4.3.8.1 Every transaction at the counter interface places a message in the journal message store. In this context the word 'transaction' is used to describe interactions that do not necessarily involve movement of cash across the counter. An example of such a transaction is a request from a benefit customer for a statement, or for posting interest to a savings account. The Riposte architecture offers BA/POCL the ability to capture and track all transactions. Having this information for non-cash transactions will allow both BA and POCL to analyse how the population of customers behave and provide further information on the patterns and trends within the customer base.

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4.3.8.2 Every transaction has a unique transaction identifier that incorporates the date, the time, the place and the counter staff ID.

4.3.8.3 Following tables show the information needs and how they are addressed, based on the SSR requirements articulated in *Chapters 4.2.4.3.4 and 4.2.4.6.3*.

4.3.8.4 **Table of Information Needs for Financial Control**

SSR Ref :	This SSR requirement (See Chapter 4.2.4.3.4) :	Will be made available (Yes/No)	Comment :
(a)	Value of each transaction	YES	Captured at the counter
(b)	Volumes of transactions	YES	Summaries produced at each post office. National summaries may also be produced
(c)	A unique code for each product so that detailed product information can be made available across all clients. For example, the need for a breakdown of sales of Royal Mail stamps by denomination	YES	Unique codes for each of the products is implemented within each of the counter applications and is captured as part of every transaction
(d)	Source (i.e. outlet identification)	YES	Full details of outlet and counter staff is provided
(e)	Client reference and client scheme or product reference for each transaction	YES	This is captured as part of the details of each transaction
(f)	Customer identification and details For example, for transactions involving cheques, passports, motor vehicle tax discs	YES	This 'personal details capture' is implemented on a transaction basis as needed and is captured as part of the transaction record
(g)	Method of payment	YES	Multiple payment methods are supported for each transaction
(h)	Date and time of the transaction	YES	

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4.3.8.5 Table of Information Needs for Internal Control

SSR Ref :	This SSR requirement (See Chapter 4.2.4.6.3) :	Will be made available (Yes/No)	Comment :
(a)	POCL and agent transactions separately identifiable	YES	
(b)	Capture of data at the outlet is complete, accurate and robust. For example, there is a unique reference per transaction	YES	Each transaction has a unique serial number
(c)	Any transfer of data to and from a central location (repository) is complete, accurate and robust	YES	Use of CRC and digital signature ensures that the transaction is transmitted without loss of integrity
(d)	Whether off- or on-line, the system must be capable of validating transactions by format and value	YES	This is implemented at the application level
(e)	In the event of fraud it can be proved that the system was operating without defect	YES	Use of status messages in the journal file indicate the health of the system at defined time intervals
(f)	Transaction receipts (identifying a specific client) are automatically generated for customers and also retained to allow recovery, if there is a failure between back-up cycles	YES	Inherent in the Riposte architecture is the ability to recover without resorting to paper
(g)	Accountability for cash, stock and any supporting documentation is retained by each outlet and individual clerk, where appropriate	YES	Some development is required
(h)	The method of payment is recorded at the point of sale	YES	Multiple payment methods are also supported
(i)	Access to the system, and to certain functions within the system, is restricted and a user log is maintained	YES	One-way password encryption is supported. User types are definable and all user interactions with the system are recorded
(j)	Appropriate back-ups are taken, including a complete record of daily transactions	Not needed	No user back-ups or automatic back-ups take place, due to the replicated messaging architecture

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SSR Ref :	This SSR requirement (See Chapter 4.2.4.6.3) :	Will be made available (Yes/No)	Comment :
(k)	An independent or supervisory approval is necessary to amend or cancel transactions after a certain stage in the processing	YES	Implemented by access control. User type 'SUPERVISOR' is required to reverse or cancel transactions after a certain point.
(l)	Both operator and device are uniquely identified within each outlet	YES	This is provided and is captured as part of the transaction record
(m)	Data should undergo a balancing procedure to enable a final review and authorisation	YES	
(n)	All transactions are collected using a secure method at the earliest opportunity	YES	The transactions are replicated to the central location as communications are established
(o)	Transactions not collected from previous days are clearly identifiable	YES	
(p)	All transactions can be reconciled to an appropriate supporting voucher depending on the transaction type. Where necessary, these vouchers must be available for central validation of amounts collected	YES	
(q)	The system should maintain an up-to-date record of cash and stock on hand for audit purposes and be capable of reporting current balances	YES	Some development is required see (g) above
(r)	All transfers to and from other offices and between staff are clearly identifiable	YES	
(s)	All specified summaries are produced automatically when required and include all transactions processed since the last summary was completed	YES	A batch summary can be produced automatically. Full summaries can be produced on demand
(t)	Items posted to suspense accounts can be identified for future investigation	YES	Reversals are logged in full in the journal



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SSR Ref :	This SSR requirement (See Chapter 4.2.4.6.3) :	Will be made available (Yes/No)	Comment :
(u)	Information to show compliance with relevant legislation. For example, Health and Safety, Data Protection Act, Companies Act	YES	Full hardware specification is available in Annex 4.
(v)	An outlet can continue to operate and maintain an audit trail in the event of system failure	YES	Full analysis of failure scenarios is considered in Section 5.5.

4.3.9 POCL STRATEGIC INFRASTRUCTURE - SUMMARY

- 4.3.9.1 The strategic infrastructure proposed by Pathway will enable POCL to automate all transactions at the counter. The infrastructure is based on the Riposte product, a robust and proven software platform. Use of Riposte will provide a high degree of resilience and unattended recovery in the event of an infrastructure failure.
- 4.3.9.2 The automation of transactions will be based on a generic approach which will implement a set of applications that are highly configurable by the use of parameters, supporting the rapid development and roll-out of new business transactions.
- 4.3.9.3 The automation platform will embrace industry-standard products, specifically the Intel and Microsoft product set. This infrastructure is a living and developing system of hardware and software which future-proofs the investment and will allow new technology peripherals to be exploited as needed to support business development.
- 4.3.9.4 The Transaction Management Service will guarantee the transaction information from its capture at the counter to its final delivery to the client. All information to provide a full audit of the transactions is provided within the service. Client needs and internal POCL information needs are satisfied by a set of functions that link POCL to its clients, in accordance with client requirements.
- 4.3.9.5 The counter infrastructure, (the point of delivery of customer service to the public) can be used by a wide range of staff and will enable the delivery of quality customer service. Customers' perceptions are generally formed at the counter and the infrastructure will deliver speedy and accurate transactions to a very high standard across all counter products.



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SECTION 4.4 - BENEFIT PAYMENT SERVICE

4.4 BENEFIT PAYMENT SERVICE**4.4.1 INTRODUCTION**

4.4.1.1 This section describes Pathway's proposal for the Benefit Payment Service (BPS). It provides an overview of the proposed service followed by a description of the major components of the BPS. The section is organised as follows :

- A summary of the complete BPS and how this maps onto the BA critical success factors
- An overview of each component that makes up the payment process

4.4.1.2 The principal items discussed are :

- The Card Management Service and card production processes
- The complete card-based benefit payment process
- The migration path for the BA card
- Pathway's recommendations on the customer acceptance issues

4.4.1.3 Pathway's approach to the BPS is based on the recognition that benefit payment is an entitlement and that the system must enable payment with a very high degree of reliability at all times.

4.4.2 OVERVIEW OF THE BENEFIT PAYMENT SERVICE**4.4.2.1 INTRODUCTION TO PATHWAY'S BPS PROPOSAL**

4.4.2.1.1 Pathway's mission in relation to benefit payment is to provide a fraud-resistant, secure, auditable and fully reconcilable service.

4.4.2.1.2 The Benefit Payment Service consists of the two major components :

- Card Management Service (CMS)
- Payment Authorisation Service (PAS)

These components are shown in *Fig. 1*.

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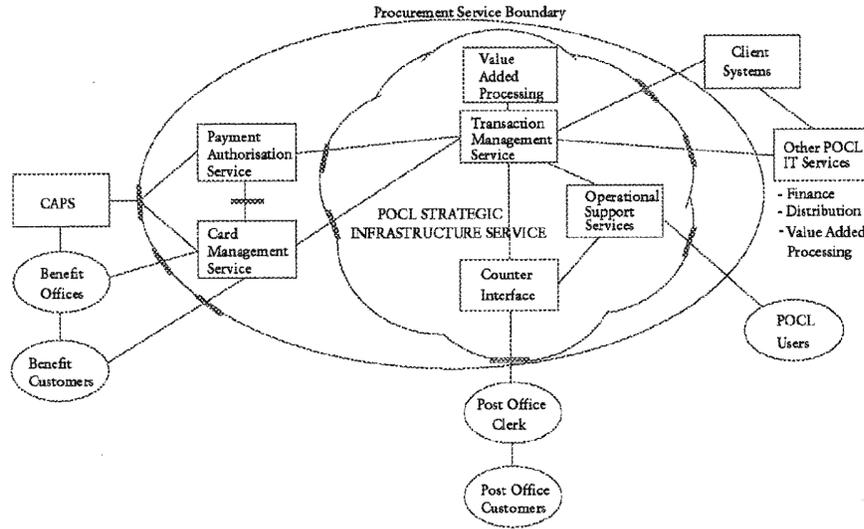


Fig. 1 - The BA/POCL Procurement Service Boundary

- 4.4.2.1.3 Both CMS and PAS are within the overall Procurement Service Boundary. CMS lies wholly outside the POCL Strategic Infrastructure but PAS on the other hand utilises a component of the Strategic Infrastructure for distribution of payments and payment encashment at the post offices.
- 4.4.2.1.4 Pathway will implement these two major components as discreet entities allowing the Benefit Agency flexibility for future change within these systems. The boundary between the systems will be distinct and secure.
- 4.4.2.1.5 The scope of the BPS encompasses PAS, the interface to CAPS, the card management system, and the POCL Strategic Infrastructure. The solution where possible is based on proven components minimising risk and supporting the achievement of the following BA critical success factors :

This BA critical success factor :	Will be given this Pathway support :
Public acceptability. The proposed method must be acceptable to customers, including the disabled	Pathway has conducted market research which has provided valuable information on issues affecting acceptability. The research results will be used to ensure public acceptance while catering for the business needs of BA
Reduce and contain fraud	Pathway is proposing an industry-standard plastic payment card which will be used as the token for positive authorisation of every benefit payment. The end-to-end service will be fully auditable and support robust card authentication and customer verification procedures to contain fraud



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This BA critical success factor :	Will be given this Pathway support :
Reduce administration costs	The Pathway solution offers an electronic information and payment system which will reduce the need for paperwork and provide a speedy end-to-end process
Allow complete accounting including reconciliation to individual payments	The Benefit Payment Service will allow individual payments to be audited fully at all stages in the payment life cycle from authorisation and dispatch from CAPS through to encashment and return of cashed and uncashed details to CAPS.
Transfer of operational and encashment fraud risks to contractor	Pathway will use the experience and resources of its shareholders in the area of fraud reduction to minimise the risk of fraudulent encashment. Pathway <u>will</u> accept these risks in accordance with agreed procedures
Maximise the opportunity to pay for the service on a usage basis	The system will provide the necessary accounting and management information to facilitate a reconcilable payment for the service on a usage basis
Fast and early roll-out of the service so that early advantage can be taken of the projected financial benefits	Pathway has proposed a solution that builds upon components already in use. By re-using proven components at all levels of the total service, Pathway will be capable of providing a fast and early roll-out.

4.4.2.1.6 Pathway's proposal for BPS supports resilient and cost-effective automation of the existing and anticipated new and varying benefit types required. It takes full account of the unique characteristics of benefit payments which distinguish it from the more conventional centralised credit/debit card operation. The key difference is the fact that the timing, value and location of benefit payments are usually known, and the delivery of the payment has to be guaranteed. In contrast, timing, location and value are largely unpredictable and there is no right to payment with a conventional card operation. Thus, the requirement is for a different solution.

4.4.2.1.7 Pathway is also sensitive to the needs of special groups such as the homeless and those who do not speak English. Our solution will ensure that the interface to these groups, whether by mail, over the telephone or at the post office counter, is agreed with BA and is tailored to suit their special needs.

4.4.2.2 OVERVIEW OF THE CARD MANAGEMENT SERVICE

4.4.2.2.1 The complete BPS is based on the principle of positive authorisation at the point of benefit encashment. Pathway totally embraces BA's requirement to pay the right benefit to the right customer at the right time and to minimise the number of failures in this area.



SECTION 4.4 - BENEFIT PAYMENT SERVICE

- 4.4.2.2.2 To achieve this Pathway will provide cards that are :
- Based on recognised international standards
 - Secure against manipulation
- 4.4.2.2.3 The cards themselves have no intrinsic value as they :
- Do not contain information about benefit payments
 - Do not reveal the benefit recipient's nominated post office
 - Do not contain personal details for authentication (these are held on the system)
- 4.4.2.2.4 The cards will be supported by a Card Management Service (CMS) which has the following characteristics :
- It will use ACI's GENcard card management system
 - It is capable of handling the projected volume of cards
 - It provides a totally secure and well-proven card production and personalisation service provided by De La Rue
 - It uses the best industry practice for card pick up and management of lost, stolen and re-issued cards

4.4.2.3 OVERVIEW OF THE PAYMENT AUTHORISATION SERVICE

- 4.4.2.3.1 The Pathway solution will accept individually authorised payments from CAPS and distribute these payment details to the point of collection (in this case the benefit customer's nominated post office). The Pathway solution will support encashments away from the nominated post office and will also cater for the conditions created by proxy payments.
- 4.4.2.3.2 Within the Pathway service the delivery of benefit through the issue of tokens (e.g. milk tokens) is not materially different from payments in sterling. Payments authorised through CAPS will identify the currency of payment as sterling or tokens. Throughout this section, payment 'value' should be interpreted as meaning either sterling or token.
- 4.4.2.3.3 Automation of benefit payments through the POCL Strategic Infrastructure is a major task. Pathway understands the BA's vision and will implement a system that enables BA to achieve its business objectives. The Payment Authorisation System will have the following set of characteristics :
- A customer payments database
 - Easy access for real-time stop placements and enquires
 - Integration of the varying components of card management, payment process and counter infrastructure
 - A method of payment which ensures payment of the right money to the right person at the right time
 - A mechanism to ensure that the payment is made only once

SECTION 4.4 - BENEFIT PAYMENT SERVICE

- A secure approach that will reduce fraud
- Controls to detect and monitor unauthorised activity and supply evidence to support prosecutions involving fraudulent transactions
- Full accounting and reconciliation facilities at an individual payment level
- Ability to pay all of a person's benefit entitlement(s) in one transaction using a single token or card

4.4.2.3.4 PAS will be supported by a central system provided by Alliance & Leicester (A&L) called the Payment Management System (PMS) and a proven counter infrastructure called Riposte. Riposte is the basis for the POCL Strategic Infrastructure and is described in *Section 4.3.4.2*. The PMS proposed by Pathway is again based on components in use as part of the girocheque reconciliation system. PAS will provide :

- The capability to handle the projected volume of payments
- A secure and well-proven method of payment
- A single and complete information source for a customer's payment
- A strategic and well-understood migration path including the migration to a multi-purpose smart card

4.4.3 CARD MANAGEMENT SERVICE

4.4.3.1 CMS OBJECTIVES

4.4.3.1.1 The overall objective of CMS is to ensure that authorised cards and tokens are issued only to approved customers and their agents, and that they are only available for use for customers to receive authorised benefits. This is made up of the following objectives :

- To supply, personalise and distribute the card, and monitor its status throughout its life-cycle
- To receive initial instructions from CAPS and the determine the need to renew the card without further reference to CAPS
- To receive personal details that are appropriate to the use of a card from CAPS, and be capable of receiving details from other sources
- To provide card management services for purposes other than benefit payments
- To maintain timely data on cards and temporary tokens

4.4.3.2 CMS INFORMATION FLOWS

4.4.3.2.1 The overall information flows into and out of CMS are shown in *Fig. 2* below.

SECTION 4.4 - BENEFIT PAYMENT SERVICE

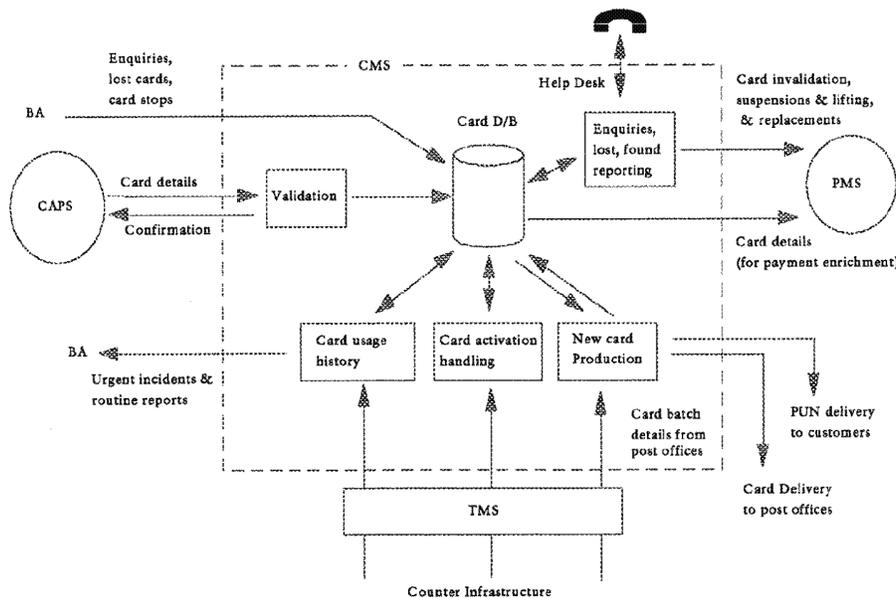


Fig. 2 - CMS Information Flows

4.4.3.3 CMS INTERFACES

4.4.3.3.1 Details of the service interfaces that affect CMS are contained in *Section 4.2.12*. In summary they are :

- CMS to CAPS - This is an external interface which supports the transfer of cardholder information using file transfer.
- CMS to POCL Strategic Infrastructure - This is an internal interface between CMS and TMS. TMS in turn then provides a connection to the POCL counter interface. This interface will support file transfer and real-time transactions including card stop lists, card batch acceptance and card activation.
- CMS to benefit office - This is an external interface which supports interactive access from BA. This will support enquiries from BA on card status and enable the placement of stops.
- CMS to benefit customer - This is an external interface which comprises two forms of communication. The first enables BA customers to advise Pathway of card loss, theft or damaged. This service will be provided by the CMS help desk which is supported by the Pathway Call Reception Centre. The second defines how CMS will distribute card pick up notices PUNs to BA customers.



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- (e) CMS to PMS - This is an internal interface and provides a formal boundary between the card and payment management services. The two functions supported are :
 - (i) PMS access to card verification data during the processing of payment records.
 - (ii) A transactional interface to enable CMS to update the payment status immediately following reports of card stops or monitoring events.
- (f) CMS to Card production - This is an internal interface which will use a secure communications link to pass card production details to Pathway's subcontractor for card production.

4.4.4 CMS FUNCTIONS

4.4.4.1 SUMMARY OF CMS FUNCTIONS

4.4.4.1.1 Building on the CMS overview presented in *Section 4.2.7* the functions provided by CMS are summarised below and will be explained in detail in the following sections :

- Receipt and validation of new cardholder details
- Creation of a cardholder database, generation of card orders and pick up notices
- Card production and personalisation
- Distribution of cards to post offices
- Card collection and activation
- Loss, theft, damage and replacement of cards
- Setting card stop and alert status
- Issue of cards for emergency payments
- Support for authorised card enquiries and card usage histories
- Changes of nominated post office
- Catering for special needs groups
- Provision of a help desk service

4.4.4.2 RECEIPT OF INSTRUCTIONS FROM CAPS

4.4.4.2.1 CAPS will create a new cardholder notification which will be received by CMS. This information will be sufficient for CMS to create an entry in the cardholder database and for CMS to create a card for the customer.

The Benefit Agency has specified in the SSR the information that will be available to CMS from CAPS :

	For each initial card issue request :
1.	Customer National Insurance Number
2.	Customer name (as requested by the customer to be displayed on the card)
3.	Correspondence address



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For each initial card issue request :	
4.	Nominated post office ID (if appropriate)
5.	Card type (e.g. WPA card)
6.	National Sensitivity Indicator

4.4.4.2.2 Pathway will dispatch cards to post offices for pick up and therefore CAPS must provide the nominated post office ID. Additional information may be required for special groups, for example the blind or the illiterate (where a normal PUN would be inappropriate) or a language indicator (for example Welsh).

4.4.4.2.3 This information will then be processed by CMS to create the entry in the cardholder database. This processing will validate the information received and create the information which will eventually be embossed and encoded onto the card during personalisation.

4.4.4.3 **CARDHOLDER DATA BASE**

4.4.4.3.1 Pathway has selected the GENcard Card Management System from Applied Communications Incorporated (ACI) to manage the customer database and the cards through their life-cycle. Internationally over 400 organisations in 54 countries rely on ACI software, and between them they have over 1000 applications installed. ACI's success is built on the supply, support and development of standard software packages. Financial and retail organisations worldwide have benefited from the speed, security, reliability and comprehensive features of ACI's card management applications.

Functionality Provided by the ACI Card Management System

4.4.4.3.2 The card management system is designed to meet the needs of financial institutions and retailers who issue cards or acquire card transactions, or both. The GENcard system will provide Pathway's solution for the following requirements of the Card Management Service :

- (a) Maintenance of a database of customer details. These are initially received from CAPS and periodically updated by CAPS or from the counter infrastructure or the help desk.
- (b) Provision of information for the creation of the personalised card and pick up notice (PUN). The card will be supplied in an appropriate card wallet and the PUN will tell the customer how to collect the card.
- (c) Managing the ongoing maintenance of card status.
- (d) Making the card, personal and status details available to the payment authorisation system for onward routing to the post office for use in payment authorisation and encashment.
- (e) Recording and actioning instances of loss, theft and damage to cards.



SECTION 4.4 - BENEFIT PAYMENT SERVICE

4.4.4.4 CARD PRODUCTION AND PERSONALISATION

4.4.4.4.1 This section gives an overview of the total card production and personalisation service offered by Pathway. The section steps through each of the stages to give BA a complete understanding of the high quality and secure process involved. The production and personalisation process and materials chosen by Pathway are of the highest standard and will help to achieve the goals of customer acceptance.

4.4.4.4.2 Card Manufacturing**(a) Pre-Press and design**

Pathway is offering BA the full benefits of the card industry's most advanced digital pre-press and origination facilities. The De La Rue Card Technology pre-press department is fully equipped with digital technology based upon Apple Macintosh hardware. This hardware is linked to a high-resolution scanner and outputs to a state-of-the-art image setter which ensures that the film work produced for card production is of the highest quality.

The pre-press system offers the facility for the receipt and exchange of electronic data which provides a rapid and reliable link between BA's design agency and Pathway's card production site.

Pathway can offer the BA :

(i) De La Rue's industry-renowned skills and expertise in the production of anti-counterfeit designs and card features.

(ii) De La Rue's ability to produce holographic security features. A set of specimen cards are shown in *Annex 9 - Technology Trends*.

Pathway also offers multiple proofing formats to BA as part of the process. Pathway proposes full proofing on the plastic card.

(b) Card Printing

Pathway offers to BA/POCL, De La Rue's unique experience in the use of four- and five-colour lithographic presses fitted with the latest press controls.



(c) Card Finishing

De La Rue has developed a number of innovative processes to ensure quality is maintained through all the finishing stages. By working closely for a number of years with its suppliers of plastics, inks, signature panels, holograms, magnetic media, and smart card components, De La Rue is achieving a consistent quality product which is renowned in the plastic card industry. Specimens of the cards are included in *Annex 9*.

4.4.4.4.3 Card Personalisation

(a) Receipt of Data

The information required to personalise the cards will be provided by CMS. The information will be transferred to De La Rue's computer system by secure electronic link. For each customer the following information is passed to the production process :

(i) Original information from CAPS :

- Customer National Insurance Number
- Customer Name
- Correspondence address for the PUN
- Nominated post office ID for card dispatch
- Card Type (e.g. WPA card)
- National Sensitivity Indicator

(ii) Information supplied by CMS (required for card activation and verification) :

- Primary Account Number (PAN) - this will incorporate the NINO
- Card Activation Number (CAN) - a four-digit number which is printed or barcoded on the PUN and used to activate the card
- Card Issue Number (CIN) - a sequence number for the card. This number is incremented each time the card is replaced or renewed
- Sherman Number - a number unique to each card which is used as an additional security device

This additional information generated by CMS is required as part of the card activation and verification process.

(b) The Standard Personalisation Processes

The printed base card is embossed and the magnetic stripe is encoded. It is then matched to a personalised carrier by machine reading the magnetic stripe and comparing it with a pre-printed code on the carrier.

The matched card is then inserted into an envelope together with information inserts, sealed and prepared for despatch.

Pathway can also accommodate a request from BA to cancel a card before it is despatched to the nominated post office. De La Rue's system is designed to accommodate late cancellation requests. The record can be removed from the data file prior to personalisation or the personalised card in its carrier can be extracted prior to enveloping.

(c) Personalised card details

After the card has been personalised the card will contain :

(i) Embossed on the front of the card

16 digit 'unique' Primary Account Number (PAN) incorporating the
NINO
Title, and cardholder name (customer's requested name as specified by
CAPS)
NINO
Card Issue Number (CIN)
Valid to date

(ii) Magstripe (Track 2) on the back of the card

Check Digit - MOD11
Card Issue Number
Expiry date
Service Code
Sherman security value

(iii) Paper Signature panel on the back of the card

Indent printing of the primary account number into the paper signature panel.

(iv) Printed on both sides of the card

In addition to the above, Pathway will pre-print additional information on the base plastic to assist BA customers in using the card and the help desk services. Statutory declarations will also be agreed with BA and will be printed on the card.



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4.4.4.4.4 Personalisation by Benefit

Pathway recognises the importance of gaining the acceptance to the BA card of all groups of beneficiaries. An important step in achieving this may be to personalise the card and PUN for some specific benefit types using different colours, literature content and card design. Such groups might include War Pensioners and customers in Northern Ireland amongst others. Pathway would be pleased to discuss with BA how such designs should be developed and the specific information required from CAPS to enable this.

4.4.4.4.5 Service Levels - Card Production & Personalisation

Pathway will meet agreed BA/POCL service level requirements. Detailed below are suggested turnaround times for a volume of 50,000 magnetic stripe cards per day over a three-year roll-out period. (Numbers in excess of 50,000 per day will be agreed with BA). Pathway will work with BA/POCL to review any necessary alterations in the production schedule.

(a) Proofing

Indicative proofing times are given from digitised artwork :

- Bubble jet proof = 1-2 days
- Cromalin proof = 5 days
- Plastic proof = 8 days

(b) Card Manufacture

Pathway require a period of eight weeks from customer-proof approval to allow sufficient base stock to be generated for the personalisation of 50,000 cards per day.

After the initial eight weeks the base stock will be printed in weekly batches to meet the daily demand. Card manufacture is not a critical activity as the base stock can be printed in large volume runs and stored securely until required for the daily personalisation runs.

(c) Card Personalisation

Pathway will guarantee lead times and our capacity for card personalisation services for this contract, providing we have a clear understanding of volume commitment in advance of commencing production.

Pathway proposes that BA commit to an annual volume for the contract life. For card personalisation Pathway suggests the following two levels of service to BA/POCL :

- (i) Replacement (lost or stolen) cards

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Cards will be despatched 24 hours from the receipt of replacement request from the card management system

(ii) Routine renewals

Cards despatched within fifteen working days of receipt of data from the card management system

4.4.4.5 CARD DESPATCH

4.4.4.5.1 Once the customer record has been created on the card management system it will generate a data file for transmission to the card production system. The information provided will be sufficient to personalise the card and its associated personalised carrier and provide details for generating the PUN. When dispatched, the cardholder database within the card management system will reflect the fact that the card is in production. The card status will then be updated at the relevant points in the production and activation process.

4.4.4.5.2 Card despatch is carried out to an agreed schedule. De La Rue will pack the cards into postal boxes and inform the security officers. The boxes are released to the authorised distributor and De La Rue's security staff will verify and document all card orders leaving the premises.

4.4.4.5.3 As part of the secure delivery process Pathway will deliver the inactive card to the nominated post office and send a PUN to the benefit customer. The PUN will contain an encrypted and machine-readable post office ID number and a visible and machine-readable CAN. Encoding these fields will allow electronic capture of the information at the post office. The use of an encrypted post office ID will provide an additional security check which will highlight any attempt to collect a card at the wrong post office.

4.4.4.5.4 The nominated post office Postmaster will be required to sign for a batch of cards in their sealed carriers. The post office will then register each of the batches received together with the post office ID which will be barcoded on the card batches. This information will be returned to CMS where it can be used to support queries on card status and location.

4.4.4.6 CARD COLLECTION AND ACTIVATION

4.4.4.6.1 Pathway will use a Card Activation Number (CAN) as part of fraud management during the card activation process. The CAN will be generated by CMS and passed to card production. The CAN will then be printed on the PUN and dispatched to the customer.



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- 4.4.4.6.2 In addition to generating the CAN, Pathway will generate a non-computable ten-digit value (known as the Sherman), which is unique to each card. This value is held in CMS, is associated with the distributed payment records and is held within the magnetic stripe of the card. The Sherman value will be compared whenever the card is used for payment. This added security will reduce the risk of fraud and minimise the risk associated with any attempt to introduce counterfeit cards.
- 4.4.4.6.3 The customers will present the PUN at their nominated post office, together with an independent means of identification. The counter staff will retrieve the card, swipe it and then scan/input the CAN. On input of the CAN, a secure algorithm computes the CAN from information on the card and compares it with the one entered. Having verified that the CAN is correct the customer will be asked to sign a receipt and the card in front of the counter staff.
- 4.4.4.6.4 The card is now considered activated and its status returned to CMS. Collection of authorised payments can proceed either immediately or as they fall due.
- 4.4.4.6.5 Using the experience of De La Rue and A&L, Pathway will develop a set of procedures associated with the processing of cards, the managing of exceptional situations and the provision of assistance to the counter staff.
- 4.4.4.6.6 These card procedures will include :
- Non-collection of cards
 - Loss of the PUN
 - CAN verification failure
 - Failure to verify the identity of the customer
 - Non-availability of the card when the PUN is presented
- 4.4.4.6.7 Card Dispatch and Activation - Special Cases**
- (a) In instances of homelessness, correspondence will be forwarded to the benefit office or any address the BA choose to nominate in the personal details.
- (b) Pathway has identified additional information required from CAPS to support production of a multi-lingual version of standard literature, such as the card PUN.
- (c) Pathway recognises the potential difficulties surrounding verification when illiterate customers collect their cards. The same potential difficulties also exist when they are making encashments.

At the present time customers making encashments with a girocheque have their mark attested by a witness. Even with this procedure it is not possible to confirm without doubt that the customer is who he says he is.

Pathway's proposal places strong emphasis on the use of the nominated post office, and for the majority of cases the illiterate customer will be known by local post office staff. For new customers the use of a PUN provides a level of protection and additional verification data (such as date-of-birth or benefit type) could be used as additional checks.

The current arrangements for witnessing the customer's mark can continue if necessary.

- (d) Pathway has a number of ideas which we wish to discuss with BA before proposing a solution for illiterate customers. These include the use of witnesses to the customer's mark and the use of specific CAPS information.
- (e) In those cases where customers are unable to collect cards in person, Pathway offers for discussion the following additional options :
 - (i) Initial advice from BA of a new customer should include the list and associated personal details of known agents who would be permitted to collect the customer's card.
 - (ii) Supplementary proof of identity should be presented at the time of requesting card activation.
 - (iii) In the event that the agent requesting card activation is an established payee in his or her own right, the agent's card should be presented to allow verification.

4.4.4.7 LOSS, THEFT, DAMAGE AND REPLACEMENT OF CARDS

- 4.4.4.7.1 The GENcard CMS was chosen for its capability, security and the ease with which it can cope with the requirement for total card management.
- 4.4.4.7.2 The system and its operator must cope with circumstances such as loss, theft or damage to cards. These situations result in the de-activation of cards and re-issue of new cards. The complete process is supported by appropriate operational and management reports, on a scheduled and ad hoc basis.
- 4.4.4.7.3 Apart from managing the card life-cycle process the overriding consideration in these exceptional but expected situations is payment of entitled benefit to the customer at the correct time.
- 4.4.4.7.4 Where a replacement card is requested as a result of reported loss, theft or damage, the card PAN will remain the same, but the card issue number will be incremented and new security values will be assigned.



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Periodic Card Replacement

4.4.4.7.5 It will be necessary to re-issue cards after a pre-determined period of time. The renewal cycle will be optimised by monitoring card-read failures. Normally bank cards are re-issued every two years but given the lower usage associated with benefit payment cards Pathway recommends a three-year renewal cycle.

4.4.4.7.6 A replacement card will be issued one month before expiry of the previous card. Pathway will ensure that the transition from the old card to the new card does not impact upon the customer's ability to collect benefit and will manage the outstanding payments to reflect the incremented card issue number.

4.4.4.8 INVALIDATION AND SUSPENSION

4.4.4.8.1 On receipt of notification from CAPS or other sources of a card stop or a card alert, CMS will record this status and will immediately advise PAS so that all impacted payments can be treated appropriately. This is considered further in *Sections 4.4.5.10.8 to 4.4.5.10.11*.

4.4.4.9 TEMPORARY TOKEN TO SUPPORT EMERGENCY PAYMENTS

4.4.4.9.1 Pathway recognise the requirement to issue emergency payments within very short deadlines to customers some of whom will not have a BA card. Pathway believe that the procedures for emergency payments should not jeopardise the highly secure system that the Pathway solution provides for normal payments.

4.4.4.9.2 The procedures within PMS, CMS and at the post office counter should be fully utilised to ensure that a fully reconcilable service is maintained and that new opportunities for fraud are not introduced.

4.4.4.9.3 Pathway believe that the emergency payment procedure within BA offices should be quick and simple to operate and be complementary to the increasing visibility and usage of BA cards within normal BA office procedures.

4.4.4.9.4 For those customers who possess a BA card the PAN is input to CAPS as part of the emergency payment process at the local BA office. Additional cardholder verification details will be added by CMS and the payment authorisation transmitted to a nearby (or any) post office to facilitate speedy collection.

4.4.4.9.5 Where BA needs to make an emergency payment to a customer who does not possess a benefit card, Pathway proposes a solution which would involve the issue of a temporary single-use token.

4.4.4.9.6 The token could physically take a number of forms (secure paper, mag-stripe paper card, mag-stripe plastic card) but each token should be :

- Valueless
- Obviously different in appearance to the BA card



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- Uniquely identifiable
- Securely issued to BA offices
- Known to exist within CMS
- Capable of being stopped and suspended
- Have no purpose until explicitly input to CAPS as part of an emergency payment

4.4.4.9.7 The precise emergency payment process will need to be agreed with BA but Pathway envisage the following key steps :

- (a) A stock of tokens would be issued to all BA offices. Each token would be unique and would contain encoded information (i.e. Sherman value) to protect against counterfeiting. Additional batches of tokens can be issued automatically by CMS or explicitly ordered by each BA office. A secure receipting process for emergency tokens is required to provide an audit trail of tokens.
- (b) An emergency payment is authorised at a BA office, a token selected and its details together with the claimant details input to CAPS. It is only at this point that the token has any purpose. The visible token reference number will be keyed in, or machine read if more convenient.
- (c) CAPS will issue an authorised payment to PMS and PMS will then route the payment to the selected post office.
- (d) The token is signed by the customer and issued.
- (e) Upon presentation at the post office the normal counter procedure takes place. The token is read and the encoded token number is used to retrieve the payment details. The normal signature verification process will include an additional check on information obtained at the BA office such as date-of-birth.
- (f) The temporary token can now be destroyed at the post office.

4.4.4.9.8 Pathway recognise that the introduction of tokens into BA offices will require a new set of procedures to supplement the emergency payment process. Pathway will be pleased to share its knowledge of card and paper handling procedures to ensure that the design and use of the token provides an efficient and fraud resistant emergency payment process.

4.4.4.10 CARD MANAGEMENT ENQUIRIES AND INFORMATION NEEDS

4.4.4.10.1 Pathway will provide BA with card status and cardholder details and any available profile of card usage held on CMS. Historic actions against a given card will be recorded on an events history and available for interrogation.



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4.4.4.10.2 This capability to service card queries is an established and proven element of card operations within the ACI's card management system proposed by Pathway.

4.4.4.10.3 Changes to card status will be tracked to ensure compliance with the established life-cycle and to inhibit or flag any activity which is abnormal. Reporting will be geared to management of exceptions such as use of a monitored card or infringement of restricted usage on a card.

4.4.4.11 CHANGE NOMINATED OFFICE

4.4.4.11.1 Pathway will enable change to the nominated office at the counter and onward routing of this information to CAPS and CMS for immediate implementation. Such change could be negated by CAPS in the event that the customer was restricted to a particular post office.

4.4.4.12 CATERING FOR SPECIAL NEEDS GROUPS

4.4.4.12.1 Pathway recognises the importance of ensuring that the card management system caters for all sections of society. Pathway's market research (*see Annex 8 - Research Programmes*) has provided a significant insight into the needs of many such groups. In particular Pathway is in discussion with RNIB and some early thoughts are :

- The provision of a Braille logo on the BA card
- The provision of Braille PUNs
- The indication that a Braille statement is required, when requested at the post office

4.4.4.13 CARD MANAGEMENT HELP DESK

4.4.4.13.1 Pathway is committed to providing a quality help desk service to its users, with formal measurement of activity in order to give a basis for evaluating performance against agreed service levels.

4.4.4.13.2 When cards are issued, an 0800 (free phone) (or 0345 (local call rate)) CMS help-desk telephone number will be provided to BA customers to report any lost, stolen or damaged cards. The help-desk will also accept local calls of this type when they are re-routed from POCL's seven regional help lines or BA customer help lines and will cater for non-English speaking customers.

4.4.4.13.3 Pathway's experience is that an '0345' (local call charge) number suffers less from nuisance and unnecessary calls and we would be pleased to discuss the cost implications of this during the contract negotiation stage.



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CMS Help Desk Functions

4.4.4.13.4 The functions provided by the CMS help desk include :

- Enquiry resolution
- Processing of reports of lost, stolen and damaged cards
- Ordering replacement cards
- Processing of uncollected cards

4.4.4.13.5 There will be a voice response system in place to handle calls during and after manned periods. The help desk will utilise the latest call centre technology, embracing digital technology, predictive dialling, pacer and multi-lingual voice response currently in use at Alliance and Leicester. The telephone number will be promoted in all major telephone directories under a number of headings and also by a series of poster campaigns in post offices and benefit offices. The number will be pre-printed on the card to promote awareness.

4.4.5 CARD-BASED BENEFIT PAYMENT PROCESS**4.4.5.1 INTRODUCTION TO CARD BASED BPS**

4.4.5.1.1 This section describes in overview the components of the Payment Authorisation Service (PAS) and the interface to the POCL Strategic Infrastructure. PAS encompasses that part of the Strategic Infrastructure which specifically deals with payment distribution and payment encashment at the counter. The section also describes in detail the components of card-based benefit payment.

4.4.5.2 PAYMENT AUTHORISATION SERVICE (PAS)

4.4.5.2.1 Pathway has taken the overall functions contained within PAS (as defined in the SSR) and split them into two logical groups. Pathway has defined those functions concerned with bulk processing and management of payment records as the Payment Management System (PMS). The functions responsible for payment of benefits at the counter are part of the POCL Strategic Infrastructure and are called the counter infrastructure.

4.4.5.2.2 PAS has a number of primary functions. These are to :

- Process and manage payments
- Service queries on-line from BA
- Interface with CMS
- Interface with TMS

4.4.5.2.3 TMS, as described in *Section 4.3.4* provides the interface between PAS and the counter infrastructure. It also provides the details of transactions carried out at the counters to both BA and POCL as appropriate.

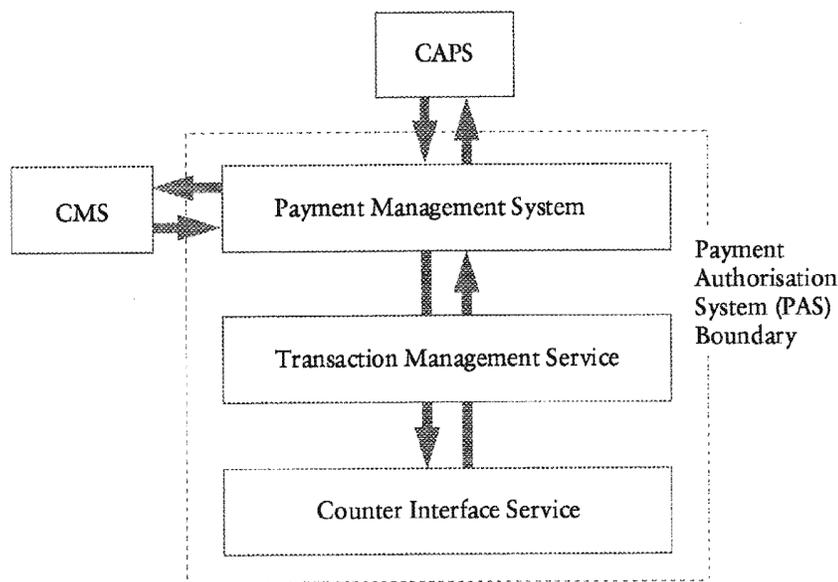


Fig. 3 - Components of the Payment Authorisation Service (PAS)

Payment Management System (PMS).

4.4.5.2.4 The major functions of PMS are to :

- Accept individually authorised payments from the Customer Accounting and Payment System (CAPS) prior to the due date for encashment
- Merge the payment stream from CAPS with information from the card management system
- Transmit payment information to TMS for onward distribution to the counter infrastructure
- Provide a single, complete information source for a customer's payment
- Record payment encashment and notify CAPS
- Record expiry of payments as notified from the counter infrastructure and notify CAPS
- Process payment and card stop notices
- Process payment enquiries from CAPS
- Provide the data to support reconciliation

4.4.5.2.5 Unique to Pathway, A&L has a proven system for recording issue and encashment of some 100 million girocheque benefit payments per annum and the provision of reconciliation and accounting services relating to these benefit payments. This well-established system will form the basis of the Pathway solution for delivery of PMS. A&L has considerable experience in developing systems that provide a service to BA and this is best illustrated in the case study in *Annex 6.7 - BA Project*.

PMS Information Flows

4.4.5.2.6 The overall information flows into and out of PMS are shown in Fig. 4 below.

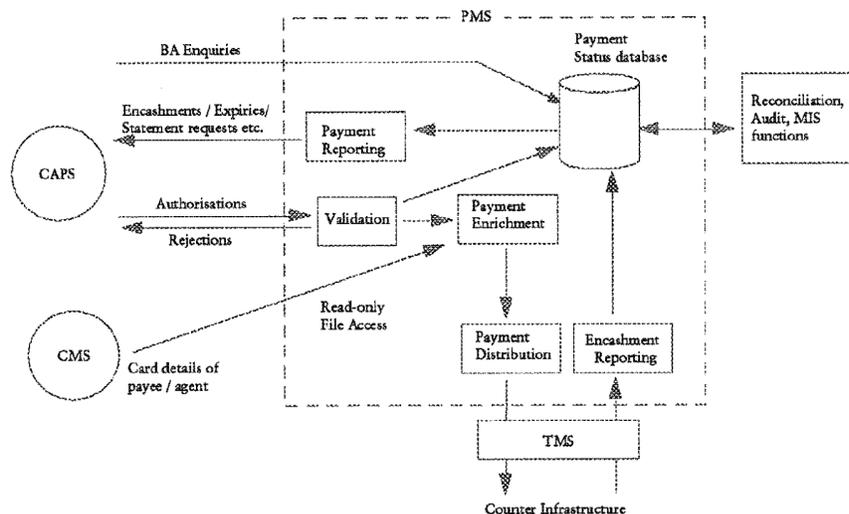


Fig. 4 - PMS Information Flows

4.4.5.2.7 Pathway's solution will offer the flexibility to cater for the existing range of benefits and for the introduction of new benefit types as the BA's requirements evolve.

Counter Infrastructure

4.4.5.2.8 The major functions of the counter infrastructure are to :

- Accept individually authorised payments and related card management system information transmitted through TMS
- Make payments via magnetic card
- Support payment in the case of exceptions such as foreign encashments and payment by proxy

4.4.5.2.9 Pathway has chosen the Riposte system from An Post/Escher as the basis for delivery of the POCL Strategic Infrastructure. Riposte provides a secure and robust electronic delivery to the point of encashment. The counter application will be based on the existing card-based payment system already in use at An Post. Details of this system are contained in the case study in *Annex 6.12 - An Post CounterAction*.

4.4.5.2.10 The An Post system currently provides the following facilities :

- Magnetic swipe card-based payments
- Application of payment stops electronically
- Application of card stops electronically
- Flexible receipting module catering for variable messages
- Support for a range of benefit types and the introduction of new benefit types

4.4.5.2.11 The system at An Post is also used in conjunction with a household-budgeting module which allows benefit customers to deduct payments to Utilities directly from their benefits.

PMS Interfaces

4.4.5.2.12 Details of the service interfaces that affect PMS are contained in *Section 4.2.12.2*. In summary they are :

- (a) PMS to CAPS - This is an external interface which supports file-based transfer of payment authorisation files to PMS and encashment and expiry details to CAPS. In addition a transaction-based interface will support urgent payment authorisations, payment stops and enquiry services.
- (b) PMS to CMS - This is an internal interface and provides a formal boundary between the payment and card management services. The two functions supported are :
 - (i) PMS access to card verification data during the processing of payment records.
 - (ii) A transactional interface to enable PMS to be notified by CMS of updates to payment status following reports of card stops or monitoring events.
- (c) PMS to POCL Strategic Infrastructure - This is an internal interface between PMS and TMS. TMS in turn then provides a connection to the POCL counter interface. This interface will support file transfer and real-time transactions including payment distribution, encashment and expiry details and emergency payments.

4.4.5.3 RECEIPT OF AUTHORISED PAYMENTS FROM CAPS

4.4.5.3.1 PMS manages receipt of the payments stream and related information from CAPS. It is critical to control the movement of authorised payment instructions from CAPS to PMS in a secure manner with demonstrable control over the integrity of the information. Pathway will implement systems to control this interface based on best industry security practice and based on the experience of its constituent companies, in particular related to :

- Reconciliation and accounting of girocheque payments

- Other existing benefit payment systems
- Management of a similar link to Social Welfare Services in Ireland

4.4.5.3.2 Most payment authorisations will be received from CAPS in batch mode over a secure electronic link or as agreed with BA. The servicing of emergency payments within the target time of 30 minutes specified in the SSR will require a more interactive type of interface. Precise details of this interface will be agreed with BA.

Validation of Payments

4.4.5.3.3 Individual record-level validation will be agreed with BA. This will include checks such as correct identification of the destination post office and manipulation on an agreed basis of items such as due date in the event that a post office is closed on the exact date the payment is due. In such a scenario payments could also be re-directed to a nearby post office.

Enrichment of Payment with Card and Cardholder Details

4.4.5.3.4 To support authentication of the card presented at the counter, the payment record will be enriched by the addition of card security information in order to match the details of the card presented with the details of the one issued. The validity is established through a match of the PAN, the CIN, the expiry date and the Sherman number.

4.4.5.3.5 To support verification of the cardholder at the counter, the payment record will be enriched with personal details selected from those available from CAPS but not available from the card itself.

4.4.5.4 DISTRIBUTING DATA TO THE POINT OF ENCASHMENT

4.4.5.4.1 To enable a fast response at the counter and to provide a high level of availability, Pathway will distribute the payment to the customer's nominated post office. This does not prohibit collection at an alternative office by the customer or an agent appointed by the customer. The process of distributing payment information has been described in detail in *Sections 4.3.4.6.17 to 4.3.4.6.18*. Briefly, the key process is as follows and as presented graphically in *Fig. 5* :

- (1) The payment file is received from CAPS
- (2) The file is validated, enriched with CMS verification data and collated by post office
- (3) The files are digitally signed and prepared for dispatch
- (4) Files can be encrypted if necessary
- (5) Files are distributed to the correspondence layer
- (6) Correspondence servers distribute files to the post offices

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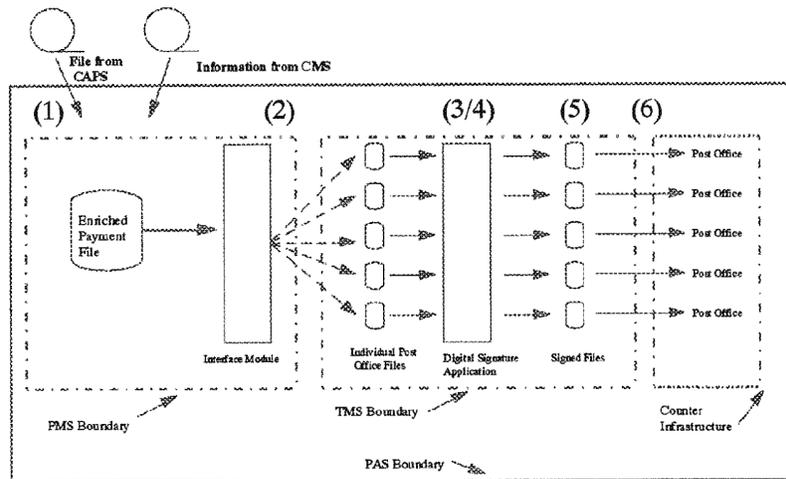


Fig. 5 - File Distribution from Payment Management System to Counter Infrastructure

Resilience to failure

- 4.4.5.4.2 Distributing payment information to post offices provides a far greater degree of availability than that available through the use of a central system and also means that payments can still be made in the event of severe network failure.
- 4.4.5.4.3 Pathway anticipates that post offices will hold payment details that are up to two days in advance of their due date. The Pathway solution will allow post offices to continue to pay benefits throughout this period in the event of any loss of central or network service.
- 4.4.5.4.4 *Sections 4.3.4.6.20 to 4.3.4.6.25* also describes the process of unassisted recovery in the case of equipment failure.

Validity of IOP

- 4.4.5.4.5 Pathway recognises the interest expressed by BA in reducing the validity of an IOP from thirteen weeks to four or five weeks. Pathway would support this initiative on the grounds that the majority of benefits are encashed within a short time of their due date. A shorter period of IOP validity would improve the accuracy of benefit reconciliation for BA and would make a positive contribution to improved cash management for POCL. A shorter IOP validity would also reduce opportunities for fraud.



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4.4.5.5 APPLYING PAYMENT AND CARD STOPS**Application of Payment Stops**

- 4.4.5.5.1 When PMS receives a stop-payment instruction from CAPS it will check its central payment database for the status of the payment. If the payment has been encashed no further action is required and CAPS is notified.
- 4.4.5.5.2 If reference to the PMS indicates payment has not yet been encashed, the counter infrastructure is interrogated to establish whether encashment has taken place since the last update to PMS. If the payment has been encashed no further action is required and CAPS is notified.
- 4.4.5.5.3 If the payment has not been encashed then a stop notice is transmitted to the nominated office and CAPS is notified.
- 4.4.5.5.4 Once a stop is placed and accepted by PMS, Pathway assumes the financial liability of payment. To support this Pathway will agree service levels for stop placements with BA.

Card Stops or Alert Instructions

- 4.4.5.5.5 Whenever a card-stop instruction is received from CMS, the central payments database is checked to determine whether there are any uncashed payments at post offices for the given card number. If such payments exist, notification is passed to the counter infrastructure that the card has been stopped and payment on that card must be denied.
- 4.4.5.5.6 Whenever a card alert message is received from CMS, the central payment database is referenced to determine whether any uncashed payments exist for the given card number. If such payments exist, notification is passed to the counter which will set an alert flag. Any encashments utilising the offending card are advised immediately to PMS for onward routing to CAPS.
- 4.4.5.5.7 Customer education regarding the card stop process will be provided as part of the information supplied when cards are issued.

4.4.5.6 CARD AUTHENTICATION AND CARDHOLDER VERIFICATION

- 4.4.5.6.1 When the card is presented at the post office the card is swiped and authenticated. The purpose of authentication is to ensure that a valid card has been presented. The authentication process includes :
- Comparison of the PAN, CIN and Sherman number held on the payment record to those obtained from swiping the card
 - Validation against the electronic list of card stops
 - Visual check of the card by counter staff for evidence of tampering or attempted forgery



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4.4.5.6.2 If one or more valid payment records exist, the following formal counter process will take place :

- Print the receipt showing statutory declarations
- The customer is asked to sign the receipt
- The signature on the card and receipt are compared
- If the signature is valid the customer is paid and given a copy of the receipt
- A copy of the signed receipt is retained by the post office counter staff

4.4.5.6.3 To support verification, additional information is available from CAPS and distributed as part of the payment record to the counter staff. They will have the option to request and record additional independent means of customer verification.

4.4.5.6.4 At present Pathway is not recommending the use of PINs or biometrics as our research (*see Section 4.4.7 and Annex 8*) has shown that these additional forms of verification are unacceptable to the benefit customer base. However Pathway will consider using biometrics selectively in discussion with BA for selected segments of the customer base. Biometrics in this case could include use of a photograph or digitised signature. Pathway is also investigating some of the recent developments in computerised facial and digital recognition.

4.4.5.7 IDENTIFICATION OF BENEFITS PAYABLE

4.4.5.7.1 Presenting and swiping the card will display on-screen details of all payments due. The counter staff will also have available to them details of any payments in the system that are not yet due. Where several payments are due, customers will be able to request payment of one or more complete benefits but not part of a benefit. Customers can choose benefits from the list, provided they encash due payments in ascending order of date within benefit type. We will produce a receipt of all chosen payments.

4.4.5.7.2 An example of a typical benefit payment screen is shown in *Fig. 6* overleaf.



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4.4.5.8 RECEIPTS

- 4.4.5.8.1 Each card-based payment will be accompanied by a receipt. The customer will sign the receipt with the appropriate declaration printed on it. The receipting function is an application within the POCL Strategic Infrastructure. This module can be configured to print typical transaction information as well as information that can be dynamically changed from day to day.
- 4.4.5.8.2 The standard receipt information will include :
- Date
 - Time
 - Post office
 - Counter clerk
 - Benefit Details
 - Declarations
 - Messages
- 4.4.5.8.3 This dynamic information can be incorporated at different levels, including special messages at the benefit level, messages by due date and specific messages to individual customers.
- 4.4.5.8.4 An example of a receipt showing these message types is shown in *Fig. 7*.

Department of Social Welfare UNEMPLOYMENT BENEFIT	
Node: TRAIN2	
DATE: 26/05/1995 TIME: 12:14	
Name: JOE GIBBONS RSI No: 000068110	
Pay Period: 04/05/1995 to 10/05/1995 Pay No: A0306563 Net Amount Due: 65.70	
Payments	Deductions
Flat: 61.00	Tax: 0.00
PRB: 14.70	ESB: 5.00
	PHON: 5.00
TOTAL AMOUNT PAYABLE: 65.70	
I have received the sum shown above to which I am entitled.	
Sign: _____ 26/05/1995	
Next Signing Day: Thursday 11/05/1995	

Fig. 7 - Typical Receipt



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- 4.4.5.8.5 The receipt can be either a single copy which is printed twice or a carbonless two-ply paper receipt. In either case the signed receipt is retained by the post office counter staff. Pathway is examining the optimum receipting strategy and equipment and the decision will be based on factors such as :
- Cost of equipment
 - Customer acceptance
 - Potential use of equipment for other purposes
 - Integrated printing options
 - Physical characteristics of equipment
 - Durability of receipt, legislation and retrieval requirements
- 4.4.5.8.6 The top copy of the receipt will be stored initially at the post office. Pathway is willing to discuss the provision of a Value Added Service for long-term storage and retrieval of receipts.
- 4.4.5.8.7 Subject to such a service and associated service levels for receipts being agreed, Pathway will store the receipts and offer a retrieval service. The post office would forward the receipts in a pouch each week. The receipts would be in time sequence for each counter position. Pathway would store the pouches and would determine which pouch(es) to retrieve in support of a given enquiry, by determining the week and post office of encashment from the activity records archived within TMS.
- 4.4.5.8.8 Pathway will continue to consider the appropriateness of image processing and automated retrieval of receipts but this is currently considered to be inappropriate because :
- The receipts are not suitable for high-speed reading and imaging
 - The enquiry rate is unlikely to justify the cost of capture and electronic storage
 - The use of image in a legal context is still subject to debate
 - The cost of paper storage and retrieval would still be incurred as a back up to the imaged records
- 4.4.5.9 STATEMENTS**
- 4.4.5.9.1 Pathway will provide a facility at the counter to enable post office clerks to order statements on behalf of customers. All such requests will be collated by TMS and transmitted to BA.

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4.4.5.10 EXCEPTION PROCESSING**Foreign Encashments**

- 4.4.5.10.1 Authorisation of payment is normally local to the counter infrastructure, with payment details being retrieved from the distributed payment files. In a small number of cases (between 5% and 10%) the customer will be requesting payment away from their nominated post office.
- 4.4.5.10.2 In this case an on-line request will be generated and a communications link established with the central location. This on-line request is received by the correspondence server which passes the message to a software agent. This in turn processes the request and returns a response to the originating post office. In this scenario the payment is marked as paid at the nominated post office preventing any further attempted encashments.

Emergency Payments - Existing Cardholder

- 4.4.5.10.3 In the situation where the benefit customer is a cardholder, the NINO is used as part of the payment information input by BA staff. The payment will be routed through PMS and distributed to the nominated post office through the Strategic Infrastructure and on to the counter infrastructure. Customers will use their card to collect payment at the nominated office. Normal cardholder authentication/verification will take place.

Emergency Payments - Non-cardholder

- 4.4.5.10.4 Temporary tokens will be used for processing urgent payments where the benefit customer does not have a benefit card. The temporary token will be a single-use device. If appropriate BA staff could also generate a new card request at this time. The payment will be delivered rapidly from the authorisation in CAPS to the presentation at the nominated post office of encashment. Issue of temporary cards is discussed in *Section 4.4.4.9 - 'Temporary Cards to support emergency payments'*.
- 4.4.5.10.5 On encashment of the payment for which the temporary card was issued, the counter infrastructure will record the use and de-activation of the card for later notification to CMS. No further payments can be unlocked by this card. The card will be retained by the post office counter staff.
- 4.4.5.10.6 Card authentication, cardholder verification and receipting will be the same as for a normal card, subject to the input of appropriate information at the benefit office in the emergency situation.



Agents and Appointees

4.4.5.10.7 Pathway understands the difficulties associated with the management of casual, temporary and permanent agents and appointees. In the light of automation and the introduction of cards, there is an opportunity to introduce some changes in the rules and the business process for dealing with proxy payments. These will need to be agreed with BA to minimise the risk of fraud. The risk is particularly prevalent in relation to casual agents. Changes that could be considered in this area include :

- Use of a paper form to activate a casual payment which could be distributed with the card or welcome pack
- Insistence that casual agents must possess their own benefit card
- Allowing the customer to nominate one or more possible casual agents when they sign on for a benefit at the benefit office

Invalidation and Suspension of Cards by BA

4.4.5.10.8 Pathway will provide a facility that allows BA to invalidate and suspend cards within the system. Under these circumstances, on receipt of details from BA, Pathway will immediately place a permanent stop for invalidated cards and a temporary stop for suspended cards. This change will be relayed from CMS to PAS in real time. The system will store sufficient details to ensure that a complete audit trail is maintained.

4.4.5.10.9 On presentation of an invalidated card at a post office, Pathway proposes the following procedures :

- The counter staff swipe the card through the card reader
- The system displays a message requesting the counter staff to retain the card
- The counter staff refers the customer to local benefit office
- The system updates CMS to record card pick up
- The card is cut into two at the post office and returned to the CMS help desk

4.4.5.10.10 This is a recognised procedure currently in operation throughout the financial sector.

4.4.5.10.11 On presentation of a suspended card, Pathway proposes a procedure similar to that for invalidated cards, except that the card will be retained by the customer and by implication the card status will not be amended to record pick up.

4.4.5.11 NOTIFICATION OF ENCASHMENT AND EXPIRY TO CAPS

4.4.5.11.1 Complete details of the encashment and the expiry of payments is returned to CAPS. The information collected by the counter infrastructure is at a very fine level of detail. As an example, An Post collect the following details :

<Message: <Group:GROF3050> <Node:POST1> <Id:1> <Num:38210> <Date:23-Jun1995>
<Time:08:57:39> <User:ANNE> <Debit:6100> <Application:Postdraft> <TranDate:23-Jan-1995>
<Data: <PaymentNumber:B9232765> <NINO:5146317654> <RecipientName:JOHN LANDIS>
<TranType:Cashed> <ReceiptsPrinted:1> <OcrData: <Date:3050> <AcctNo:00029873952>
<Amount:6100> <TranCode:98034> > <File:PAY00146.TXT> > <CRC:5395E710> >

4.4.5.12 NOTIFICATION OF EXCEPTIONAL CARD USAGE

- 4.4.5.12.1 Instances of foreign encashment are identified and transmitted to PMS where a profile of each payee's behaviour is maintained.
- 4.4.5.12.2 Where a payment is made by manual keying of the card details, due to a problem with the card, notification of the exception will be passed to the card management system so that a profile of such payments can be maintained, with a view to triggering a replacement card.

4.4.5.13 AUDIT TRAILS

Counter Infrastructure

- 4.4.5.13.1 The Riposte system from An Post/Escher is used to take payment information and deliver it to the counter infrastructure. The features of Riposte are described in *Section 4.3.4*. In summary, every payment and details of every encashment are transmitted (and returned) in a secure fashion from PMS to the counter infrastructure. The POCL Strategic Infrastructure captures all system events in addition to transaction details. The audit trail will include login by counter staff and both automatic and manual logoff by counter staff. These events are stored as journal messages and can be used to prove correct operation of the system for fraud investigations.
- 4.4.5.13.2 Non-user system messages relating to the network and failure of peripherals are also automatically logged as journal messages. Each transaction will include information about the post office, the counter staff, the counter position, date, time and full transaction encashment information. All transaction, system and user messages will be stored within TMS on the correspondence servers.
- 4.4.5.13.3 The details of all card- and payment-stop instructions will also be stored in TMS. These will be archived from time to time but will allow the construction of a full audit trail for the transaction.

Card Management Service

- 4.4.5.13.4 Events, including cardholder set-up, maintenance of cardholder details and modification to card status will be date- and time-stamped and recorded to provide an audit trail of activity. The process or person instigating the event will be identified on the event record.



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Payment Management Service

4.4.5.13.5 All events such as the receipt of payment from CAPS, payment stop activity and the notification to CAPS of encashment or expiry will be date- and time-stamped and recorded, to provide an audit trail of activity. The process or person instigating the event will be identified on the event record. The payment receipt audit record will also include any available details that identify the given CAPS transmission.

4.4.5.14 BENEFIT AGENCY ENQUIRIES

4.4.5.14.1 Pathway will make provision for a real time link between CAPS and PMS to support payment status enquiries from the Benefit Agency. Such enquiries can also be addressed via the help desk.

4.4.5.14.2 An enquiry about payment status, (required to determine whether a stop can be set), will be automatically actioned on receipt of the payment stop notice and will trigger an acknowledgement of ability/inability to place the stop. A payment stop and the associated enquiry can also be applied by the help desk subject to the receipt of an auditable authorisation for such action.

4.4.5.14.3 Pathway will make provision for a real time link between CAPS and the card management system. BA enquiries relating to the status of a card can also be addressed via the help desk.

4.4.5.15 SECURITY

4.4.5.15.1 CMS and PMS will be protected by Tandem's Safeguard security subsystem which is an extension to the Guardian operating environment and provides more comprehensive security features. The Safeguard subsystem secures access to objects such as disks, sub-volumes, files and executable processes. This security is delivered by maintaining and referencing a database of objects, users and the explicit authorisations linking the two.

4.4.5.15.2 Security of data and its transmission through the network is provided by TMS. The facilities available through Riposte are described in *Section 4.3.4*.

4.4.5.15.3 In summary these include :

- Application of Cyclic Redundancy Checks at the record level
- Application of digital signatures at the file level
- Encryption of files if necessary

4.4.5.15.4 The counter-system security uses the above facilities and includes application-level access control and the Windows NT security services.



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4.4.5.16 COUNTERFEIT CARDS

4.4.5.16.1 Pathway is aware that an operation of this scale will attract fraudsters who attempt to counterfeit cards. This will generate the following situations where cards presented are not genuine :

- (a) Counterfeit cards which are not on the system
- (b) Copies of real cards which are on the system

4.4.5.16.2 The opportunities for fraud will be reduced by controls applied at different levels in the end-to-end process.

4.4.5.16.3 System Level Controls

- The nominated office is held only on the system
- There is a unique Sherman value for each card
- Cardholder verification information is held on the system

4.4.5.16.4 Card Production Controls

- A high level of security in the production process
- Use of a 'deep' hologram embedded within the card
- Use of electronic etching of the account number on the signature strip
- A high quality of production process and card materials

4.4.5.16.5 Counter Procedure Controls

- Visual examination of cards for signs of tampering
- A high quality of BA card will ease detection of counterfeits

4.4.5.16.6 If a counterfeit card is read and not known to the system, counter staff will impound the card. The card will be cut into two and returned to the CMS help desk with supporting information for fraud investigation.

4.4.5.16.7 Where a counterfeit card is read and is known to the system, detailed counter procedures will be followed including card scrutiny, card authentication and verification of the individual.

4.4.5.16.8 In the unlikely event that the customer successfully passes these checks, in the worse circumstance the card will unlock outstanding payments. This will create an exception condition when the real customer attempts to cash expected outstanding payments. If this happens, Pathway will place a stop on the existing card and generate a replacement card for the true cardholder which will contain a new security value.

4.4.5.16.9 The fraudulent card will no longer pass the authentication procedure at the counter and will be picked up if used again.



SECTION 4.4 - BENEFIT PAYMENT SERVICE

4.4.5.17 RECONCILIATION

- 4.4.5.17.1 Pathway will meet the reconciliation needs of BA by building upon the automated and manual processes developed jointly by BA and Girobank for girocheque payments and by utilising the control and reporting facilities inherent in the An Post system.
- 4.4.5.17.2 The Girobank Reconciliation Service for girocheque benefit payments has been operating since November 1992. In its original form, it replicated the report set established over many years in the Benefit Agency. It has subsequently been extended in a joint exercise involving Girobank, BA and their accountants, Price Waterhouse. The extended set of accounting reports has delivered an effective bridge between the calendar-based reporting and those reports which are based upon Cash Account Weeks.
- 4.4.5.17.3 Currently, BA reconciliation entries come from Girobank's analyses of issued and encashed payments

In total, the girocheque BA Reconciliation delivers more than fifty reports showing issued payments, encashed payments, uncashed payments, void payments and accounting adjustments. The data is analysed as required (by post office, calendar period, Cash Account Week, or benefit code) and is delivered in paper or electronic form to BA internal users and to the National Audit Office.

- 4.4.5.17.4 Key elements of the reconciliation service offered to POCL and BA are :

Post Office Claims Versus Encashed Items

- 4.4.5.17.5 Currently, one of the key reconciliations is concerned with proving that the cumulative value of post office claims for payments made in a Cash Account Week is equal to the actual value of authorised items encashed. This reconciliation is achieved by balancing each post office. Pathway's shareholder, Girobank, is currently involved in this reconciliation.
- 4.4.5.17.6 Pathway considers this reconciliation a pre-requisite to settlement for each period of processing and will deliver proof of the reconciliation of post office claims to encashments notified to CAPS by the following steps :
- (a) Derive the value of each post office claim for encashed automated payments from the post office log maintained by PAS and reconcile this with the actual cash position at the post office.
 - (b) Reconcile each encashment notification to prove that the value of encashments delivered through PAS equals the issued value held within PMS.
 - (c) Reconcile the cumulative value of encashment notifications to the cumulative value of post office claims.



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- 4.4.5.17.7 PAS will be the basis for both the post office claim and the notice of encashment for CAPS, therefore the existing problems of arithmetic errors in claims and differences caused by unauthorised payments (fraudulent cheques and payment foils) will be removed.

Reconciliation of CAPS to PMS

- 4.4.5.17.8 The reconciliation described above addresses the issues of completeness and integrity of the payment data within the bounds of the Pathway services. Pathway anticipates that audit requirements will extend to encompass demonstrable reconciliation of payments data held within Pathway and CAPS.
- 4.4.5.17.9 The cashed and uncashed analyses could provide reconciliation of CAPS and PMS information. Full reconciliation of CAPS to PMS requires detailed consideration of the processing schedules to determine any points of consistency where both systems align in terms of new payments added and payments encashed. Transactions in the pipeline from CAPS to PMS (newly authorised payments) and from PMS to CAPS (encashed items) also to impact upon the viability of such a reconciliation and the way forward is seen as a detailed design issue.

4.4.5.18 PHYSICAL ATTRIBUTES OF PAS**Software**

- 4.4.5.18.1 Pathway will use ACI's GENcard to deliver the card management system. The application utilises open systems technology and relational database design supported by Structured Query Language. This application is available for UNIX and Tandem hardware.
- 4.4.5.18.2 PMS will be based on a re-engineering of the current Girobank Girocheque Payment Management Service using a 4GL.

Hardware

- 4.4.5.18.3 CMS will run on Tandem Computer's Himalaya platform. The Tandem platform provides RISC machines allied to fault-tolerant, parallel processing. The steady state CMS operation will use multiple Tandem processors located at two geographically separate sites. Inter-site connectivity will be provided using token ring and routers linked over 2Mb circuits. This configuration will provide fall-back for CMS contingency.
- 4.4.5.18.4 PMS will also run on the Tandem Himalaya platform to allow a fully integrated Benefit Payment Service.

4.4.6 THE MIGRATION OF THE BA CARD

4.4.6.1 PATHWAY'S SMART CARD CAPABILITY

4.4.6.1.1 Pathway's access to smart card technology is provided by DelPhic the joint venture company formed between De La Rue and Philips. DelPhic has been specially formed by its parent companies to address the supply of smart card technology to the UK and Irish markets. Pathway is therefore uniquely positioned to provide BA/POCL with a combination of skills and resources drawn from the market leadership positions of DelPhic's parent companies.

4.4.6.2 PATHWAY'S SMART CARD PRODUCTION CAPACITY

4.4.6.2.1 Pathway will be able to offer BA/POCL access to the plastic card industry's most extensive production facilities. De La Rue's present personalisation capacity is 25 million cards per annum which will be increased to 40 million per annum. Philips' production capacity at present is 60 million cards per annum.

4.4.6.3 PATHWAY'S EXPERIENCE IN SMART CARDS

4.4.6.3.1 De La Rue and the relationship with Philips in the area of smart card technology gives Pathway access to over ten years of experience in the field of industrial smart card production.

4.4.6.3.2 De La Rue has over 60% of the market for financial payment cards in the UK financial sector. It has the largest commercial personalisation bureau in the UK and through DelPhic it has already secured major contracts for smart card personalisation, which include the Mondex project. DelPhic's capabilities are illustrated in the case study in *Annex 6.15 - CardLink (Ireland)*.

4.4.6.3.3 The exclusive (and patented) technology currently used by Philips to manufacture smart cards has recently been independently verified by France Telecom to be of the most reliable currently available. Philips has also been awarded the contract to develop IEP the first Compatible Electronic Purse for a French financial organisation.

4.4.6.3.4 Over the last 10 years Philips has achieved many 'world firsts' in smart cards :

- First to put the DES algorithm in a smart card (PostBank '1986)
- First to use a smart card for workstation security (CTR-Nord 1989)
- First to include RSA algorithm in smart card (EDI-ETEBAC5 1992)



SECTION 4.4 - BENEFIT PAYMENT SERVICE

4.4.6.4 PATHWAY SMART CARD REFERENCES

4.4.6.4.1 A selection of key references for smart card technology are given below :

(a) Payment Applications

- 25 million smart cards delivered to the French banks based on the B0' (B zero prime) technology. Philips, jointly with Bull, are in charge of the B0' development for French banks
- La Poste (Fra) Development contract for IEP, the first Compatible Electronic Purse

(b) Security Applications

- Rabo Bank (Holland) - Electronic banking applications for the bank's clients (30,000 smart card readers installed, 100,000 DX smart cards delivered)

(c) Health Applications

- Social Security (Fra) - Identification and authentication of patients 200,000 smart cards delivered
- Health Program (Germany) - Identification and authentication of patients. Over 4 million D2000 cards delivered and the development of dedicated PE115 terminal smart card reader

4.4.7 CUSTOMER ACCEPTABILITY**4.4.7.1 INTRODUCTION TO RESEARCH**

4.4.7.1.1 Pathway has sought to determine the optimal product, positioning and communications strategy for the BA card from the point of view of benefit customers. This was achieved by employing qualitative research techniques and applying them to a representative sample from the BA customer base. The sample was chosen to reflect socio-demographic type, regional location, disability, gender and ethnic origin. None of this customer group were opting for direct credit (ACT). A sample of 'opinion formers' was also included. The complete market research findings are presented in *Annex 8 - Research Programmes*.

4.4.7.1.2 The qualitative approach has allowed Pathway to investigate and understand the attitude and views of the sample and to uncover issues in relation to the transition to card-based payments.



SECTION 4.4 - BENEFIT PAYMENT SERVICE

4.4.7.2 BACKGROUND ATTITUDES

- 4.4.7.2.1 There is no typical benefit customer but a wide spectrum of individuals with different types of lives, financial conditions and attitudes towards the provision of the service. Some may live quiet stable lives, others are in a constant state of chaos. Some may be careful with their budgets, others live day-to-day and hand-to-mouth. Some may feel embarrassed, shame or anger about receiving benefit, others are totally apathetic and accepting. In contrast, many pensioners tend to resent their pension benefit being called a benefit because they feel it is an entitlement they have earned. These difference must impact on the choice of name given to the card, its design and positioning.
- 4.4.7.2.2 Pathway and BA face a reality where a relevant and popular solution may be difficult to find. Pathway will determine an optimum and customer-sensitive solution to the problematic issues of card design, name, positioning and communication by seriously considering the views of the BA customer.

4.4.7.3 OPINION FORMERS

- 4.4.7.3.1 The opinion formers are people who represent and provide support services to many benefit recipients. They include Help the Aged, Age Concern RNIB, MENCAP amongst others. They offer a useful insight into the special needs of those they serve. They will also prove helpful in the process of rolling out the benefit payment card and easing its acceptance by the card users.
- 4.4.7.3.2 However, whilst some of them prove to be well in-touch with the views of their interest groups, the research amongst the customers demonstrated also that some of the opinion formers offered misleading information. Thus, care must be taken in the application of their ideas.
- 4.4.7.3.3 The opinion formers were very pleased to be consulted. This goodwill offers us a good start in the process of building the relationships which may prove to be critical in helping us launch the card.



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4.4.7.4 ATTITUDES TO BENEFIT COLLECTIONS

4.4.7.4.1 The research found that there is a wide spectrum of emotional intensity amongst BA customers towards many elements of the benefit-collection process. For example, the use of girocheques, the use of the postal system, entitlement changes and multiple benefits all produce high levels of anxiety. The underlying attitudes surface early in the process of claiming benefit. Typically, this is when signing on, when waiting for the post to deliver the benefit book or when establishing entitlement, and so on. The anxiety is not apparent at the stage when the benefit is collected at the post office, which is an experience that provides re-assurance. Nevertheless, benefit recipients perceive the initial steps as an integral part of the whole process, so attitudes to the new benefit card system will be affected by attitudes to other elements of the overall service. A conclusion of the research is that Pathway and BA will need a partnership and quality approach to all elements of the process in order that the card-based payment is well received.

4.4.7.4.2 The research also found that benefit recipients do not perceive the current benefit payment system to be problematic. Indeed, they find it hard to envisage any alternative being simpler or more efficient than it is now. Some asked, why change a system that works? We conclude therefore that there is little point in suggesting to BA customers that the new system is better than the current one in terms of its simplicity and efficiency. If we do, this may generate a negative reaction because the message would be unconvincing. Instead, Pathway will need to position the approach as 'just as simple to use and no less efficient', and use other features to justify replacing the old system. Other important considerations are BA customer attitude towards safety, security and fraud.

4.4.7.5 SAFETY, SECURITY & FRAUD

4.4.7.5.1 For many, there is a highly charged emotional fear surrounding the anticipation of the benefit, lest it is lost or delayed. The anxiety is particularly prevalent in those waiting for their girocheque. This fear arises because of their dependency on the benefit - some may fear falling into debt while others may already be in debt and are concerned not to fall in any deeper. Once received, the benefit provides them with peace-of-mind and re-assurance. Indeed, we welcome the opportunity of removing the fortnightly anxiety of waiting for the girocheque and imparting to customers a sense of control.

4.4.7.5.2 Customers are also quick to recognise the advantages of a system for reducing fraud. This is perceived as being an advantage mainly to the Government. Nevertheless, there are many who strongly approve of fraud reduction on the basis of not letting people get away with it and an innate hate of waste.

4.4.7.5.3 However, customers are also fearful that the card may easily be lost, or that the computer system will break down and deprive them of money. They need re-assurance that the system is adequately backed by procedures to cover such emergencies.



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4.4.7.5.4 When authentication methods were discussed, customers raised the question of proxy collections - could they still use an agent? They want this option available. Nevertheless, their preferred authentication method is the use of a photographic image of the recipient on the card, and a digitised (hidden) signature system; these are, of course, expensive solutions. The relatively cheaper alternative of a visible signature on the card was less popular, but neither was it rejected because it is perceived as being familiar and easily understood.

4.4.7.5.5 Other methods researched were the use of a PIN and biometrics (specifically fingerprinting). The PIN was the least popular of all methods of authentication. Fingerprinting was liked by some who thought it very secure but was disliked by most, who linked it with the negative associations of criminality and Big Brother, or else they feared it could make proxy collections impossible. In any case, the technology which this would demand is perceived as being expensive, 'over the top' and therefore an unnecessary waste of resource.

4.4.7.6 RESEARCH RECOMMENDATIONS

4.4.7.6.1 We will involve the opinion formers in any further research, so that we encourage their support for the card solution and develop communications with BA customers. In any case, they expect to receive information packs in advance of the launch.

4.4.7.6.2 The overall BA/POCL service and procedures will affect how well benefit recipients accept the new benefit payment card.

4.4.7.6.3 The new benefit card should be positioned as being 'simple and efficient in operation and use', not 'simpler or more efficient'. It should also be positioned to generate a feeling that it will help fill the recipient's need for safety and security, and thus offer them re-assurance.

4.4.7.6.4 The main selling point is assumed by the customers to be a reduction of fraud. This will make acceptance of the card much easier but this rationalisation should also be combined with the emotional feelings that fraud generates. Such a combination may serve to build a powerful and persuasive message for justifying the introduction of the card.

4.4.7.6.5 The fears of lost cards or system breakdowns may be countered by communicating the strengths of the support processes behind the service. (These will include fast card replacement, the emergency payment system, and subject to agreement with BA, the ability of customers to receive benefit at their local post office by providing suitable independent identification.



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4.4.7.6.6 The authorisation process will essentially be a compromise between security against abuse, being simple enough to operate and being accessible even to casual agents of benefit recipients. The research concludes that a signature-based system is the optimal route, especially given the enhanced security of system-based information which will support customer verification and card authentication.

4.4.7.6.7 The card name and design should be suggestive of personal security, reassurance and simplicity. It should be distinctive, highly recognisable, clear and distinguishable from other BA cards in the household. Above all, it should not be suggestive of benefit (save for the BA logo) but of its inherent use of collection or entitlement.

4.4.8 CONFIGURATION MANAGEMENT

4.4.8.1 INTRODUCTION TO CONFIGURATION MANAGEMENT

4.4.8.1 A high level of systems availability and a quality service are essential for the continued confidence of BA and their customers. This will be achieved by providing a strong, central Pathway Service Management function with all of the information, training, knowledge and support required to ensure that Pathway services operate efficiently and effectively.

4.4.8.2 Pathway services and their underlying support services will be administered centrally by the Pathway Service Management team. This team will provide a single point of contact for BA and POCL staff.

4.4.8.2 PATHWAY SERVICE MANAGEMENT

4.4.8.2.1 The responsibilities and scope of Pathway Service Management are :

- Help desk services
- Incident and problem management services
- Software support services
- Hardware support services
- Network support services
- Service administration and maintenance services
- Service level achievements

4.4.8.2.2 Pathway, via ICL and Girobank, has extensive experience in the provision of support services. The ICL Sorbus national help desk supports multi-vendor systems and software. Girobank currently provides a number of help desk support functions including :

- POCL help desk for Postmaster reconciliation enquiries
- Visa call centre (provided by A&L Personal Financial Services)
- IT technical support



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4.4.8.4 SECURITY KEY DISTRIBUTION

4.4.8.3.1 The public key needs to be distributed to the counter infrastructure in each post office to enable the checking of the digital signature associated with each payment file and to verify that the data has not been amended. This distributed public key has a value aligned with the private key of the Pathway host system. Pathway will assign the distribution of the public key to Pathway Service Management as an element of security management. Keys will be distributed across the network by Riposte.

4.4.9 REQUIRED DEVELOPMENT

4.4.9.1 The Pathway solution is built upon established and proven components and the bespoke development is largely limited to changes necessary to tailor those systems to reflect the format and content of the interfaces with CAPS and to support additional inter-Service dialogue such as that between PMS and CMS to enrich given payment records.

4.4.9.2 The CMS and PMS development programmes have been aligned with the procurement timetable specified in *Chapter 9 of the SSR*.

4.4.9.3 During the Demonstrator Phase the capability of the baseline products from which CMS and PMS will be developed will be established by reference to those products in terms of functionality and live use. Modelling of the business process will be undertaken such that a functional requirement baseline can be agreed with BA/POCL.

4.4.9.4 This will allow completion of the design and development of an initial release to be used as part of the Live Trial.

4.4.9.5 Details of the above activities which form part of the Pilot Programme are given in *Section 6*.

4.4.9.6 Subsequent to the Pilot Programme CMS and PMS will be developed further to take account of the results of the Programme and in readiness for integration and testing of CAPS.

4.4.9.7 Further information on the post Pilot Programme activities and how they form part of Pathway's proposed roll-out plan are given in *Section 7.3*.

4.4.9.8 The development process defined above ensures that enhancements can be made to PMS and CMS as the Pilot Programme proceeds whilst allowing sufficient time for integration and testing with CAPS prior live usage during :

CMS August 1996

PMS November 1996

SECTION 4.4 - BENEFIT PAYMENT SERVICE

4.4.10 SUMMARY OF BENEFIT PAYMENT PROPOSAL

- 4.4.10.1 Pathway has proposed an end-to-end Benefit Payment Service which is both low-risk and innovative. The card technology is the widely used magnetic stripe cards. Pathway's proposal will be smart-card enabled from day one of operation. The service can take a known migration path to smart card technology and is therefore future-proofed.
- 4.4.10.2 The central components of the service are based on traditional fault-tolerant hardware but unique to Pathway, the payment delivery component of the service is based on a distributed computing model. Distributing payment information allows rapid authorisation and uninterrupted payment of benefits in adverse conditions such as network or central systems failure. On-line authorisation of payments will be required only in the case of exceptions such as foreign payments.
- 4.4.10.3 The transaction details will allow full reconciliation of authorised and encashed benefits. The receipting system will give the benefit customer full details of benefits collected and can include personalised messages.
- 4.4.10.4 By conducting research on customer acceptance Pathway understands the need for customer care during transition from paper to cards and will work with BA to develop innovative programmes to support this transition.

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4.5 SPECIFIC RESPONSES

GENERAL

C SR4.1 *Can the Service Provider confirm that the service will comply at all times with all relevant legislation?*

Pathway confirms that, as far as it is aware, the service will comply with all current legislation and it is our intention to comply with all future relevant legislation. Being UK based, in direct control of the relevant software, and close to the source of legislative change, Pathway is well positioned to respond to any such relevant legislative changes.

C SR4.2 *Can the Service Provider confirm that it will be possible to prove that the service was operating without defect in evidential support of any appropriate prosecutions in court?*

Pathway confirms that it will be possible to prove operation of the service without defect in evidential support of any appropriate prosecutions in court.

The service is designed so that a full, auditable history of all operational events occurring at each counter position and interactions with host application services is maintained by the system. Initially this will be done on magnetic storage within the correspondence servers and subsequently archived to optical media. It will provide information on the operational characteristics of the system at any point in time, together with the history of all events relating to transactions passing through the system and their reconciliation. Thus it will be possible to identify the 'who, what, why, where and when' attributes of an event occurring as a result of business processing and system management activity.

These facilities have already been used to provide evidence to support criminal prosecutions within the Republic of Ireland.

I SR4.3 *State how the service will provide the office polling and real time authorisation; elements of the applications portfolio for value added processing.*

Communications with post offices can be initiated in two ways :

- From the centre out to a particular post office
- From the particular post office to a central location

The Riposte architecture is a replicated-messaging architecture. In the event that communications are established with the central location, the systems exchange state messages and if any state differences are detected then the systems update each other as necessary. This update can be in the form of replicating transaction journal messages or transmission of a file (for example a payment file) to the local post office.

Polling - During the normal operation of the system over a period of a day, the system will open communications based on the priority of the transaction message. During the period when the channel is open, an update of all lower priority transaction messages will take place. In addition to this intermittent replication of messages to the central location, the end-of-day processing will initiate communications to the central site to ensure that all remaining transactions are replicated to the central location. Transactions are collected at the central location for aggregation, additional Value Added Processing (if appropriate) and despatch to client systems. Thus the traditional polling cycle is replaced with an automatic replication of transactions to (or from) the centre on a time interval governed by the transaction message priority.

This approach has been working successfully at An Post to distribute payment authorisation files (centre to post office) and collect benefit encashment and bill payment transactions (post office to centre).

The Pathway implementation plan proposes that the existing POCL Host Data Polling System be used to collect data from the correspondence servers in the early stages of roll-out, utilising the existing POCL Value Added Processing applications to pass data to/from the individual POCL client systems. This eliminates dependencies on the development of new client interface applications at the start of roll-out. A strategic 'bill-payments' application will be introduced later in the roll-out programme, which will process transaction data from the correspondence servers, provide Value Added Processing and interface directly with the client systems.

Authorisation - The system can support the following real-time authorisation operations using authorisation data :

- (a) Local to the counter infrastructure (in other words, pre-distributed)
- (b) Located at a central correspondence server
- (c) By including the appropriate access routine, on an external client (acquirer) system

In the case of benefit payment authorisations, the Pathway design is based upon local authorisation using pre-distributed payment files as the most cost-effective and resilient approach where a consistent pattern of encashment exists. The ability is also provided to support foreign payments, where the authorisation data is retrieved from the payee's nominated post office or correspondence server.

Access from the correspondence server to external authorisation services can also be provided where needed for specific business transactions, such as transactions involving payment by debit/credit card or queries to a savings account.

In the situation where the payment cannot be authorised locally then communication is established with a central location. The message replication facilities of Riposte are used to generate this on-line authorisation. In this scenario a high-priority message is generated which opens the communications to the central locations. This message is received by the correspondence server and passed to a software agent that processes the request and sends a response to the originating post office.

All three authorisation approaches are in use within the An Post system; (a) and (b) for benefit payment authorisations and (c) for savings bank transactions.

I SR4.4 *Service Providers should indicate their interest in utilising the existing POCL data capture and document processing services.*

Pathway has assumed that a long-term goal of the POCL Strategic Infrastructure is to eliminate paper handling and hence we have designed our proposed system to progressively implement this, with electronic capture of transaction data at the counter. During roll-out and transition to full electronic operation we would expect, subject to further discussions, to make use of existing POCL data-capture and document-processing facilities for handling transactions from non-automated offices. Our architecture for TMS has been designed to enable transactions captured in this way to be merged with transactions captured electronically prior to Value Added Processing or despatch to client systems.

I SR4.5 *Service Providers should state the design methodology(ies) which will be/were used to produce the software components. They should also indicate the language/tools used and suggest how small, medium and major enhancements to software might be incorporated.*

Design methodologies - Pathway is using ICL's *Openframework* methodology to control the overall design of the service and the integration of its constituent components. This methodology is focused on system integration projects and supports the use of a variety of individual methods and tools within the individual project stages, under an overall set of control processes, which comprise :

- Project management, which for this project is based on PRINCE
- Risk management methodology, which is described in *Section 8*
- Information and change control

At an overall level, Pathway has adopted the architecture developed in the SSR and is using the following design methodologies :

- ADW to model end-to-end process structures and information flows
- OPNET to model the overall performance of the system
- Decision Support to model overall service-level characteristics

Development Languages & Tools - Pathway has split the systems development functions into host-based services (supporting CMS, PMS, OSS and VAP) and the TMS/Counter Interface components, including systems management.

The host-based services PMS, OSS and generic Bill Payments processing (VAP) will be developed by extension from existing Girobank systems using ADW methodology and Microfocus Workbench as the lower CASE development tool. The development of CMS, in the form of extensions to the existing ACI Card Management package, will be subcontracted to ACI and is based on RDBMS and SQL.

TMS and counter applications will be developed by extension from the existing Post Office systems in use at An Post and being prototyped for the Singapore Post Office (EPOS components). These extensions will use the Riposte development support environment with Microsoft development and testing tools using a mixture of Visual Basic and C++ languages.

System enhancements - these may require development in the counter interface applications, host-based services, or TMS, as all three components are utilised in the delivery of end-to-end services. In some cases these will require only parameter changes in the relevant area (e.g. TMS standing data), in others software development will be required - either to host-based applications or to the counter application software. Enhancements to the counter interface will be achieved normally via re-use and extensions of the existing, generic application types and will use system management software facilities to distribute amendments to installed equipment.

Minor enhancements only affect one system component, for example :

- (a) Amending the validation of data received from CAPS within the PMS application.
- (b) Altering the user interface component of a counter application (for example use of alternative GUI 'widgets' from the Riposte desktop library).

Medium-scale enhancements are likely to require a new or extended application in one area of the system. For example, a new type of bill payment can be implemented at the counter using different parameters within the generic bill payment (in-payment) application, but would require separate implementation of the client interface in the TMS or VAP area, built on one of the generic application agents (to control the information flow to/from TMS). New applications of a generic type can typically be implemented within a few weeks using this approach.

Major amendments would typically require co-ordinated changes, or new applications, in several areas of the system. An example of this type would be the introduction of a household budgeting application, which would typically require interaction with several bill-payment systems and potentially to the Benefit Payment System. Such amendments would require integration and co-ordinated testing prior to cut-in to live operation.

I SR4.6 *Service Providers should state the capacity limitations (minimum and maximum) of each component of in their proposed service, identifying areas of overlap between component capabilities.*

Counter Interface - There is no inherent limitation in the capacity of the counter interface imposed by the PC architecture; additional counter positions may be added as required, along with additional or faster components within the individual counter PCs. Ultimately the system is constrained by the operational characteristics of the shared components within a post office such as the office LAN, communications gateway and disk storage for journal messages and files. For the equipment proposed these constraints are calculated per post office :

LAN (10Mbps Ethernet) : the maximum transaction replication rate is estimated to be thousands of transactions per sec and overall LAN performance is limited to a significantly lower level by PC performance.

ISDN Gateway (64Kbps) : the maximum transaction replication rate to/from any one correspondence server over the WAN is approx. 30 transactions per second for a typical transaction mix. Additional ISDN connections can be added at individual post offices as and when required by traffic patterns.

Hard Disk : the maximum local transaction storage (based on 540Mb disk) is approx. 2M transactions or 1.3M payment authorisation records or combinations thereof. For the largest post office, assuming 25 counter positions, this equates to approximately 150 days transactions of all types or 260 days of benefit payment authorisation records.

TMS - The distributed architecture employed within TMS enables its capacity to be adapted to meet required transaction loads by increasing or decreasing the number of correspondence servers supporting the post office branches. Additional post offices may be added or removed from the service as required. In addition, the capability of individual correspondence servers may be extended/decreased by substituting larger/smaller Intel series processors.

It is envisaged that initially such servers will be based on dual Pentium processors with evolution to 2- or 4-way Intel P6 processors. Correspondence servers based on Pentium processors can support between 1500 and 2000 counters per server depending upon the precise transaction mix and rate, whilst providing full transaction replication, back-up and recovery facilities. TMS is configured with disk storage subsystems designed to provide a minimum of three on-line copies of all transactions, plus benefit payment authorisation files. Information is expected to be retained on-line for a period of three months prior to archiving to optical media; this on-line storage capacity can be increased to a theoretical maximum of several years of transactions by adding additional disk subsystems (and conversely for scaling downwards is required).

Branch Network - The capacity of the branch communications network is constrained only by the capacity of the public ISDN service on which it is based, together with the number of primary rate circuit terminations to effect connection to the correspondence servers. These are intended to be configured to support a minimum of 240 concurrent active B channel connections (i.e. eight primary rate connections) spread over four locations, providing an estimated 99.9% availability for busy hour call attempts. Additional primary rate connections can be added (or removed) as justified by changes to traffic patterns.

PMS - This is essentially a batch file processing and reporting system, whose capacity can be readily increased by either :

- (a) Extending the duration of the payment authorisation processing component within the overall payment management cycle.
- (b) By providing additional parallel processing streams for payment authorisation processing by splitting the CAPS data stream into multiple files (for larger scaling, if necessary).

The service as initially configured has a maximum capacity of 20M transactions (authorisations/encashment reports) within a 12 hour batch window per peak day. On-line data storage, configured for two months transactions, can be increased if necessary.

On-line enquiries, emergency payments and stops processing from CAPS constitute a small percentage of PMS resource demands. These are expected to amount to several hundred thousand per day, but the system can be scaled to cope with much larger volumes if necessary.

CMS - This provides a combination of batch and on-line processing facilities to support the demands of new and replacement card orders and activation, plus support for help desk operations (lost/found/stolen/etc.) and card enquiry/control operations from BA staff. The system has been designed to an expected daily peak capacity of 100K card orders, 20K help desk calls, plus enquiry/control transactions from BA staff (potential volumes to be discussed).

Both batch and on-line processing capacity can be extended in a similar manner to PMS.

Card Production - The Pathway service assumes the production and personalisation of approximately 25M cards over a three year period when in the steady state. Card production can be increased or decreased relatively easily; personalisation capacity has been based on an average assumed rate of 1.1M per month, with a maximum of 100K per day, during a smoothed roll-out avoiding major peaks and troughs. Variations (up or down) in these figures are possible, subject to contractual discussions on the details of the service roll-out and appropriate lead-time.

PMS/CMS/Infrastructure Help Desks - The help desk facilities have been based upon an expected annual total call volume of approx. 3.5M and have been designed with flexibility in mind; additional (or reduced) capacity can be provided in relatively small increments as dictated by traffic patterns.

I SR4.7 *Service Providers should state how potential customer acceptability issues will be identified and customer acceptability assessed, both prior to roll-out and once the service is in operation.*

Pathway believes that the successful implementation of the new services will be dependent on the reliability and excellence of the technology being deployed, and also on its acceptance by potential customers, the associated pressure groups, and other opinion formers. Accordingly, the need to identify potential problems and to create understanding and awareness in these groups is vital, and Pathway's ability to research, plan, implement, and support a comprehensive and professional customer education campaign will be key to our success.

Pathway has already undertaken market research (see *Annex 8*) into potential customer acceptability issues. Further research will be targeted on potential customers, consumer groups, and post office staff and will give us an initial feel for the potential issues which could effect the implementation.

In addition, the corporate members of Pathway have extensive experience and expertise in implementing automation of this type, and introducing new products and services to the customers of post offices, both in the United Kingdom and in the Republic of Ireland. All the knowledge and expertise gained from this experience will form the basis of a comprehensive potential issues log which the market research will augment.

Pathway will propose a strategy, an action list, and a timescale for addressing each of the identified issues to ensure that the implementation goes as smoothly as possible.

The cornerstone of our customer acceptance strategy will be a comprehensive and professional customer education campaign. Pathway proposes using all forms of advertising to get understanding and commitment from all target audiences by communicating relevant messages to all user groups and providing clear information about how and when the services will benefit and effect them.

Based on experience of customer education exercises of a similar scale and nature we have identified four key communications objectives to maximise customer acceptance :

- To educate and inform customers of the simplicity of changeover to the new services and manage their expectations about the various aspects of the new services
- To inform customers when their specific service will be affected
- To educate and inform opinion formers to overcome possible anxiety relating to changes affecting the special interest groups they represent and to get them to become advocates
- To educate and inform the general public about the benefits of the new service and avoid potential opposition and unease about the motives for the introduction of the new service

To give the most effective distribution of information to all target audiences and meet these objectives, Pathway's customer education campaign will advertise the launch, roll-out, and all other relevant messages using a mix of media, including an appropriate selection from television, radio, bill-boards, posters, direct mail, point of sale, and direct response television.

To monitor the success of the customer education campaign, and to learn and develop the most effective communications throughout the introduction of new services, Pathway will commission pre- and post-introduction tracking in each region where a new service is introduced.

In this way we will address the people aspects of the new services and ensure that they are managed and addressed in the same planned and professional way as the technical and operational aspects of this implementation.

I SR4.8 *Service Providers should state the scalability of the service (both up and down) to allow changes in business volumes to be readily accommodated.*

The inherent capacity and scalability of the equipment and service components proposed has been described in *Section 4.5 SR4.6*. The distributed approach adopted within the architecture allows service scalability in relatively small increments in response to changing business volumes.

EQUIPMENT CONSIDERATIONS

- C SR4.9 *The Service Provider is aware of his obligations under the emerging EC directives on Visual Display Screen Equipment 90/270/EEC and on Electromagnetic Compatibility (EMC) 89/336/EEC. Can the Service Provider confirm that all products used in the provision of the service, after implementation dates, will conform to these standards?*

Pathway confirms that products used in the provision of the service will comply with both 90/270/EEC and 89/336/EEC directives.

ICL, as a principal shareholder within Pathway, operates an extensive in-house EMC testing facility and has access to all relevant testing procedures to ensure compliance with these directives.

- C SR4.10 *The standards which come under the scope of Decision 87/95/EEC and of the Directive 77/62/EEC, will apply to the Services provided under any Contracts arising from this procurement. Can the Service Provider confirm that all products used in the provision of the service, after implementation dates, will conform to these standards?*

Pathway confirms that products used in the provision of service will conform to the standards within the scope of these directives, where such standards are defined and applicable to the various functions provided within the service. We note that many existing POCL services and various client interfaces are implemented using standards which we assume would fall within the scope of Article 5, Clause 3 of Decision 87/95/EEC, as might innovative aspects of the service provision in response to the needs of PFI.

- C SR4.11 *Can the Service Provider confirm that any equipment, installed for operation, will not significantly contribute to the ambient noise level in the office?. As a guide, the acoustic noise emission of any item of equipment should be less than 60 dB(A), measured at a distance of 1 metre.*

Pathway confirms that all equipment installed in the office will be selected so as not significantly to contribute to the ambient noise level in the office. The 60dB(A) level at 1 metre will be taken as a guide and individual items of counter or back-office equipment selected to meet this requirement.

- C SR4.12 *Can the Service Provider confirm that all equipment is capability of withstanding (without degradation in performance) impacts, shock and vibration, which may occur when in normal use?*

Pathway confirms that each item of equipment proposed for use within the post office environment will withstand without degradation in performance those impacts, shocks and vibration which may be expected to occur within its normal use.

- C SR4.13 *Can the Service Provider confirm that any electronic emissions from equipment will not interfere with other systems in offices?*

Pathway confirms that electronic emissions from the equipment proposed within its service will not interfere with other systems in the office. Equipment proposed conforms to EN55022, Part B and FCC part 15, subpart B.

- C SR4.14 *Can the Service Provider confirm that provision will be made for logic ground and mains safety earth to be connected or separated at each counter terminal supplied and peripheral supplied?*

Pathway confirms that provision will be made for logic ground and mains safety earth to be connected or separated at each counter terminal and peripheral supplied. This will be part of the site survey/installation component of the roll-out service.

- C SR4.15 *Can the Service Provider confirm that equipment shall not interfere with the health, comfort or normal pattern of work of staff as a result of emission of acoustic noise, vibrations, heat fumes or other radiation, or as a result of its construction?*

Pathway confirms that the proposed equipment will not interfere with the health, comfort or normal pattern of work of staff as a result of emission of acoustic noise, vibrations, heat fumes or other radiation, or as a result of its construction. Equipment proposed conforms to relevant legislation and standards in these areas, including EN60950 (safety) and ISO 7779 & 9295 (noise level measurement).

- C SR4.16 *The Service Provider to confirm the temperature range which the equipment can operate in without degradation in performance?*

Pathway confirms that all equipment to be installed within the post office counter and back-office environment will operate without degradation within the normal office temperature range 10-35 °C.

- C SR4.17 *The Service Provider to confirm the temperature range which the equipment can withstand without degradation in a storage environment?*

Pathway confirms that all proposed equipment can be stored without degradation in a storage environment within the approximate temperature range of -5 - 50°C.

BENEFIT PAYMENTS SYSTEM GENERAL

I SR4.18 State how the service will prohibit fraudulent attacks (both internal and external) with particular reference to attempted fraudulent payment transactions.

In Alliance & Leicester, Pathway has a fraud department at the forefront of industry developments for fraud control, committed to attacking fraud in a dynamic and pro-active way and with a proven track record.

The department adopts a 'managed risk' approach to achieve its unrivalled success. Strategies relate to an appropriate mix of fraud prevention, reduction, control, loss-limitation and investigation following analysis of key fraud management information.

Specific fraud containment measures within the Pathway proposal include :

- The use of a card containing neither payment value nor information relating to the location for payment collection
- Additional safeguards in the process of card collection and activation through the use of a Card Activation Number
- The use of additional personal verification data at the point of encashment
- The use of digitally signed payment authorisation files with full-integrity checking
- The provision of access controls, both physical and logical, and a full audit trail of all operations within the system. Closed user group facilities within the ISDN service will be used to restrict network access
- The provision of a full security policy, incorporating control procedures at all stages of the card order, production and delivery cycle and similarly at all stages of the payment authorisation validation, distribution and encashment cycle

BENEFIT PAYMENTS SHOULD BE MADE TO THE RIGHT PERSON

I SR4.19 Service providers should state how their proposed receipting procedure would operate, including details of any additional messages or information which could be incorporated on the receipt.

Pathway's receipting procedure is controlled by a receipting (software) module which is parameterised to vary the contents of the receipt for a given group of transactions. It will also allow the inclusion of messages changed or generated dynamically.

The standard receipt information will include :

- Date
- Time
- post office

- Counter staff
- Bill payment details/benefit details
- Declaration of entitlement and receipt of benefit

The dynamic information can be incorporated at these three different levels :

- By bill/benefit type
- By dominant due date
- By individual recipient

All of the above dynamic messages are in use by An Post for benefit payments. The dynamic message formats for Bill Payments are generally implemented by Bill Type.

In addition to all of the above, the system supports a global message which is afforded to all receipts. An example of this is 'The Post Office wishes all of its customers a very happy and prosperous New Year'.

The information to be incorporated at each of these different levels is provided to the system through parameter files. The information is distributed to each post office through the Riposte architecture. Some examples for each of the three levels are :

(a) By Benefit Type

- (i) 'All recipients of Child Supplement should note that the standard benefit increases from £30 per month to £40 per month from June 1st 1995'.

(b) By Dominant Due Date

- (i) 'Please note that your next benefit will be paid on Thursday 17th instead of Friday 18th due to the Bank Holiday.'

(c) By Individual

- (i) 'Please note that your next visit to the Social Services Offices is scheduled for Monday 12th June 1995.'

The individual receipt capability is also used to give benefit recipients details of their Household Budget Deductions. This scheme is operated by An Post and allows recipients to deduct amounts for payment to Utility companies directly from their benefit payments.

I SR4.20 *Service Providers should state how and in what circumstances the service will support and enable payments away from a nominated post office (if appropriate).*

In the steady state operation of the service, the service will support foreign payments away from a nominated post office in line with the current restrictions (or other similar procedures to be agreed with the Contracting Authorities).

Following presentation of the payment card, the system checks the local payment files to ascertain if any payment is due and whether the cardholder normally collects benefits from this local office. If no records are found the system initiates a search and retrieval operation through the central correspondence servers to locate the cardholder's nominated office and retrieve any due payment(s), subject to any agreed restrictions on the frequency of foreign payments. This utilises the on-line authorisation mechanism using high-priority message replication as described in *Section 4.5 SR4.3*. To prevent fraud from multiple encashment, the payment authorisation record(s) at the nominated office are locked during this retrieval operation and immediately updated to reflect any encashment(s) paid at the foreign office.

During equipment roll-out there is a potential complexity if a foreign payment for a card-based benefit type is necessary at a non-automated post office. In these circumstances a manual authorisation and recording of the transaction would be necessary. The Pathway proposals on roll-out and application phasing are based on the principle that equipment roll-out will be complete before cut-over of the first electronic benefit payments, using the card as the instrument of payment.

I SR4.21 *Service Providers should state how they intend to support and enable customer changes of nominated post office (if appropriate) and how the DSS will be informed of such changes.*

Pathway will provide a facility for a payee to amend the nominated office for payment on submission of their card. Use of this facility by a given payee can be inhibited by the Benefit Agency and the post office counter clerk will be expected to perform card authentication and verification of ownership as part of the process. Pathway will route the notification of change of office to CAPS.

At the design stage, Pathway and BA will agree whether the change is applied directly to CMS or whether, to maintain referential integrity of data, CMS is updated on receipt of a change to personal details from CAPS.

TOKEN PRODUCTION, ISSUE AND REPLACEMENT

C SR4.22 *Can the Service Provider confirm that any card produced, or used by him, in the provision of the service will conform to all relevant British, European or International ISO (or equivalent) standards?*

De La Rue, the UK's largest producer of magnetic stripe cards, and Philips TRT (De La Rue's partner in DelPhic), one of Europe's largest producers of smart cards, both meet the standards of the following national and international organisations for the manufacture and personalisation of plastic cards.

Visa Card	-	manufacture and personalisation
Master Card	-	manufacture and personalisation
APACS	-	manufacture and personalisation of cheque guarantee (Association of Payment and Clearing Services)
HMSO	-	Cleared to Security Level B
ICCC	-	manufacture and personalisation (Irish Cheque Card Committee)
GCB	-	manufacture of plastic card for chip insertion (Groupement Carte Bancaire - France)
Eurocheque	-	manufacture and personalisation of cheque guarantee card

Pathway will supply only card products that conform to the latest international and ISO specifications.

(a) International Standards Organisation (magnetic stripe cards) :

ISO 7810	Identification cards - physical characteristics
ISO 7811	Recording techniques for information on identification cards
ISO 7811/1	Embossing
ISO 7811/2	Magnetic stripe
ISO 7811/3	Location of embossed characters on ID -1 cards

ISO 7811/4	Location of read-only magnetic tracks - Track 1 and 2
ISO 7811/5	Location of read-write magnetic track - Track 3
ISO 7812	Allocating international issue identification numbers (IINs) for use on identification cards
ISO 7813	Design and use of identification cards as financial transaction cards
ISO 4909	Design and use of bank cards with a magnetic stripe that employ track 3

(b) International Standards Organisation (smart cards) :

ISO 7816	Design and use of identification cards with integrated circuits with contacts
ISO 7816/1	Physical characteristics
ISO 7816/2	Contact locations and minimum size
ISO 7816/3	Transmission protocols between card and terminal
ISO 7816/4	Inter-industry commands for data change

I SR4.23 *Service Providers should state the maximum time for the production of a card and its delivery.*

The Pathway approach to card production and delivery is described in *Sections 4.4.4.4 and 4.4.4.5*. Pathway proposes that the card production and delivery process should work to the following parameters :

Production -

- (a) Routine card renewals - despatched 15 working days from receipt of data.
- (b) Production of new and replacement of lost & stolen cards - 24 hour turnaround.
- (c) An emergency service to be provided for a maximum of 2% of cards - 12 hours from receipt of data to despatch.

Delivery -

The Pathway approach to card production and delivery is described in *Sections 4.4.4.5 and 4.4.4.6*. Routine despatches to major offices will be based on 24 hr delivery; for small offices it may be more sensible to batch together several days deliveries to minimise handling. Category (b) and (c) deliveries are expected to be based on next day delivery to all offices.

I SR4.24 The Service Provider should state how they intend to issue cards to authorised customers.

Card Supply

Pathway will deliver the inactive card to the nominated post office and deliver a pick up notice (PUN) to the customer. Only the PUN will contain the code necessary to enable activation of the card for the purpose of benefit collection. The PUN will not include any visible indication of the customer's nominated post office.

The nominated post office will be required to sign for a batch of cards in their sealed carriers. This process, plus resolution of any queries arising, will be managed by Pathway.

Card Collection

On presentation of the customer's PUN, the (inactive) card is read and the Card Activation Number (CAN) input from the PUN. Following a check that the card information generates an identical CAN, the customer will sign the card and a receipt for its issue. The card is then activated to enable collection of authorised payments either immediately or in the future. An independent means of customer identification will also be required to support the above process, and it is also possible to selectively use the customer personal details information, supplied by CAPS, as a further check.

Where customers are unable to collect cards in person, Pathway proposes, for discussion, the following additional options :

- Initial advice from BA of a new customer should include the list and associated personal details of known agents who would be permitted to collect the customer's card
- Supplementary proof of identity should be presented by such agents at the time of requesting card activation
- Those agents who hold benefit cards in their own right should present their own card for verification when collecting a customer's card

SECURITY

- I SR4.25** *The Service Provider should state how he will ensure that all data (electronic or paper-based and including stored data) is secure against unauthorised access and that the service is protected against internal fraud and counterfeiting.*

The Pathway security policy and IT standards and practices are tailored to the needs of the system and service being delivered. Appropriate controls - either physical or data - are included within the system design. The systems developed meet or exceed the information security requirements set out in BS7799, covering all aspects of access to electronic and printed data. The Pathway Security Policy is provided as *Annex 5*.

The design protects electronic information within the system by the use of appropriate authentication, access control, audit and information integrity mechanisms, together with physical controls on the environment. Control summaries will be used to ensure the operation of access controls and that the data has referential integrity.

After full service roll-out, paper storage will be confined to copies of benefit payment receipt counterfoils, issued at the counter. These will be collected, batched and stored in a secure environment for subsequent investigation and audit in a similar manner to the existing PDRs.

BA/POCL will have a 'right to audit' security aspects of Pathway's proposed service at a more detailed level and, during the proposal evaluation phase, we would expect to disclose, under appropriate conditions of confidentiality, the individual security methods used within the design.

See also *Section 4.5 SR 4.18 and SR4.26*.

- I SR4.26** *The Service Provider should state how case sensitivity will be applied in the service domain (as described in SSR Section 4.3).*

Within the solution offered by Pathway, the system will allow for the identification of sensitive cases, as notified by CAPS, and special procedures will be introduced which are acceptable to our clients. This procedure will cover all occurrences of the sensitive data. In particular we would highlight the following areas :

(a) Access Control at System PMS - CMS.

The solution offered by Pathway will include a security subsystem. Within the system, access control can be restricted at various levels within the service. This includes record, screen and data levels.

Where unauthorised access is attempted audit trails are kept and will be made available.

(b) **Access Control within TMS and Counter Infrastructure.**

Both services include a security subsystem to deny object access to unauthorised parties and maintain an audit record of authorised access. Within the counter interface, user access to the underlying operating system functions and data files is inhibited. Counter staff only interact with the Riposte Desktop applications, which will protect sensitive data.

(c) **Despatch of Cards and PUN.**

Where customers are identified as case sensitive, Pathway will offer alternative means of controlling the production, delivery and receipt of the card and PUN.

AUTHENTICATION

I SR4.27 The Service Provider should state how authentication data would be collected, both initially and on a regular or continuing basis.

We assume that this question relates to what we would call cardholder verification data.

We propose that the Cardholder Verification Method (CVM) to be used initially is signature. We do not propose to collect this data as such but to rely on the controls in our proposals for the distribution of both cards and pick up notices (PUNs).

The proposed approach to card distribution and collection, as described in Sections 4.4.4.5 and 4.4.4.6, enables the customer's signature to be captured on the card in the presence of the counter clerk. The controls within this process, including the use of the CAN and supporting evidence of identity, will support the secure collection of signature as the primary CVM.

We realise that the method of signature collection we are proposing has risks but these risks are well known because this method is used for all financial institution credit and debit cards at present.

As part of the benefit payment process, additional customer verification data, as supplied by CAPS, will be available to the counter clerk to support further customer proof of identity when appropriate.

Pathway is aware that there will be a migration to other forms of CVM including the use of smart cards to store, for example, digitised signatures or photographs or both. We would look to working closely with the Benefit Agency to agree a practical method for the collection of improved CVM information. In the interim other technologies, for example laser engraving the signature onto the card will be considered.

We also believe that there are no practical alternatives to our proposed method for the initial system if the timescales laid down in the SSR are to be met.

I SR4.28 *The Service Provider should provide any background information and research that may support their proposed method of authentication.*

In January and February 1995 the Research Business conducted Qualitative Research into 'A Card for The Benefit Agency' on behalf of one of the shareholders of Pathway. The research was conducted via 30 paired depth interviews with benefit recipients and 10 depth interviews with potential opinion formers representing many of the minority groups, such as the elderly and single parents.

The key objective was to investigate the attitudes to a change from the current paper-based service to a new card-based service, and in particular how various authentication methods were perceived.

The five options put forward for authentication were :

- Signature written on the card by the customer, and then compared with a signature provided by the customer on a payment receipt
- Signature captured, stored within the card, and then displayed on the screen at the post office for staff to compare with a signature provided by the customer on the payment receipt
- Photograph on (or in) the card to be compared with the customer at the counter position
- Personal identification number (PIN) for each card to be remembered by the customers and then entered on a PIN pad at the counter position
- Finger print to be captured and then stored within the card for the counter computer to compare with the customers' finger print via a finger print pad at the counter position

The research indicated that none of the five methods are entirely free from drawbacks for all potential customer segments. The ideal method needs to strike a balance between providing enough controls to secure against fraud and abuse, and being simple enough for all customers, in all customer segments, to operate (or use without embarrassment).

The most widely accepted methods, throughout all customer segments, were the signature-based systems, although within specific individual segments other systems were often first choice.

The message is, if we can implement suitable fraud controls in a signature-based system, this will be generally well received across all customer segments. If it is appropriate to migrate to a different authentication method in the future then we will have to be careful about which customer segments we approach first, and we should be prepared for a more complex education programme and an extended bedding-down period.

The full research report is included as *Annex 8*.



SECTION 4.6 - VERIFICATION OF BA & POCL FUNCTIONAL OBJECTIVES

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SECTION 4.6 - VERIFICATION OF BA & POCL FUNCTIONAL OBJECTIVES

4.6 VERIFICATION OF BA AND POCL FUNCTIONAL OBJECTIVES

This section acts as a verification that the functional requirements of both BA and POCL have been adequately addressed in our response to the SSR. The verification is presented as two tables looking at the objectives of both BA and POCL.

Table 4.6.1 - Verification check against BA functional objectives

	BA Objectives :	Pathway Response :	See Section :
a	provide a method of payment which ensures payment of the right money, to the right person at the right time;	The proposed solution is built on proven components and services designed to provide an efficient and secure end-to-end payment process. Payment and associated data is held in multiple locations within the process to ensure its availability but most importantly in the customer's nominated post office. This enables positive authorisation of the correct payment, to the right person at the right time	4.2.5 and 4.4
b	provide a fully secure system that eliminates fraud as far as possible and controls residual liabilities;	Pathway has proposed a highly secure system which has a complete audit trail for every transaction together with access controls, digital signatures and CRCs. The end-to-end process is resistant to fraud and provides detailed information to support fraud investigations when required	4.3.4.8
c	provide improved systems to detect and monitor unauthorised activity and supply evidence to support prosecution of illegal action;	The Pathway solution captures the complete encashment details and prints a receipt for signature by the customer. The archiving system will retain encashment details and an audit trail of all transactions to support prosecutions	4.3.4.6 and 4.4.5.13
d	provide full accounting and reconciliation facilities;	The solution proposed by Pathway collects transaction information at a very fine level of detail. Full reconciliation and accounting will be supported by the proposed solution. Transaction details are gathered for all normal counter functions and all exceptions such as transaction reversals	4.4.5.17

SECTION 4.6 - VERIFICATION OF BA & POCL FUNCTIONAL OBJECTIVES

	BA Objectives :	Pathway Response :	See Section :
e	reduce current administration costs, secure the lowest value for money cost for the provision of the new service and provide for continuous improvement in value for money throughout the period of the contract(s);	The use of industry-standard components and the nature of the distributed messaging architecture ensures a cost-effective solution. The ability to introduce new benefit services quickly and without disruption to existing benefit services will ensure a continued improvement in value for money. By enabling the capture of all information required for, and resulting from, benefit payments, paper will be eliminated and the overall efficiency of the process improved	4.2.3 and 4.4.2
f	provide an efficient customer service which is accepted and understood by them, BA staff and POCL agents and staff;	The counter solution proposed by Pathway is in full operational use by the post office and the Social Welfare Service in the Republic of Ireland. The system has proved to be highly acceptable to customers, it has reduced transaction times and is used by a wide variety of staff	4.2.3.3 and 4.3.5.2
g	provide flexibility to cope readily with any future changes affecting benefits or customer base and to adapt to developing needs of customer service, accounting or security;	The solution proposed is based on sets of generic functionality and is highly parameterised to facilitate new benefits and changes to existing ones. The solution has a clear migration path for the move to smart cards and allows security to be progressively upgraded as the need arises	4.3.3 and 4.4.6
h	be consistent with the Government's aim of encouraging the use of automated credit transfer (ACT) on a voluntary basis while continuing to provide the option of payment at a post office for those who prefer it;	The Pathway solution is consistent with the Government aim of providing a cost-effective, efficient option for payment at a post office while not affecting the existing ACT option	4.2.3



SECTION 4.6 - VERIFICATION OF BA & POCL FUNCTIONAL OBJECTIVES

	BA Objectives :	Pathway Response :	See Section :
i	enable all of a person's benefit entitlement(s) to be paid in one transaction using a single token or card for the identification of all benefits;	Benefit customers will activate all benefits due with a single card. A receipt will be produced detailing the benefits received, the respective amounts, suitable messages and declarations	4.4.5.7
j	ensure that any token or card identification system can migrate to a multi-purpose smart card;	The solution proposed by Pathway will be smart-card enabled at roll-out to the first office. The card migration strategy proposed will enable BA to take advantage of increased levels of card utility as the technology matures	4.4.6 and Annex 9
k	encourage the use of the National Insurance Number (NINO) as the prime reference number for communications between the BA and its customers, their employers, or other Government Agencies;	The NINO is the prime reference number within the Pathway solution. The NINO will be the primary reference number on the cards, where it is included within the Primary Account Number. It will be embossed on the card, electronically etched on the card signature strip and coded onto the magnetic stripe. Customers will be encouraged to use their NINO in all communications with BA and when contacting the Pathway help desk	4.4.4.4.3
l	use IT systems that are robust, as far as possible already proven, and secure against fraud, unauthorised access and disasters, are capable of development and interface with existing systems.	Robust and proven, each service component is based on established technology widely in use. Pathway has established a security policy and all systems will incorporate appropriate authentication, access control, integrity and audit mechanisms. All central systems are duplicated over geographically separate sites. POCL counter operations are not dependent upon the immediate availability of the network or central services, minimising the impact of failure of any component of the solution. The solution design is modular and incorporates generic building blocks using industry-standard components and development tools	4.2.5, 4.4.5.18 and 4.3.7

SECTION 4.6 - VERIFICATION OF BA & POCL FUNCTIONAL OBJECTIVES

Table 4.6.2 - Verification check against POCL functional objectives

	POCL Objectives	Pathway Response	See Section :
a	to provide continued customer choice of services available at post offices and be acceptable to customers;	Pathway is proposing an intuitive counter interface which is proven to be acceptable to both counter clerks and the public. It already supports a significant number of automated business products directly relevant to POCL and the generic approach proposed by Pathway facilitates fast and non-disruptive development for new business products	4.2.3.5 <i>and</i> 4.4.7
b	to retain and strengthen POCL's clear branding links with its customers;	The solution proposed has proven to be non-intrusive in the interaction between counter staff and customers. It improves the quality of interaction and related customer service. The look and feel is fully customisable to allow POCL to present its preferred image	4.2.3.3
c	to maintain POCL's customer base;	The infrastructure proposed will enable POCL to strengthen its links with customers by improving customer service and transaction times. POCL's links with the customer base will be improved by offering additional services	4.2.3.3
d	to support government policy of a nationwide network of post offices;	The infrastructure will support the network by linking all post offices in a seamless equally capable and non-discriminatory fashion. The service improvements provided by Pathway will help significantly in sustaining the existing Post Office network	4.2.3.3 <i>and</i> 4.3.7.3
e	to be capable of introduction in all post offices;	The solution proposed is capable of introduction to all post offices. Pathway is also proposing alternative counter equipment which can be offered as an option for smaller, lower transaction offices	4.2.9.1

SECTION 4.6 - VERIFICATION OF BA & POCL FUNCTIONAL OBJECTIVES

	POCL Objectives	Pathway Response	See Section :
f	to retain and enhance POCL's commercial and financial integrity;	The Pathway solution offers the ability to capture full details of all business transactions at the counter. This allows full automated reconciliation of all business activities and the electronic provision of data required by Operational Support Systems	1.7 and 4.3.6
g	to improve overall efficiency and cost effectiveness for POCL and its clients;	Pathway offers a paperless system with a common interface and full reconciliation which will improve the overall efficiency and cost effectiveness for POCL and its clients	4.3.3 and 4.4.2
h	to support and help agents in the development of their private business;	Pathway has proposed additional business opportunities that are relevant to all post offices. The use of industry-standard components, enables the use of the counter systems proposed in direct support of agents' non-post office business subject to an appropriate business case and controls to maintain security and prevent fraud	8.3.3.3
i	to be acceptable to staff and agents;	The Pathway counter interface has proved to be very acceptable to staff and agents where it is in use on ALPS and in Ireland	4.2.3.4 and 4.3.5
j	to facilitate automation of other areas of POCL infrastructure, e.g. accounting and distribution, and support wider business information needs;	The solution proposed will capture all details of automated counter transactions which will support and provide data for automation of other areas of the POCL infrastructure and provide comprehensive management information	4.3.4.10
k	to retain and gain new business by improving quality of service to all clients;	The Pathway solution offers fast implementation of new services and accurate delivery, accounting and reconciliation essential for improving quality of service	4.2.3.3 and 4.3.4.10
l	to provide the flexibility to meet a diverse range of existing and potential client needs and applications;	The flexible, easy-to-use interface and the inbuilt parameterised approach will support the needs of existing and potential clients. As an organisation Pathway has a unique blend of skills to support POCL in strengthening links with clients	4.3.3

SECTION 4.6 - VERIFICATION OF BA & POCL FUNCTIONAL OBJECTIVES

	POCL Objectives	Pathway Response	See Section :
m	to provide long-term stability for the Post Office network as a retail outlet for benefit payments;	The Pathway solution will provide stability for the Post Office network by providing a secure benefit delivery system and by enabling the introduction of new benefits quickly without disrupting existing services	1.2
n	to adopt a flexible and efficient approach to IT systems and adhere to industry standards so as to secure the benefits of developments in IT and retail sectors, thereby achieving value for money and faster delivery of new products and services;	The overall design makes extensive use of industry-standard components and interfaces. The use of standard PC technology, Microsoft software and the message replication architecture within TMS and the counter infrastructure, offers value for money and the ability to rapidly exploit future technology within the IT, retail and financial sectors	4.3.3, 4.3.5.4, 4.3.7.3 <i>and</i> SR 4.22
o	to retain customers' trust in the integrity of POCL and improve the quality of service to customers;	Pathway will work with POCL to develop a set of communications which will reinforce the safety, security and efficiency aspects of doing business with the Post Office. The solution will enable counter staff to deliver service confidently	4.2.3.5 <i>and</i> 4.4.7
p	to facilitate the provision of added value services, e.g. card and/or token issue and management, that will enhance POCL's service offering;	The Pathway solution includes a card management system and a counter infrastructure capable of taking on a variety of cards or tokens	4.4.2.2 <i>and</i> 4.4.3
q	to ensure the migration of appropriate automated systems without any reduction in service levels;	The Pathway roll-out strategy has been carefully planned to handle the migration of appropriate automated systems without any reduction in service levels	4.2.5.5 <i>and</i> 4.4.6
r	to be a key enabler in helping improve POCL's competitiveness, in meeting its business partners' needs, and enhancing future business viability.	The solution proposed is designed to be flexible. It will give POCL an opportunity to offer additional services in line with client needs thereby improving the relationship with clients and presenting the opportunity for developing new business	4.3.4.10

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5 STEADY STATE SERVICES

5.1 INTRODUCTION

This section describes Pathway's approach to providing 'business as usual' or 'steady state' services both during and after roll-out. It confirms that Pathway will meet the service performance criteria required and provides an explanation of the Pathway approach to service management.

5.1.1 STRUCTURE OF SECTION 5

5.1.1.1 The operational services Transaction Management Service (TMS), Operational Support Service (OSS) and the Counter Interface are described in the context of their application and performance within the POCL Strategic Infrastructure Service in *Section 5.2*. Card Management Service (CMS) and Payment Management Service (PMS) are described in the context of the Benefit Payment Service in *Section 5.3* and the Support Services, (including the underlying support services), are described in *Section 5.4*.

5.1.1.2 *Sections 5.2 to 5.4* each make reference to Pathway's generic approach to service development and introduction, described in *Section 5.1.1*, and identify where specific differences to this approach have been adopted.

5.1.1.3 Several potential disaster scenarios are presented in *Section 5.5* showing how various services would be affected and how Pathway's service administration team co-ordinates activities to restore service operation back to normal.

5.1.1.4 Contract Management is described in *Section 5.6* and Contract Transfer is described in *Section 5.7*.

5.1.1.5 Examples demonstrating Pathway's service capability are presented in the text and references are made to case studies in *Annex 6* where more detailed descriptions are documented.

5.1.2 APPROACH TO SERVICE DEVELOPMENT AND INTRODUCTION

5.1.2.1 The diagram in *Fig. 1*, shows the generic approach Pathway has adopted for the selection and development of steady state services.

SECTION 5 - STEADY STATE SERVICES

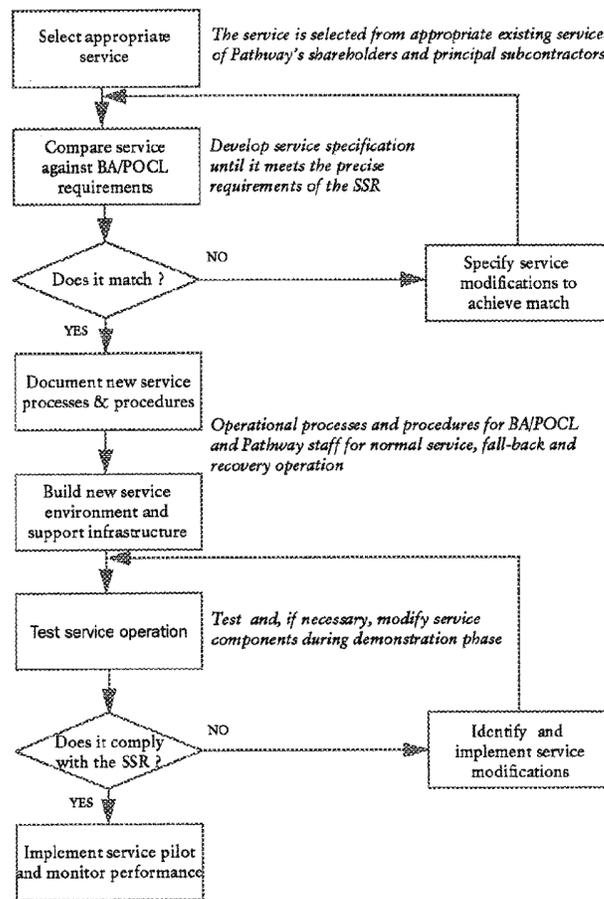


Fig. 1 - Pathway's Generic Approach to Service Development

5.1.2.2 This approach will result in services that exactly match the requirements detailed in the SSR and which are founded on practical experience. They will be reviewed jointly with BA/POCL during the pilot phase. Each service will be supported by documented processes and procedures and by Pathway staff who are fully trained and experienced in its operation. They will have been developed to the stage where only minor modifications may be necessary to accommodate enhancements requested by BA/POCL as a result of experiencing live running during the pilot phase.

5.1.2.3 Pathway will place the majority of its supply agreements for steady state services directly with its shareholders and its principal subcontractors. The overriding factors influencing this decision are their capabilities, expertise and track record in delivering similar services over many years. Through Pathway, BA/POCL will be able to exploit these strengths and take advantage of strong, stable, established organisations and infrastructures and so minimise any risks.

5.1.2.4 Fig. 2 shows Pathway's service structure and the service suppliers.

SECTION 5 - STEADY STATE SERVICES

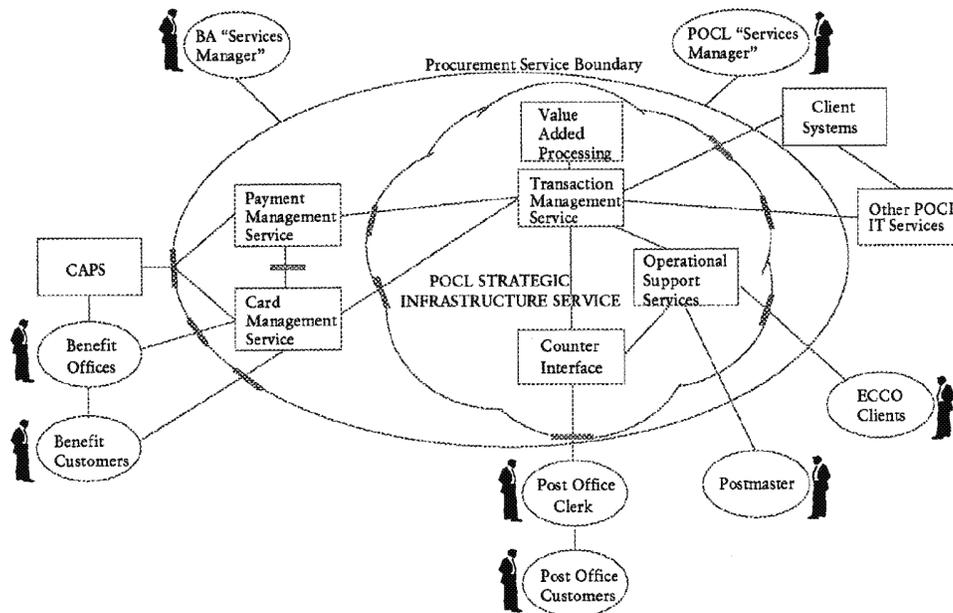


Fig. 2 - Pathway's Service Structure and the Service Suppliers

These services :	Will be supplied by :
Operational Services	
Benefit Payment Service	
Card production & distribution	De La Rue
CMS	Alliance & Leicester
PMS	Girobank
POCL Strategic Infrastructure services	
TMS	ICL, Girobank
Counter Interface	ICL
OSS	Girobank
Support Services	
Pathway Call Reception Centre	
Help desks	Pathway
Benefit Payment Service (CMS & PMS)	Girobank
POCL Strategic Infrastructure Service (TMS, Counter Interface, OSS)	ICL, Girobank & BT
Underlying support services (HW,SW, Network and applications)	ICL, Girobank, BT & An Post
Contract Management Service	Pathway
Contract Transfer Service	Pathway

5.1.3 SERVICE DELIVERY ORGANISATION

5.1.3.1 Within the organisational framework of Pathway's Operations Directorate, shown in *Fig. 3*, each service will be managed by a dedicated service manager supported by a core team. This team will be involved from the outset in creating and modifying existing documentation and training materials required to meet the needs of BA/POCL and Pathway.

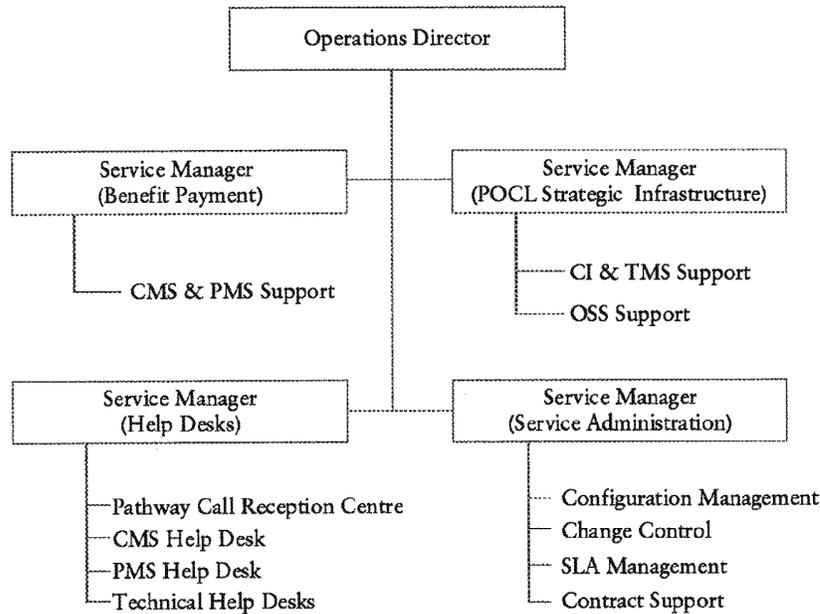


Fig. 3 - Pathway's Operations Directorate - Organisation Structure & Responsibilities

- 5.1.3.2 During the pilot phase, all aspects of staff training and service operation will be tested thoroughly. Additional staff will then be appointed and trained in readiness to support an increase in workload during the roll-out phase and as BA/POCL staff undergo the learning process.
- 5.1.3.3 During steady state, service managers will be responsible for the efficient operation of their services, their service suppliers and subcontractors, the maintenance of quality standards and their performance against agreed service levels.
- 5.1.3.4 A service administration team will be appointed under a senior manager reporting directly to the operations director. The team will be responsible for the overall contract management and efficient running of the day-to-day quality, operation and change management of all of Pathway's systems and services.

5.1.3.5 Pathway's Operations Directorate will provide a single point of contact for the communication and review of all steady state services. Regular reviews will be held according to a jointly agreed structured format to discuss all aspects of service performance and operational quality. This is addressed in more detail in *Section 5.6.2*.

5.2 THE POCL STRATEGIC INFRASTRUCTURE

5.2.1 INTRODUCTION

5.2.1.1 Pathway's POCL Strategic Infrastructure Service will provide an accurate and reliable end-to-end service from the counter interface and the 'back-office' to POCL client systems. It will provide a resilient, fully automated transaction capture, reconciliation and POCL client system interface in a secure and robust environment.

5.2.1.2 The main components of the Strategic Infrastructure Service are the Counter Interface, TMS and OSS.

5.2.1.3 The counter interface is the prime interface for POCL staff through which they may access Pathway on-line services. It will provide real time authentication, authorisation and recording of benefit payments and benefit payment cards, (described in *Section 5.3*) and all of the functionality required for POCL counter transactions to replace ESNS, ECCO+ and the APT Bill Payment system.

5.2.1.4 TMS provides a fault-tolerant and highly secure messaging environment for routing transactions between the counter, back-office applications, POCL central systems and POCL client systems.

5.2.1.5 OSS will initially provide Outlet Remuneration & Reconciliation and Reporting & MIS functions, however its modular architecture will enable the introduction of additional operational support services when required.

5.2.1.6 Pathway has selected the most appropriate hardware platforms and network communications system that meet the specification required and which will support the current ESNS, ECCO+ and the APT Bill Payment system. Pathway's modular architecture provides cost-effective support for additional applications and a range of upgrade options which will accommodate BA/POCL's current and future expansion requirements.

5.2.1.7 Through its shareholders and principal subcontractors, Pathway has access to many years of experience in the field of hardware/software supply, development and systems integration together with the provision of reconciliation and reporting services.

5.2.2 SERVICE DEVELOPMENT AND INTRODUCTION

- 5.2.2.1 All the components of the Strategic Infrastructure Service will be developed and introduced using the generic approach described in *Section 5.1.1*.
- 5.2.2.2 Pathway has selected ICL to provide the hardware behind the Strategic Infrastructure Service and An Post/Escher to provide the counter interface, TMS and the TMS messaging environment based upon Riposte software. This software is reliable, secure and resilient with a proven track record of being used successfully throughout 400 of the largest post offices in Ireland and by the POCL ALPS-ESNS project. (See *Annex 6.12.*)
- 5.2.2.3 The hardware and peripherals of the Strategic Infrastructure Service will be supplied by Pathway using the skills and experience of ICL which is one of the largest and most successful computer companies in the UK. ICL is currently installing the equipment for the ALPS project running ESNS. (See *Annex 6.5.*)
- 5.2.2.4 Girobank has been chosen to develop and manage OSS. Through Girobank, Pathway has secured expertise in providing management information and reconciliation services. They have a proven track record of accurately providing a full issue and encashment reconciliation of 100 million benefit payments per annum. (See *Annex 6.7.*)
- 5.2.2.5 The branch network will be provided by BT, and its design is based on detailed consideration of the location of post offices and their projected transaction volumes.
- 5.2.2.6 The development of the Strategic Infrastructure Service will be based upon existing operational procedures and products. The Riposte Human Computer Interface will be agreed during the demonstration phase and will be tailored to meet POCL's requirements following discussion, simulation and measurement of transaction volumes. Further refinements will be identified and introduced during the pilot phase and tested prior to roll-out. (See *Section 7.*)
- 5.2.2.7 The Strategic Infrastructure Service will satisfy the requirements of POCL because :
- (a) It provides an environment where all transaction data is automatically backed-up providing security against data loss and rapid automatic recovery in the event of system failure.
 - (b) It supports a wide range of transaction types with many different requirements for storage and onward transmission of data to client systems.
 - (c) It provides full reconciliation of the POCL Cash Account and Postmaster remuneration calculations. The daily reconciliation process is described in *SR5.19.*

- (d) It provides comprehensive reports and management information necessary for transaction trend analysis and the measurement of the performance of individual post offices.
- (e) It provides a user interface and software that are friendly and intuitive. This results in reduced training overheads, enthusiastic users and an early delivery of business benefit.
- (f) It is modular and flexible and will enable new applications and functionality to be incorporated with minimum disruption and cost.

5.2.3 STRATEGIC INFRASTRUCTURE SERVICE OPERATION FROM THE USER PERSPECTIVE

- 5.2.3.1 In larger post offices there is a Postmaster in charge of both counter and back-office processes. Other staff predominantly serve at the counter. In smaller post offices the roles of Postmaster and counter staff are merged and so in the narrative that follows references to either apply to the same person.
- 5.2.3.2 Before opening the post office for business, the Postmaster will complete the start-of-day procedure. This will give a screen-based report showing the value and breakdown of stock in hand (including cash) carried over from the previous day. All files will then be open for the input of transactions.
- 5.2.3.3 Throughout the day, transactions made at the post office counter are input to the counter interface using any of the following :
- Bar code reader
 - OCR reader
 - Magnetic stripe reader
 - Smart card reader
 - Compact keyboard (or, optionally, a colour touch screen)
- 5.2.3.4 The counter clerk will input the method of payment (cash, cheque or other financial token) and complete the transaction. When required, depending on transaction type, a receipt will be produced and the customer's signature obtained.
- 5.2.3.5 The process for benefit payment transactions is described in *Section 5.3.3*.
- 5.2.3.6 Throughout the day, completed transactions are passed to TMS where they are processed for distribution to POCL client systems or to OSS where they are stored ready for the process of reconciliation and for the production of management information reports. This process is transparent to counter staff and Postmasters.

- 5.2.3.7 In a multi-counter post office, the counter interface system backs-up all transactions in flight to the other counter positions. In single-counter offices, the system backs-up its transactions to TMS. This ensures that, should any break in service occur, completed transactions have been saved and can be recovered automatically. To the user, the back-up process is seamless and transparent.
- 5.2.3.8 When the post office has closed and all transactions have been completed, the Postmaster will perform his end-of-day procedures. OSS will provide a reconciliation for the post office and give a full analysis of stock-in-hand (including cash). Client summaries will be produced automatically.
- 5.2.3.9 Each Wednesday, the Postmaster's end-of-day procedure will initiate the production of the post office's weekly Cash Account. (*See Annex 3.*)
- 5.2.3.10 Postmasters remuneration information, reports and management information will be produced daily by OSS but may be distributed daily or weekly according to the requirements of POCL. The Postmaster's reports will be distributed to the counter interface system at pre-determined times. When required, hard-copy reports may be obtained locally by the Postmaster using his back-office printer.
- 5.2.3.11 Pathway will install new applications for the counter and back-office systems when required by POCL. From a user's perspective, they will be simple extensions to the menu of automated processes for handling customer transactions or producing reports, having a consistent interface with which they are familiar.
- 5.2.3.12 To POCL's customers, the Strategic Infrastructure Service will provide their post office with a modern, reliable and efficient way of conducting business.

5.2.4 SERVICE PERFORMANCE

- 5.2.4.1 Pathway confirms that the POCL Strategic Infrastructure Service will be capable of meeting the required service performance levels for the counter interface and TMS and will improve upon the standards and performance criteria currently applied to existing POCL services.
- 5.2.4.2 Availability of the Strategic Infrastructure Service will exceed 99.9% for up to 24 hours per day in accordance with a post office's operating schedules. Specific closures for the purpose of Cash Account production and cash reconciliation will be agreed during the contract negotiation stage.
- 5.2.4.3 Pathway's communications network will consist of multiple data circuits providing fast, reliable communications between post office counters, POCL systems and POCL client systems. The availability of this network will exceed 99.9%.



5.2.4.4 Fig. 4 shows the performance offered by the Strategic Infrastructure Service. Service transaction times indicate a 10% improvement over the stated BA/POCL requirements. Additional service performance figures are provided in SR5 and SR6.

Transaction Type	Response	Service transaction
Retail	< 2 seconds	< 20 seconds
Bill Payment	< 2 seconds	< 20 seconds
Benefit Payment (local post office)	< 2 seconds	< 20 seconds
Benefit Payment (foreign post office)	< 8 seconds	< 25 seconds

Fig. 4 - POCL Strategic Infrastructure Service Performance

5.2.5 BA/POCL RESPONSIBILITIES

5.2.5.1 To ensure that the counter interface performs to specification it is imperative that the counter staff and Postmasters adhere strictly to the procedures documented in the service operations manual. It is important that the following key points are observed :

- (a) All hardware and peripheral devices must be used in accordance with the specification and procedures.
- (b) All faults that are observed must be reported promptly to the Pathway help desk.
- (c) Field engineer access must be allowed whenever required during covered hours.

5.2.5.2 TMS will be available 24 hours per day. POCL client systems may impose constraints on the service if data transfer schedules agreed at the negotiation stage are not strictly adhered to. Changes to data transfer schedules will be agreed between Pathway’s service manager and POCL’s service manager.

5.3 BENEFIT PAYMENT SERVICE

5.3.1 INTRODUCTION

5.3.1.1 Pathway’s Benefit Payment Service (BPS) will provide a consistent end-to-end service from the service boundary interface with CAPS through to counter staff at the post office and back to CAPS. It will allow BA to provide customer details and payment information and enable POCL to pay the right customer the right payment at the right place at the right time.

5.3.1.2 The main components of BPS, as stated in the SSR, are the Payment Authorisation Service (PAS) and the CMS.

5.3.1.3 As explained in *Section 4*, Pathway has taken the overall functions contained within PAS and split them into two groups. Functions concerned with the bulk processing and management of payment records are defined as PMS. Those functions which are responsible for the payment of benefits at the counter are part of the POCL Strategic Infrastructure, which is described in *Section 5.2*.

5.3.1.4 CMS provides for the manufacture, supply and personalisation of new and replacement cards and will process the invalidation of lost and stolen cards, while PMS provides for the authorisation of due payments and the recording of all encashment details.

5.3.1.5 Through its shareholders De La Rue and Girobank, Pathway is able to draw upon many years of experience in the fields of card technology, secure card production, card personalisation, card distribution, transaction authorisation systems and fraud prevention.

5.3.2 SERVICE DEVELOPMENT AND INTRODUCTION

5.3.2.1 Both CMS and PMS will be developed and introduced using the generic approach described in *Section 5.1.1*.

5.3.2.2 Pathway has selected Girobank's card management service to provide the basis for CMS with De La Rue providing card production, personalisation and distribution. CMS uses a card management system from Applied Communications Incorporated (ACI). ACI Supports more than 400 customers operating over 900 systems in more than 50 countries worldwide.

5.3.2.3 PMS will be developed by Girobank, whose existing transaction reconciliation system programmes for the processing of girocheque issue and encashment will be tailored to meet BA/POCL requirements. This well-established system has been proven through the reconciliation of approximately 100 million benefit payments per annum. (See *Annex 6.7*.)

5.3.2.4 Pathway will also draw upon the experience of An Post who provided the software for the conversion of benefit payments issued by the Department of Social Welfare in Ireland (See *Annex 6.12*).

5.3.2.5 In adapting these solutions, Pathway will establish CMS and PMS as separate services running on fault-tolerant multiprocessor systems in two secure locations which are geographically remote.

5.3.2.6 BPS will be integrated fully with the POCL Strategic Infrastructure Service described in *Section 5.2*. It will satisfy the requirements of BA/POCL by ensuring that :

- (a) Cards will be distributed securely to post offices and activated only on the presentation of a valid pick up notice (PUN) by a customer whose identity has been verified.

- (b) Personal details, appropriate to the use of the card will be held securely on the system and used to verify customers' identities and authorise payments.
- (c) The timing, value and location of all automated benefit payments will be known and the delivery of benefit payments will be guaranteed.
- (d) The opportunity for fraudulent encashment of benefit payments will be minimised by adopting high security card technology and data encryption techniques.
- (e) All benefit payment data will be automatically backed-up providing security against system or data loss and rapid automatic recovery in the event of failure.
- (f) BA staff will have on-line access for the interrogation of benefit payment status and the issue of stop notices and emergency payments.
- (g) A secure, reliable data transfer interface to CAPS will be provided.

5.3.3 BPS OPERATION FROM THE USER PERSPECTIVE

- 5.3.3.1 On receipt of instructions from BA staff and CAPS, CMS will arrange for the personalisation of cards and their delivery to the appropriate post offices.
- 5.3.3.2 Barcoded batches of inactive cards will be delivered to post offices in sealed envelopes. The Postmaster signs for these and reads the bar code into the system to confirm to CMS that the batch of cards has been safely received. The cards must be stored securely in the post office.
- 5.3.3.3 A PUN will be delivered to the home address of the customer informing him that his benefit payment card may be collected from his nominated post office and giving instructions on how to provide proof of identity.
- 5.3.3.4 To collect his card from the post office, the customer must present his PUN together with at least one further proof of identity such as a current passport, driving licence or public utility bill. This process will be discussed and finalised during the contract negotiation stage.
- 5.3.3.5 The post office counter clerk will retrieve the card from store, swipe it through the magnetic card reader and input the card activation number (printed on the PUN) to the counter system. The system will respond with either confirmation that the PUN is valid or that it is not. In the latter case the customer will be advised to contact his nearest benefit office.
- 5.3.3.6 Having confirmation of a valid PUN, the counter clerk will ask the customer to sign both the card and a receipt. The card is then activated for the encashment of due payments.

-
- 5.3.3.7 CAPS will transfer details of new customers' entitlements and benefit payments to BPS 48 hours in advance of the due payment date. PMS will distribute this information to post offices, via TMS. Invalid data will be rejected at this stage and CAPS notified. Notification of card status is supplied to PMS from CMS.
- 5.3.3.8 To receive payment, the customer must present his valid card at a post office. He may request a statement of all outstanding due payments and select some or all for payment. Only sequential, whole, due payments will be allowed.
- 5.3.3.9 The counter clerk will swipe the card to input its details into the system. If the card is valid, the system will respond with details of outstanding due payments and some personal details such as address and date of birth which may be used as additional verification of the customer's identity. If the card is not valid, the system will respond with instructions to the counter clerk to take specific actions agreed between Pathway, BA and POCL.
- 5.3.3.10 If a counter clerk has any undue concerns regarding the identity of a customer or the validity of his benefit payment he will be able to seek assistance from the PMS help desk, described in *Section 5.4*.
- 5.3.3.11 If a customer loses his card or if it is stolen he must contact the CMS help desk immediately. The help desk staff will invalidate the current card on the counter interface and on PMS so that it may no longer be used for benefit payment encashment at any post office. The help desk will also arrange for the issue of a replacement card and PUN. The CMS help desk is described in *Section 5.4*.
- 5.3.3.12 Details of encashments will be returned to CAPS daily from PMS. On time expiry, any authorised payment which has not been encashed will be made void at the counter interface and in PMS, with confirmation being returned to CAPS. Transaction data of card issues, benefit payment encashments and expiries will be used for reconciliation, audit and MIS reports.
- 5.3.3.13 BA staff will be able to access the system via CAPS to make general enquiries and monitor information. Typically this will include :
- Placing stops on cards and payments
 - Enquiring on the status of cards and payments
 - Arranging for emergency payments
- 5.3.3.14 Optionally Pathway will provide BA staff with benefit payment encashment details for individual customers by date, post office, value and benefit type. This may assist in dealing with overpayments and customer complaints of underpayment. BPS will also provide a full audit trail of all benefit payment encashments which may be used to assist in the detection and investigation of fraud.
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5.3.4 SERVICE PERFORMANCE

- 5.3.4.1 Pathway confirms that the Benefit Payment Service will be capable of meeting the required service performance levels for CMS and PMS and, integral with the POCL Strategic Infrastructure Service, will improve upon the standards and performance criteria currently applied to existing benefit payments.
- 5.3.4.2 BPS availability will exceed 99.9% for up to 24 covered hours per day in accordance with BA/POCL system operating schedules. The CMS help desk will provide a 24 hours per day, 365 days per year service for the notification of lost and stolen cards. *Fig. 5* shows the performance offered by BPS. End-to-end service transaction times indicate at least 10% improvement over the stated BA/POCL requirements. Further details are provided in *SR5.5* and *SR5.6*.

Activity	Response	Service transaction
Local payment (at counter interface)	< 2 seconds	< 20 seconds
Foreign payment (at counter interface)	< 8 seconds	< 25 seconds
Invalidate lost or stolen card	<5 seconds	< 30 seconds
Stop notification	<5 seconds	< 30 seconds
Payment query	<5 seconds	< 30 seconds
Emergency payment	<5 seconds	< 30 seconds
Despatch of replacement card		24 hours
Batch issue of cards		< 5 working days
Delivery of PUN		2-3 working days
Issue of emergency cards to BA		24 hours

Fig. 5 - Benefit Payment Service Performance

5.3.5 BA/POCL RESPONSIBILITIES

- 5.3.5.1 To ensure that CMS and PMS perform to specification, counter staff, Postmasters and BA staff must adhere strictly to the procedures documented in the service operations manual.
- 5.3.5.2 When issuing a new or replacement benefit payment card, the POCL counter clerk must be satisfied that the identity of the customer is correct and that the PUN is and at least one further independent means of identification are provided.
- 5.3.5.3 When making benefit payments, POCL counter clerks must be satisfied that the card is valid and must verify the customers identity.
- 5.3.5.4 In order for the service to operate effectively, it is essential that information from CAPS about new benefit customers and amendments to existing customers' data is accurate and timely.

5.4 SUPPORT SERVICES

5.4.1 INTRODUCTION

5.4.1.1 Pathway will provide end-to-end support for all services. High levels of support, availability and service quality are essential for the continued confidence of BA/POCL, clients and customers. As described in *Section 5.1.2*, this will be achieved by establishing a strong central Pathway Service Management team with all of the information, training, knowledge and support infrastructure required to ensure that Pathway services continue to operate efficiently and effectively. The Pathway Operations Directorate organisation is shown in *Fig. 3*. Indicative staffing levels are provided in *SR5.14*.

5.4.1.2 The service managers for the Benefit Payment, POCL Strategic Infrastructure and help desk services are responsible for their efficient operation and support in accordance with the service definition. They are also responsible for the management of any underlying and subcontract services.

5.4.1.3 The Pathway Service Administration Manager is responsible for monitoring the day-to-day operational integrity and performance of all Pathway services against agreed and contracted service levels.

5.4.2 HELP DESK CALL RECEPTION AND CALL TRACKING

5.4.2.1 Pathway's help desk will provide the focus for all enquiries or problems and all calls will be received via the Pathway Call Reception Centre (PCRC).

5.4.2.2 A direct line help desk telephone number will be provided for customers with card-based queries, for example, stolen cards. For these calls, the PCRC exchange will simply monitor and log the number of calls received and re-direct them to the CMS help desk automatically.

5.4.2.3 *Fig. 6* shows the structure of Pathway's help desk service.

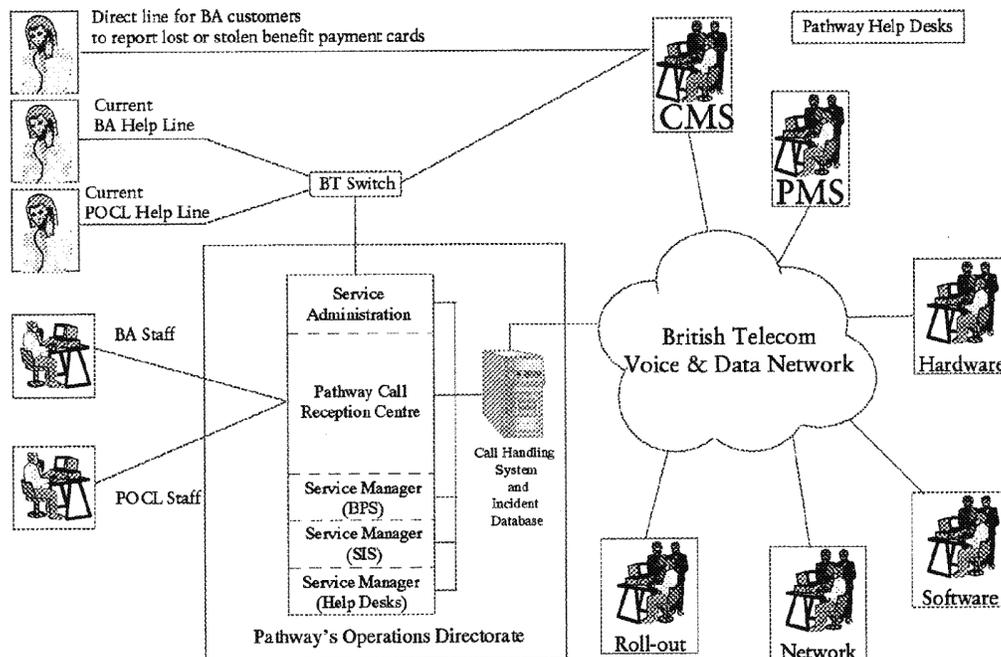


Fig. 6 - Pathway's Help Desk Structure

- 5.4.2.4 For calls received from BA/POCL help lines, BA/POCL staff or the ITSA help desk, the PCRC will automatically record the calling number using computer-integrated telephone technology. The site of the calling number will be checked against a database of registered POCL and client sites and the caller's details will be logged automatically onto the incident database.
- 5.4.2.5 The call will be allocated a reference number on the incident database system categorising it by caller, service required and priority. This call reference number is used throughout the life of the enquiry to identify it uniquely. At all times, progress towards final resolution of the enquiry is monitored automatically in the incident database as an auditable sequence of date- and time-stamped events until final resolution of the enquiry is achieved. A call's priority is automatically escalated if pre-determined time limits are exceeded.
- 5.4.2.6 In many cases, the caller will know which specialist help desk is required. Pathway will provide either Interactive Voice Response (IVR) or automatic routing for these calls. With IVR the caller will be given a menu of options and, using touch-tone dialling, will be able to select the required help desk. With automatic routing the caller will be provided in advance with a set of help desk numbers, the last digit of which will determine the call destination. In both instances, callers will have the option to speak to a PCRC operator if they prefer.

5.4.2.7 If a call is routed to the wrong specialist help desk, it will be re-routed by the specialist to either its correct destination or to a PCRC operator. The PCRC incident database will automatically record the new destination and continue to monitor the call.

5.4.2.8 PCRC operators will handle calls for which the final destination is unknown and, where necessary, will refer the call to a specialist help desk described in *Section 5.4.3* or the service administration team described in *Section 5.4.4*.

5.4.3 SPECIALIST HELP DESKS

5.4.3.1 INTRODUCTION

Pathway will provide CMS and PMS help desks as well as technical help desks.

5.4.3.2 CMS HELP DESK

5.4.3.2.1 Pathway has chosen Girobank to provide the CMS help desk. Its account management function has been at the forefront of telephone banking since the 1970s and it offers a 24 hour service, 365 days per year using the latest call technology. (See *Annex 6.8*.)

5.4.3.2.2 The CMS help desk will receive calls primarily from customers who wish to report lost or stolen benefit payment cards.

5.4.3.2.3 When a lost or stolen card is reported, the CMS help desk will immediately invalidate the card on CMS, triggering a cascade of events leading to the update of PMS and the counter interface, preventing any benefit payment encashments against that card. The help desk will then arrange for the issue of a replacement card and place its details on PMS and at the nominated post office.

5.4.3.2.4 The CMS help desk may also take enquiries from BA/POCL staff or from the BA/POCL help lines.

5.4.3.3 PMS HELP DESK

5.4.3.3.1 Pathway will provide the PMS help desk through its shareholder Girobank which, as described above, is able to draw on considerable experience of call centre operation. Girobank also currently provides a help desk for POCL staff for Postmaster reconciliation enquiries.

5.4.3.4 OSS HELP DESK

5.3.3.4.1 Pathway will provide an OSS help desk through its shareholder Girobank to assist in reconciliation reporting queries and other enquiries.

5.4.3.5 TECHNICAL HELP DESK - SOFTWARE

- 5.4.3.5.1 Pathway will provide total support for all operating systems and applications software through ICL's System Support Centre, which will provide a first- and second-line diagnosis function for all supported products.
- 5.4.3.5.2 The System Support Centre has some 500 technical experts with a wide range of diagnostic tools. Their relationships with major hardware and software vendors and manufacturers gives them access to all of the necessary technical information and support including engineering change notices.
- 5.4.3.5.3 The System Support Centre is an authorised Microsoft Service Centre. Its close working relationship with Microsoft provides Pathway with the latest support tools, technical information, documentation and training.

5.4.3.6 TECHNICAL HELP DESK - HARDWARE

- 5.4.3.6.1 Faults will be referred to the hardware help desk which will ensure that problems are resolved with the minimum of downtime. This may involve simply giving advice over the telephone, field repair visits or whole unit replacement of faulty equipment.
- 5.4.3.6.2 Pathway will provide the hardware help desk through ICL Sorbus. To support the help desk, Pathway will also have access to 320 of ICL's field engineers UK-wide, dedicated to supporting PC systems and supported by the ICL System Support Centre. The PC support operation within the System Support Centre is manned by over 50 staff, including Microsoft-certified professionals and Microsoft systems engineers. ICL currently service over 250,000 PCs, including approximately 100,000 non-ICL PCs, and over 60,000 desktop printers and peripherals.
- 5.4.3.6.3 Details of proposed call to fix times and escalation levels and procedures are provided in SR5.16.
- 5.4.3.6.4 Preventative maintenance will be provided by Pathway through the Prevent Unscheduled Maintenance Activity (PUMA) which was implemented by ICL in 1991. 'PUMA' is currently in place on all ICL's major retail customer locations and large desk-top network sites.

5.4.3.7 TECHNICAL HELP DESK - NETWORKS

- 5.4.3.7.1 This will provide day-to-day operational control by a central management function of all the physical network components, including remote fault diagnosis and the assignment of alternative routes for local and remotely managed network components.

5.4.3.7.2 This will be achieved through the use of HP Open View, a leading network management tool. Network components will be managed by Simple Network Management Protocol (SNMP) which is supported by HP Open View and provides a consistent view of all the components across the entire network.

5.4.3.7.3 Pathway will provide a help desk for the maintenance of the wide area network (WAN) through British Telecom. The system will automatically test each connection between the central backbone and the individual post offices at pre-determined intervals according to the type of post office, and will automatically highlight problems. The system has considerable in-built resilience, such as alternative addressing, which will be invoked whilst faults are progressed and cleared. British Telecom has a proven record in maintaining WANs to achieve very high levels of availability.

5.4.3.7.4 HP Open View provides many facilities to ensure the application-level services are operating correctly. In addition, the Riposte operating environment in TMS together with facilities built into components such as the ISDN cards, provide additional and complementary capabilities.

5.4.3.8 ROLL-OUT HELP DESK

5.4.3.8.1 The roll-out help desk provides a single point of contact for all enquiries about plans and progress of the roll-out programme.

5.4.4 UNDERLYING SUPPORT SERVICES

5.4.4.1 INTRODUCTION

The underlying support services will be managed by a small highly skilled and dedicated team reporting directly to the Service Administration Manager. During steady state, it is anticipated that the workload will require a team of six but during roll-out when these activities are at their peak, the team will be doubled in size. The main functions of this team are described below.

5.4.4.2 CONFIGURATION MANAGEMENT

The service administration team will maintain control of the integrity and configuration of the system. This will include providing the following services :

- Maintaining records of counter equipment removal/relocation and network changes
- Software distribution, including automatic installation on individual PCs, and licence monitoring
- Reference data management
- Reconfiguration of system components and configuration version control
- Remote diagnostics including the ability to control PCs remotely in real time, monitor critical system data, execute programs or reboot PCs
- Systems security management

5.4.4.3 CHANGE CONTROL

Change requests will be logged, verified and passed to the service administration team which will schedule the changes into the ongoing service development programme. Change control will be the subject of regular reviews between BA/POCL and Pathway. These reviews are described in *Section 5.6 - Contract Management Service*.

5.4.4.4 SERVICE LEVEL AGREEMENT MANAGEMENT

The service administration team will ensure that Pathway's performance in delivering services, according to Service Level Agreements, is visible through accurate and meaningful reports. This will include monitoring the performance of the PCRC and specialist help desks.

5.4.4.5 CONTRACT SUPPORT

The training and documentation of Pathway's services will be jointly agreed between Pathway and BA/POCL. The service administration team will ensure the successful provision of training, in terms of its scheduling and implementation, and will be responsible for the distribution of documentation to BA/POCL staff. The team will also ensure that any customer education and marketing literature is distributed to the appropriate locations.

5.4.5 USER PERSPECTIVE

5.4.5.1 INTRODUCTION

Enquiries may be received directly from customers and from BA and POCL staff.

5.4.5.2 CUSTOMER ENQUIRIES

5.4.5.2.1 BA and POCL staff will be able to answer most of the customer enquiries (such as : card not received; amount of benefit disputed; benefit claimed more than once) but if necessary, they may contact Pathway for assistance.

5.4.5.2.2 When cards are issued, an 0800 (free phone) or 0345 (local call rate) CMS help desk telephone number will be provided to BA customers to report any lost, stolen or damaged cards. The help desk will also accept local calls of this type when they are re-routed from POCL's seven regional help lines or BA customer help lines and will cater for non-English speaking customers. The languages spoken will include Welsh, Urdu, Hindi, Gujarati and English.

5.4.5.2.3 Pathway's experience is that an 0345 (local call rate) number suffers less from nuisance and unnecessary calls and we would be pleased to discuss the cost implications of this during the contract negotiation stage.

5.4.5.3 BENEFIT AGENCY STAFF ENQUIRIES

Enquiries may be received directly from BA staff, or via the BA help line or ITSA help desk and service delivery function. Examples of such enquiries include : details of historic payment transactions; fault reporting; and how to register a permanent agent. Calls may be directed to the specialist help desk, via the PCRC, or to the PCRC operator using an 0345 local call rate number.

5.4.5.4 POCL STAFF ENQUIRIES

Enquiries may be received directly from POCL staff or via POCL's seven regional help lines. Examples of such enquiries include : additional validation checks when concerned about payee validity despite passing normal checks; fault reporting; and advice on how to change a customer's nominated post office. Calls may be directed to the specialist help desk, via the PCRC, or to the PCRC operator using an 0345 local call rate number.

5.4.5.5 BA/POCL SERVICE MANAGER ENQUIRIES

During the contract negotiation stage we will agree access for BA and POCL Service Managers to the Pathway Service Management System. For example, limited direct access to the PCRC incident database may be required so that progress on specific calls may be determined. Where direct access to systems is not possible, BA and POCL Service Managers will be able to contact Pathway's service administration team for the required information.

5.4.6 PERFORMANCE

5.4.6.1 HELP DESKS

5.4.6.1.1 The CMS help desk will provide 24 hours per day facilities to BA customers to report lost and stolen cards.

5.4.6.1.2 All other calls will be resolved by the PCRC operator or routed to the appropriate specialist help desk. The contracted hours of the PCRC and the specialist help desks will reflect POCL's (and its clients') opening hours and any additional requirements. Where necessary, a 24-hour facility will be provided.

5.4.6.1.3 The target for answering all calls will be 95% of calls answered within 3 rings (10 seconds).

5.4.6.2 FAULT DIAGNOSIS AND RESOLUTION

5.4.6.2.1 All fault calls will be referred to the appropriate software, hardware or network support service. The PCRC incident database will record all activities undertaken to resolve a fault.

5.4.6.2.2 Faults will be assigned a priority that reflects the caller's perceived impact and urgency of the fault. They will be classified A, B or C as shown in *Fig. 7*.

Priority :	Will be assigned in these circumstances :
A	Caller's business function has stopped or is in danger of stopping
B	Caller's business function is significantly impaired
C	Caller's business function is only slightly impaired

Fig. 7 - Help Desk Call Priority Classifications

5.4.6.2.3 Faults will be actioned as follows :

- (a) Priority A faults : These will receive the immediate and urgent attention of the Pathway Service Manager who will assign one of his staff to own the problem until it is resolved. The target resolution time for hardware and network faults will be within 4 hours of logging the call and for software faults within 24 hours of logging the call.
- (b) Priority B faults : Hardware and network faults will be resolved within 4 hours and software faults will be resolved within 48 hours.
- (c) Priority C faults : Hardware and network faults will be resolved within 48 hours and software faults within 7 days. Advice and guidance will usually be given immediately.

5.4.6.3 CONSTRAINTS

5.4.6.3.1 In order that help desk target performance may be achieved, it is essential that the help desk is not used as a substitute for effective management, training and documentation within BA/POCL. Whilst the help desk is available for guidance and advice, such calls should remain within acceptable levels, agreed between Pathway and BA/POCL during the contract negotiation stage.

5.4.6.3.2 In order that faults may be resolved within the specified timescales, it is essential that BA/POCL staff contact the help desk promptly, provide appropriate initial information and make note of the allocated reference number. Should further information be requested by the help desk, this must be provided within the timescales agreed. During the period of fault diagnosis and resolution, a named contact must be available for the help desk or their representatives to speak to and, should a visit be required, access to the site must be made available.

5.4.7 CONTRACTING AUTHORITIES RESPONSIBILITIES

5.4.7.1 BA/POCL staff must ensure that access to post offices is allowed when required for maintenance of the hardware, software and network components within specified timescales.

- 5.4.7.2 BA/POCL staff must follow the agreed procedures in requesting help desk facilities or other support services. Where it has been agreed that only certain staff may access services (for example, request software changes), these restrictions must be respected.

5.5 POTENTIAL DISASTER SCENARIOS

5.5.1 INTRODUCTION

- 5.5.1.1 This sub-section addresses several potential disaster scenarios relating to Pathway's operational services. It describes the actions that will be taken by Pathway staff to manage serious problems from the moment they are recognised to the point where normal service has been resumed.

- 5.5.1.2 Pathway will treat these situations with the highest priority.

- 5.5.1.3 In every case involving temporary or more persistent loss of service, the Pathway Service Manager will appoint one of his staff as Problem Manager to take personal responsibility and ownership of the problem. He will continuously monitor progress and liaise between the various subcontractors and BA/POCL staff ensuring that at all times the proper agreed procedures are being followed. After each incident, a formal review process will pinpoint the root cause of the failure and recommend action to prevent it from happening again.

- 5.5.1.4 The diagram in *Fig. 8* identifies seven points at which serious problems could manifest themselves.

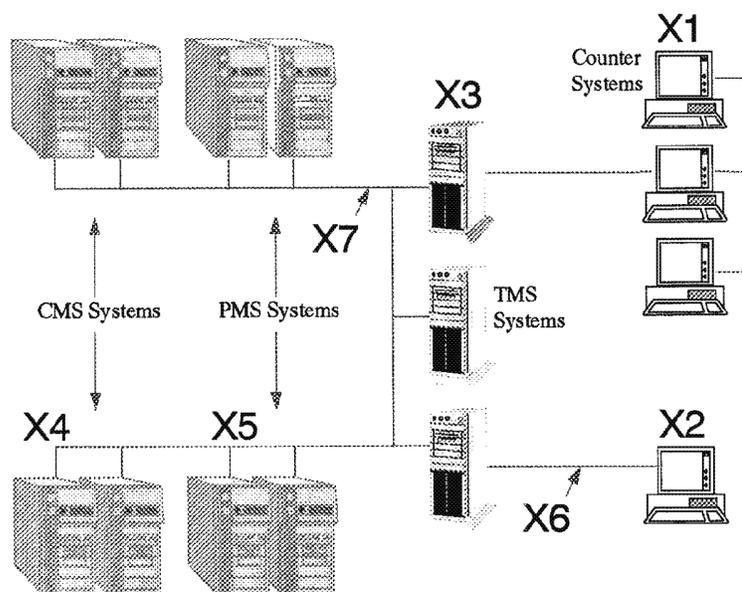


Fig. 8 - Seven Potential Disaster Points

5.5.2 COUNTER SYSTEM FAILURE (X1 & X2)

Statistically, with more than 40,000 counter positions in operation, this is the most likely area to experience potential problems. Pathway's service architecture does provide, however, maximum resilience to the failure of any system component at the counter.

5.5.2.1 MULTI-COUNTER POST OFFICE

- 5.5.2.1.1 Consider point X1 in *Fig. 8*. There is a fault with the system at one of the counter positions but the other counter positions are still operating normally.
- 5.5.2.1.2 The Riposte software automatically replicates its transaction and stock data to all other counter positions in that post office. So, if another counter position is available, the counter clerk would simply move to that position and carry on working. Data is only replicated when a transaction is completed. This means that if the counter clerk was half way through a transaction he would have to begin that transaction again from the beginning.
- 5.5.2.1.3 If no other counter position was available then the customer would have to join the queue and begin the transaction again.
- 5.5.2.1.4 When the fault has been repaired, the system will automatically recover itself and bring its transaction and stock data up-to-date with all of the other counter positions in the post office.

5.5.2.2 SINGLE-COUNTER POST OFFICE

- 5.5.2.2.1 In this case (X2 in *Fig. 8*), the post office must revert to fall-back procedures until the system has been repaired and recovered. The underlying support Service Providers are committed to specific call-to-fix times, limiting the period of fall-back to four hours.
- 5.5.2.2.2 Fall-back procedures will be formally agreed and documented with BA/POCL and all staff trained in their use. During this time the post office must be able to conduct its normal business and continue to pay benefits. Pathway has considered two procedures for dealing with temporary failure of the counter system to enable benefit payments to continue to be made :
 - (a) Telephone contact is made with the PMS help desk which will provide an authorisation code and the value to pay. The help desk will record the payment on PMS enabling a formal audit of these transactions.

(b) In the most severe case, where the failure persists for a longer period or where the volume of claims cannot be managed sensibly through telephone authorisation then the PMS help desk will arrange for the secure printing and delivery of the post office's extract from the Payable Payments Report. This will then be used as the basis for local payment authorisation within the affected post office.

5.5.2.2.3 In both (a) and (b), paper receipts will be issued to customers and a copy retained by the post office for the purpose of manually updating the system when the fault is fixed and the system has automatically recovered its data from TMS.

5.5.3 TMS SYSTEM FAILURE (X3)

5.5.3.1 TMS is run on multiple servers geographically dispersed across multiple sites. Its architecture provides for the automatic back-up of data between servers on different sites. Payment and counter transaction data for each post office is therefore maintained and available from several servers.

5.5.3.2 In the event of its default server (X3 in *Fig. 8*) being unavailable, the counter system will be connected automatically to an alternative server. This will happen without the knowledge or intervention of the post office staff.

5.5.3.3 When the TMS fault is repaired the server will automatically recover itself and normal connection will be restored to its nominated post offices.

5.5.3.4 Pathway's design ensures that TMS failures will not be detected by any BA/POCL user. Its performance and availability is constantly monitored by a network management system and failures are automatically notified to the help desk.

5.5.4 BPS SYSTEM FAILURE (X4 & X5)

5.5.4.1 Both the CMS (X4 in *Fig. 8*) and the PMS (X5 in *Fig. 8*) systems platforms are fault-tolerant multi-processor machines geographically split across two sites with each site having the processing capacity to handle all of the workload normally shared between them.

5.5.4.2 If one of the sites experiences a major disaster (for example a serious fire disables the site for an extended period), the other site's processor can carry on with no perceived deterioration in service to BA/POCL.

5.5.5 NETWORK FAILURE (X6 & X7)**5.5.5.1 COUNTER INTERFACE IS ISOLATED FROM TMS**

5.5.5.1.1 In the event of a catastrophic failure within the network linking the counter interface to TMS during working hours (X6 in *Fig. 8*), the ability to make benefit payments will continue unimpaired using the local payment authorisation files. These files contain payment data for 48 hours of advanced processing.

5.5.5.1.2 Foreign payments and emergency payments at the affected post office will require manual authorisation of the payment value but the system will continue to support the recording of encashments and receipting. The authorisation to pay in these cases may be obtained over the telephone from the PMS help desk which will check the system to ensure that no foreign payments have already been made thus preventing payment from being made at other post offices.

5.5.5.1.3 When the network connection is restored, the counter interface will automatically bring TMS up-to-date with its transactions.

5.5.5.2 BPS IS ISOLATED FROM TMS

5.5.5.2.1 A failure in the network linking BPS to TMS (X7 in *Fig. 8*) will have the most severe impact if it occurs during the distribution of payment authorisations from PMS.

5.5.5.2.2 In this case, because CAPS sends due payment data 48 hours in advance, there will be a 36 to 48 hour window before further payment data can be input. During this period the network would be repaired and it will be necessary for BA staff wishing to issue changes to the status of a particular payment (such as a stop notice) to do it by telephone or other means to the nominated post offices until the network has been recovered.

5.6 CONTRACT MANAGEMENT SERVICE**5.6.1 INTRODUCTION AND OVERALL APPROACH**

5.6.1.1 The Contract Management Service will be developed as the pilot phase progresses and processes and procedural documentation are reviewed and accepted. Pathway and BA/POCL will agree the scope of the service prior to the commencement of the procurement. The full contract management service will be brought into operation following roll-out of the first post office.

5.6.1.2 BA/POCL will see an efficient and well-managed end-to-end service. Pathway confirms that it will provide a single point of contact for all contractual matters.

5.6.2 SCOPE OF THE CONTRACT MANAGEMENT FUNCTION

Pathway proposes that the scope of the contract management function be as described below :

5.6.2.1 MONITORING SERVICE PERFORMANCE STATISTICS

Operational procedures will be developed detailing the activities to be undertaken for each service. Service levels will be agreed for each service providing response times and quality performance. Pathway will monitor performance against Service Level Agreements and provide the necessary information to allow problems to be reviewed continuously between BA/POCL service managers and Pathway service managers.

5.6.2.2 CONTRACT AUTHORITY /SERVICE CONTRACTOR REVIEWS

5.6.2.2.1 Regular formal monthly executive meetings will be held between Pathway and BA/POCL senior representatives. These meetings will provide a forum to discuss service levels and customer satisfaction and will allow the opportunity to discuss and resolve any issues.

5.6.2.2.2 Issues requiring a formal change agreement will be discussed and referred to the Change Control Board described in *Section 5.6.2.4*.

5.6.2.3 ESCALATION PROCEDURES

Issues that are unresolved at the executive meetings must be referred to the Managing Director of Pathway and if necessary to the Board and to equivalent representatives of BA/POCL.

5.6.2.4 CONTRACT CHANGE MANAGEMENT

Contract amendments will be referred to the Change Control Board which comprises members of the BA/POCL and Pathway Boards of Directors. Changes will be agreed after careful assessment of their impact on costs, service levels and operational processes. Agreement must be obtained from both parties before any amendment is made. Requests to change the contract must be made in writing and the other parties must respond in writing within one month. Formal contract variations will be drafted and signed by all relevant parties prior to the change being implemented.

5.6.2.5 SERVICE CHANGE MANAGEMENT

Changes to the service will be made by changing the relevant operational procedures. In order to make such changes Pathway or BA/POCL will advise the other at least one month prior to implementation. If the amendment materially affects the operation of the contract, it may be requested that the contract be changed.

5.6.2.6 CHARGES AUTHORISATION

Pathway will undertake to provide BA/POCL with details of charges which as far as possible reflect their organisation and meet their information needs. These could be by client and by product, or any other format agreed during the contract negotiation stage. Charges will reflect the serviceability and value of the system and will be fully auditable.

5.6.2.7 AUDIT CONTROL AND ACCESS

Audit trails will exist for any action that generates access to the system, changes to the system, or movements of data. On a daily basis the balancing will ensure data integrity and processing accountability for all clients and products. Pathway systems and procedures will be audited internally on a regular basis and whenever significant changes are made. Independent audits will take place on at least an annual basis and Pathway will co-operate at all times with suitable organisations representing BA/POCL (for example, The National Audit Office).

5.6.2.8 SECURITY

Pathway is fully aware of the need for security in the BA/POCL system. Pathway has developed its own security policy (documented in *Annex 5*) which is derived from the best demonstrated practices of its shareholders and tailored to meet the requirements of the BA/POCL systems and any threats to which these systems are subjected. We have also developed information security practices and standards which will be applied to all of the IT solutions we propose.

5.6.2.9 QUALITY MANAGEMENT

- 5.6.2.9.1 Pathway's Quality Policy, is described in *Annex 2*. It is based on the proven foundations of the Strategic Quality Model developed by the European Foundation for Quality Management and used extensively by other service industries. The policy and its implementation are the responsibility of the Director, Quality and Risk Management. All Directors are accountable for implementation and management within their own areas of responsibility.
- 5.6.2.9.2 The philosophy of Pathway involves a quality and continuous improvement culture. All staff will be trained in all aspects of quality and responsibility devolved to the full level of their capabilities.
- 5.6.2.9.3 It is Pathway's intention to gain ISO9001 accreditation. To this end, all processes and procedures will be defined and relevant documentation provided within the quality management system.

5.6.2.9.4 This approach to quality management has been implemented successfully across ICL and in particular on major large development contracts such as Camelot (see *Annex 6.4*). Girobank was the first financial institution in the UK to receive ISO9001 for operational services.

5.6.2.10 SERVICE CODE OF PRACTICE

Pathway confirms that it will develop a range of procedures and practices which define in detail the day-to-day service, the operational and management interfaces and the relationships between BA/POCL and the Service Provider. This set of procedures will be referred to as 'The Service Code of Practice' and will be modelled on the code of practice issued by the Computing Services Association. It is planned that this set of procedures will consist of the following documentation :

5.6.2.10.1 Operational Procedures Manual

Pathway's Operational Procedures Manual will confirm to BA/POCL that Pathway's quality business is carried out in a professional manner in an environment that has an organisational structure where responsibilities, procedures and processes are identified, documented and implemented effectively. This will also include arrangements to ensure the work of the subcontractors is properly monitored and controlled.

5.6.2.10.2 The Code of Behaviour Standard

All Pathway employees will be required to adhere to Pathway's policies to ensure that they uphold the high standards demanded. Pathway will insist on the highest standards in terms of appearance, courtesy and politeness when dealing with BA/POCL staff and customers. Pathway will place the utmost importance on ensuring that employee checks are thorough and reliable. Information gained during the course of business is deemed confidential and will not be used for personal gain or any purpose other than for which it was originally intended.

5.6.2.10.3 The Customer Charter

Customer charters will be developed for those services provided directly to customers in line with the existing charters produced by BA/POCL. They will provide all customers with a service that meets their expectations and needs. For example, services provided to BA customers will be targeted to ensure transactions are completed quickly at the post office counter and the right person is paid the right amount in the right place at the right time, achieving total satisfaction, first time, on time and every time.

5.6.3 A VIEW FROM THE USER'S PERSPECTIVE

- 5.6.3.1 BA/POCL will review system performance based upon the extensive MIS and reporting available and all aspects of performance will then be the subject of regular dialogue between BA/POCL and Pathway.
- 5.6.3.2 Changes to the contract will be approved by the Change Control Board and approaches to the subcontractors will be handled directly by Pathway resulting in the provision of a well-structured end-to-end service.

5.7 CONTRACT TRANSFER SERVICE

It is recognised that, towards the end of the initial contract term, the contracted service is likely to be re-opened to competitive tender and that Pathway may not be successful in securing a renewal of contract or that the renewal may be only partial. This section considers the implications of contract transfer and proposes how Pathway would support it.

5.7.1 OVERVIEW

- 5.7.1.1 One of the challenges associated with a close partnership approach is the achievement of a clean and orderly separation. Pre-requisites are careful planning and professionalism. Pathway will commit itself before the initial contract to supporting downstream contract transfer to another Service Provider. Pathway commits that it will act in a professional manner and continue to give the highest priority to the maintenance and performance of its services during the transfer period. To the extent that the performance of the new Service Provider becomes an additional dependency outside its control, Pathway cannot guarantee success.
- 5.7.1.2 Contract transfer will require a transition period and additional services to ensure a seamless transfer to the in-coming Service Provider. Careful attention will have to be paid to service boundaries, the allocation of responsibilities and resource matching.
- 5.7.1.3 We envisage that at the appropriate time a package of services will be agreed between BA/POCL, Pathway and the new Service Provider which defines clearly each of these elements. Such a package would include an extension of steady state services for an agreed period. The combination forms a 'Service Transfer Contract', and will be a tri-partite agreement.
- 5.7.1.4 We expect to enter into a contractual framework with BA/POCL ahead of the initial contract to set out the operational and commercial ground rules for what will happen at the end of the contract. A range of scenarios and how each would work will be covered.

5.7.1.5 Pathway proposes to adopt the Computing Services Association Facilities Management Code of Practice. This will be our guide to the conduct of the transfer. Through ICL CFM, Pathway has the experience of such transfers at contract end all of which have been successfully conducted. There are many examples, including Berkshire District Council, London Borough of Greenwich and Mersey Regional Health Authority.

5.7.1.6 The remainder of this section provides a preliminary operational perspective on how transfer would be approached and anticipates the range of requirements. *Section 8* considers the commercial implications.

5.7.2 PARAMETERS FOR CONTRACT TRANSFER

5.7.2.1 There are a number of operational parameters to be considered :

- Service imperatives and constraints
- The degree of service contract transfer
- The degree of difference in technical design, old to new
- Human resource matching from Pathway to the new Service Provider
- Effecting financial resource transfer
- Managing responsibility and risk transfer

5.7.2.2 SERVICE IMPERATIVES AND CONSTRAINTS

5.7.2.2.1 The overriding imperative must be to achieve transfer without any disruption to services. BA/POCL must know before they let the initial contract that they will be able to transfer it at the end of the term without unduly risking service levels. The approach set out below should provide some initial re-assurance (to be developed further in discussion during the demonstration phase) that we have considered the matter carefully and have the capability to meet the imperative.

5.7.2.2.2 The requirement to effect transfer within reasonable timescales is also accepted. We would expect BA/POCL to have two primary concerns :

- The ability of the new Service Provider to effect a smooth transfer
- Assurance that it will do so when the time comes

5.7.2.2.3 Demonstrating ability is addressed below. Sustaining a service to the required service standards over a protracted period when management and staff will be aware that the contract has been lost, is likely to be difficult for the Service Provider. It is therefore in his interests to effect a rapid transfer.

5.7.2.3 THE DEGREE OF SERVICE CONTRACT TRANSFER

5.7.2.3.1 The degree of service contract transfer is bounded by :

- Total loss or transfer, assuming that the initial contract was for the entire service
- Loss or transfer of just one component

5.7.2.3.2 The characteristics are different in each case. If the entire service contract is to be transferred, the principal considerations relate to the orderly transfer of services from one infrastructure to another. If only one component of the service is to be transferred, the task will be to replace one component with another at a well-defined boundary whilst maintaining all other aspects of the service. Variations include transferring the whole to more than one new Service Provider and transferring more than one part to one or more new Service Providers.

5.7.2.3.3 Lack of process or technical compatibility would add complexity and risk to service transfer. A generic transfer approach is proposed to ensure that such issues are qualified early on and properly taken into account in the Service Transfer Contract. This approach would :

- Define the process map from Pathway to the new services
- Define the logical design of the new end-to-end service
- Specify and agree the API of the service boundaries
- Specify and agree the transfer of data to the new service
- Trial the new service or components in parallel or integrated with the existing services as part of a pilot activity
- Specify a substitution plan for service components or for total service cut-over

5.7.2.4 THE DEGREE OF DIFFERENCE BETWEEN DESIGNS

5.7.2.4.1 Pathway's approach will facilitate transition. However, standards move on and there is no guarantee that compatibility will be assured in eight years' time. In part, standards compatibility will depend on the architecture that the new Service Provider has chosen. Pathway will ensure that when a significant change to standards is considered during the life of the initial contract, such changes will only be made after full discussion with BA/POCL. Close association with Microsoft will ensure the maximum possible future-proofing from the outset.

5.7.2.4.2 Depending on the design, logical service boundaries may also differ. For example, there are boundary differences between a centralised PAS service and a decentralised payment authorisation service controlled by a central payment management (PMS) function. A centralised PAS system could be matched to a decentralised system but is unlikely to deliver value for money.

5.7.2.5 HUMAN RESOURCE MATCHING

5.7.2.5.1 Matching human and service resources of Pathway to the new Service Provider will be an important consideration from several standpoints :

- Capability
- Individual motivation
- Aggregate cost
- Subcontract assignment

5.7.2.5.2 There are two approaches to contract transfer :

- Transfer of people and subcontracts
- Phased replacement of one service by another

5.7.2.5.3 Different degrees of resource transfer will be appropriate depending on the compatibility of the technical approach, and physical location considerations. Contract transfer is likely to result in the use of different subcontractors. It will reduce transfer risk if key people are transferred or seconded beyond the transition period. It makes good sense to consider the transfer of discrete elements of service, such as help desks.

5.7.2.5.4 Both will depend in part on the preferences of the new Service Provider. Pathway and its principal subcontractors are willing to consider such transfers or secondments and can see benefit in doing so. It is assumed that transfers will be under TUPE.

5.7.2.5.5 Once Pathway has agreed with BA/POCL the main clauses which support contract transfer, Pathway will agree corresponding clauses with each of its subcontractors.

5.7.2.6 EFFECTING FINANCIAL RESOURCE TRANSFER

5.7.2.6.1 The commercial and financial implications of contract transfer are considered in *Section 8*. The principal components are expected to be physical assets and software licences. In the event of loss of contract, it will be in Pathway's interest to transfer all the assets uniquely associated with the service to the new Service Provider and we would wish to do so in a controlled manner as for a business sale/acquisition. Software rights may, in many cases, be transferred but 'shrink-wrapped' industry standard software is generally licensed to one user, prohibiting its transfer.

5.7.2.6.2 It is less clear that the new Service Provider would wish to use existing software or that he would be capable of doing so in practice. It is our assumption that Pathway's loss of the business would either be because of new software becoming available during the initial contract period enabling a radically new approach or because Pathway's service has consistently failed to meet BA/POCL's requirements.

5.7.2.7 MANAGING RESPONSIBILITY AND RISK TRANSFER

5.7.2.7.1 Managing responsibility and risk transfer will require careful co-ordination between Pathway and the new Service Provider. During this period, BA/POCL have two choices as to how to achieve transfer :

- (a) Assign overall project management and end-to-end service responsibility to the incoming Service Provider, with the outgoing Service Provider as subcontractor
- (b) Assume overall project management responsibility for the transition themselves.

5.7.2.7.2 Pathway is prepared in principle to enter into a Service Transfer Contract on either basis. Any framework agreed before the initial contract will have been with Pathway. BA/POCL will therefore need to gain this agreement with the incoming Service Provider or re-negotiate the contract with both.

5.8 SPECIFIC RESPONSES

This Sub-section presents Pathway's responses to the specific requests for information in *Chapter 5.6.2* of the Statement of Service Requirements.

I SR5.1 'State any perceived dependencies between service levels that can be met by the Service Provider and the service levels of interfacing computer services and systems (e.g. CAPS).'

The data required by the POCL Strategic Infrastructure Service is self-contained within Pathway's systems and is therefore not dependent on external interfaces. However, service levels for benefit payments may be adversely impacted if the overnight batch data transfer from CAPS fails to complete on time. Similarly, the total transaction time for British Gas Quantum payments may be extended outside the control of Pathway due to British Gas' system performance.

I SR5.2 'State the upgrade paths available for the proposed solution within the proposed operating environment, clearly indicating the current (as at the time of the response) maximum capacity for the service.'

Counter Interface

The proposed operating environment for the counter interface is Microsoft Windows NT. Upgrade paths are limited by the hardware environment of the PC (upgrade steps are described in SR5.3), rather than by any system limits within the software. Windows NT release 3.5 supports memory sizes of up to 4 gigabytes, disk capacities of 2^{64} bytes and symmetric multi-processors.

As PCs within the counter interface operate independently within a replicated community, additional PCs may be added within a post office as required. Ultimately, constraints derive from the capacity of the ISDN communications gateway, the local LAN and the capacity of the individual PCs themselves.

The answer to question SR4.6 provides more detail on the capacity of these components. For the transaction profiles and volumes described in the SSR, the most significant of these constraints on capacity is the ISDN communications gateway, which supports transaction replication to a correspondence server at approximately 30 transactions per second.

The design of the Benefit Payment Service minimises the requirement for ISDN capacity by supporting local authorisation for the overwhelming majority of payments. However, if required by the future growth of new business applications, an additional ISDN line and communications gateway can be configured, providing increased communications throughput and resilience.

Transaction Management Service

The proposed operating environment for TMS is Microsoft Windows NT. Transaction replication and back-up is provided by the An Post/Escher Riposte software. System limits for Windows NT are described above, although the proposed design for TMS copes with scalability and upgrade paths by adding additional servers as an alternative to increasing their individual capacity. Pathway will configure the most cost-effective mix of servers to support the capacity requirements as the service grows.

Initially it is proposed that Intel dual Pentium servers are deployed with subsequent migration to symmetric P6 multi-processors. Based on the transaction profiles and volumes described in the SSR, Pathway estimates that the full network of 40,000 counters would require in the order of 24 to 32 Pentium servers, providing a capacity of typically 10 million transactions per day. (See also the response to question SR4.6).

Payment Management Service

The proposed operating environment is Tandem Guardian D30. The maximum capacity of a single footprint system is 1044 Gigabyte memory, 3060 terrabytes disk storage and 4080 processors using the TorusNet bus extender. The design of PMS enables upgrades to the service capacity to be made by extending the batch processing window and/or providing additional batch processing streams, according to operational needs. The maximum capacity of the system as initially configured is planned at approximately 20 million transactions within a 12-hour batch window.

On-line capacity for those aspects of PMS operating in real time can ultimately be increased to the maximum supported by the hardware. The system as currently designed can scale to support up to 6 million transactions per day, although this would require an unrealistic rate of enquiries and payment stop operations from BA offices.

Card Management Service

The proposed operating environment is Tandem Guardian D30. Pathway's design for CMS is based upon a mixture of batch and real time processing and its capacity can be upgraded in the same way as for PMS. The capacity of the service is planned to support up to approximately 100,000 records per day from CAPS for new or amended cards, 20,000 card status change operations per day and card status enquiries from BA offices (precise volumes will be determined in discussion with BA/POCL).

I SR5.3 *'State how upgrades will be undertaken, whether they can be undertaken in the field and the steps in which the upgrade can be made.'*

Counter Interface

Upgrades, where required, will fall into two categories :

- Installation of additional hardware or peripheral components or upgrading of components within the existing PC will be undertaken in the field.
- Major upgrades, such as hard disk replacement, or complete PC replacement will be undertaken in the field by unit swap-out, with return and recycling where appropriate. These will require agreed arrangements for the preservation of operational data and its transfer to the new unit, plus secure removal of any existing operational data on the replaced unit.

The precise upgrade steps available will depend upon the final agreed set of counter equipment and options. As an indication the baseline counter configuration would allow for upgrade steps as follows :

- Memory : 16Mb with increments of 4Mb, 16Mb or 32Mb
- Hard Disk : 270Mb or 540Mb (2nd disk) or 1Gb (disk replacement)
- Processor : Pentium overdrive socket

Software upgrades will be handled via centrally controlled software distribution procedures (described within the response to question SR5.15).

Transaction Management Service

TMS servers can be upgraded in terms of memory, disk capacity and additional processor units, all of which may be fitted in the field. As the capacity of TMS requires to be upgraded, Pathway will adopt the most cost-effective approach in terms of the combination of upgrading existing equipment, adding additional correspondence servers or replacing Pentium-based servers with P6-based machines. Depending upon the particular combination of equipment in use, indicative upgrade steps are :

- Memory : 64Mb increments
- Disk : 1Gb increments or 5Gb with RAID subsystem
- Processor : 2-way Pentium to 4-way Pentium or to P6 (future)

Card Management Service and Payment Management Service

CMS and PMS have similar upgrade capabilities. Servers can be upgraded in terms of memory, disk capacity and additional processor modules. If the capacity of CMS or PMS requires to be increased, Pathway will determine the most cost-effective approach in terms of the combination of enhancement of existing systems, replacement by new systems or the provision of additional parallel processing capability.

I SR5.4 'Describe the ongoing development programme to which the service proposed is subject, and state how it will provide an appropriate basis for the addition of new facilities and technologies.'

The proposed service has been designed to meet the specific needs of BA/POCL as expressed in the SSR and as the basis for ongoing developments to support future business and technology changes. Specific areas of opportunity are presented in *Section 8.3* covering :

- Mail and parcel business
- Banking and financial services
- Bill payments and financial in-payments
- Licence applications

We look forward to the opportunity to discuss the establishment of an ongoing development programme to meet these and wider business requirements. The service proposed offers an excellent framework for ongoing developments of this type.

Counter Interface

Pathway's choice of counter infrastructure offers potential access to a number of existing and emerging applications within the above areas which can be easily incorporated into the set of proposed counter applications. The use of Microsoft Windows NT at every counter position, coupled with Microsoft Systems Management Server, provides a robust, secure and manageable platform which is the mainstream industry direction for enterprise-wide networks in the office, retail and financial services industries. The Riposte Desktop environment, generic transaction approach and standard development tools such as Visual Basic and Microsoft Test enable new applications to be added quickly.

Transaction Management Service

Pathway's proposals for TMS and the use of generic software agents to interface to existing or new client systems provide a fast and flexible way to incorporate new client services. The use of ISDN with TMS provides a flexible framework to support transaction handling in real time, trickle-feed mode or file transfer mode and provides a cost-effective route for the introduction of services requiring faster communications than traditional analogue access.

Benefit Payment Service

The design of the Benefit Payment Service allows flexibility in positioning payment authorisation data and optimising the end-to-end service delivery. The inclusion of smart card technology at the counter and the support for local authorisation enables straightforward and cost-effective migration to smart cards within the BPS. These can be used to improve personal authentication data and could be used in conjunction with PMS to transfer value-based information to the card to support mobility or the use of alternative payment points.

I SR5.5 'State the service levels that are proposed for the availability and reliability of the service at post offices; transaction transfer to and from client systems; and for interrogations from BA offices.'

Indicative figures are provided in the table below for the service levels Pathway would expect to offer. Further discussion will be necessary about the detailed criteria used to define and measure service levels, including the assessed impact of partial loss of service. Pathway proposes that a minimum and maximum level of performance be established for each major category to facilitate measurement and charging (See also the response to question SR5.8).

SECTION 5 - STEADY STATE SERVICES

Service Measure :	Expected performance level :
Counter system availability and reliability	99.85 to 99.9 % of all counter positions in service >99.9 % of all post offices in service > 30000 hours mean time between loss of service at a counter position
Transaction transfer between POCL systems and POCL client systems	>99.9% of scheduled daily client deliveries met, excluding failures within client systems or their communication interface
Availability for BA interrogations	> 99.9% for BA working hours

The reliability of individual components of the counter interface are given below:

Fujitsu/ICL PC Model e440/66:

System Board	100,000 hrs
PowerSupply	100,000 hrs
HDD 540Mb	300,000 hrs
Floppy Disk	30,000 hrs
ICL Keyboard	300,000 hrs
ErgoPRO 14" colour monitor 14C	40,000 hrs
ICL 9" counter monitor C90C	30,000 hrs

ARL DOCUmatic 7000 motorized reader:

OCR, MSR, MICR, Bar Code wand	15,000 hrs (nominal)
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Printers:

Fujitsu DL3700 dot matrix (back office)	8,000 hrs (25% duty cycle)
Ithaca 50PLUS counter printer	25,000 hrs

Service level agreements for batch file transfer will be agreed with POCL clients at the contract negotiation stage.

I SR5.6 *'State the service levels that are proposed for transaction response times and demonstrate that these will not adversely impact on current levels of service or business for POCL clients.'*

Indicative figures are provided in the table below for the service levels Pathway would expect to offer in terms of service response times for particular types of counter transaction. Further discussion will be necessary over the detailed criteria used to define and measure performance, including the constituent components of the total counter transaction response time. Pathway proposes that a minimum and maximum level of performance should be established to facilitate measurement and charging (See also the response to question SR5.8).

Transaction Type :	Expected performance level
Payment authorisation at nominated post office	1 second average 95% within 2 seconds
Payment authorisation at foreign post office	3-5 seconds average 95% within 8 seconds
Bill payment transaction capture of details	1 second average 95% within 2 seconds
EPOS transaction capture of details	1 second average 95% within 2 seconds

The overall counter time for a particular transaction is dependent upon a number of factors. For the Benefit Payment Service this includes the printing of the receipt with statutory declaration and obtaining the customer signature. Pathway has analysed opportunities for reducing counter transaction times, particularly drawing upon the counter automation experience of An Post.

We note from the SSR that the current counter transaction time for benefit payments is 22 to 32 seconds. Measurements taken by An Post in Ireland using the proposed counter interface system indicate a typical counter transaction time for card-based payment in the range of 15 to 25 seconds. The use of local payment authorisation files is of major benefit in reducing counter transaction times, eliminating communications delays for more than 90% of benefit payments.

Improvements in service to other clients are also enabled by the speed of counter operations and by the elimination of overnight polling to capture data centrally. The transaction replication within TMS continuously drip-feeds the central processing systems enabling potential improvements in delivering information to client deadlines.

We confirm our willingness to work with POCL to facilitate improvements in counter transaction times and to agree detailed performance criteria and measurement methods. One of the Pathway proposals is to establish a model automated post office, which can be used to investigate and analyse opportunities for such performance improvements.

I SR5.7 *'State the service levels that could be attained concerning the following :*
(a) call to fix time for equipment failure;
(b) helpline queue times;
(c) any other service.'

Indicative figures are provided in the table below for the service levels Pathway would expect to offer. Pathway proposes that a minimum and maximum level of performance be established to facilitate measurement and charging (See also the response to question SR5.8).

Service Measure :	Expected performance level
Call to fix time for equipment failure	2 to 4 hours
Helpline queue times	3 rings (10 seconds)
Help desk first time fix rate	85 to 95% of enquiries resolved within 10 minutes
Availability of reports	Immediate to 72 hours, depending upon nature of report

I SR5.8 *'State how the service supplied can best be measured to facilitate payment.'*

Pathway proposes that the service should be measured against agreed minimum and maximum acceptable performance bands in a number of categories, such as :

- Transaction throughput
- Card volumes issued and under management
- System response time
- System availability
- Service response time for call to fix

Payment will be based upon agreed weightings of these performance bands, with financial incentives or penalties awarded for performance outside these bands.

For example : Call to fix time for equipment failure

Measures	Minimum	Maximum	Incentives	Penalties
%age first time fix rate	min% within x hours	max% within x hours	£bonus for each %age point above the maximum Capped at x%	£penalty for each %age point below the minimum

Service measurement criteria will be agreed at the contract negotiation stage together with the format and frequency of generation of reports describing the Pathway service performance.

Pathway will provide facilities to extract appropriate charges information from volumetric analysis of the transaction data passing through TMS, across the interfaces between CAPS and CMS/PMS and between BA offices and CMS. Access to information and audit trails will be made available in response to specific enquiries.

I SR5.9 *'State how the service will enable the post office clerk accurately to pay valid payments even if technical equipment is not working, and to make payments in case of industrial action affecting the Service Provider or its subcontractors.'*

All faults and problems affecting the system should be reported to the help desk immediately and the best course of action agreed.

Counter interface failure

In multi-counter post offices, payments will continue using a reduced number of positions as all counter PCs have a local version of all payment authorisation files. When the failed PC is restored, it automatically recovers details of all payments made at other counter positions during the period of its failure. If the number of counter positions available does not cater for the level of customer traffic, manual payments may also be made, using the procedures detailed below. Single-counter post offices will normally use manual payment procedures under these conditions, although customers may also be redirected to alternative local post offices, if appropriate.

Communications network or TMS failure

In the event of a catastrophic failure within the network (or within the PC containing the ISDN card) during post office working hours, the ability to make benefit payments will continue unimpaired using the local authorisation files. Foreign payments or emergency payments at the affected post office will require manual authorisation of the value to pay, but the system will continue to support the recording of encashments and receipting.

In the event of a network failure during the distribution of payment authorisations, there is a window of between 36 and 48 hours before further due payments data is required at the counter interface. During this time, the network may be repaired. In the event of a persistent network fault, provision will be made for the distribution of payment files by diskette to the affected post office.

While the network is unavailable, any changes that BA wish to make to the payment status of a particular payment, (for example, a stop notice), must be telephoned or sent by other means to the nominated post office.

PMS or CMS failure

A failure of the PMS batch processing functions may be recovered within the 36 to 48 hour time window prior to distribution of payment authorisation files.

Manual authorisation procedures

It is proposed that manual authorisation be handled in two ways.

- (a) Telephone contact with the PMS help desk will provide authorisation and the value to pay under agreed operational procedures. This will be the norm for most categories of failure and the help desk will be staffed appropriately. If voice communication from the affected office is also unavailable, contact with the help desk must be established by alternative means and procedure (b) followed.
- (b) In the most severe cases where the failure may persist and/or the volumes cannot be managed through telephone authorisation, the help desk will arrange for the printing and secure delivery of the appropriate extract from the Payable Payments Report. This will then be used as the basis for local payment authorisation within the affected post office.

Payments will be made manually in accordance with agreed operational procedures, including adequate proof of identity. Manual receipts will be issued to customers and, using these, the payments file will be updated when the system has been restored.

(Note that the introduction of smart cards at a future date would enable a number of simplifications to the above procedures, particularly those relating to foreign payments and network failure conditions.)

Contingency procedures

Should technical equipment failure or industrial action result in more than 24 hours loss of service, contingency arrangements will be invoked. Such arrangements will need to be agreed between Pathway and the Contracting Authorities during the contract negotiation stage and may include rights, in appropriate circumstances, to access information held on PMS. This would allow the Contracting Authorities to produce Payable Payments Reports for despatch to all post offices.

I SR5.10 *'State how the CMS customer services will be provided and promoted.'*

The CMS help desk will provide a 24-hour direct-line service for customers reporting lost, stolen and damaged cards.

The CMS help desk telephone number, together with details of the services offered to customers, will be advertised in correspondence enclosed with the PUN. The telephone number and services will also be promoted in all major telephone directories under a number of headings, as well as by a series of poster campaigns in BA offices and post offices. Information will also be printed on the reverse of the card to assist with the use of the card and the help desk.

It is recognised that the help desk may be used by customers for other types of enquiry. Where possible, the call receptionist will deal with the enquiry and, if necessary, refer them to their nearest BA office.

I SR5.11 *'State recommendations for the training services that should be available for the steady state operation.'*

Pathway will ensure that all relevant BA/POCL staff are fully trained in all aspects of the system operation, including self-help processes for simple problems.

Training services will be available from Pathway from commencement of roll-out and will cover :

(a) Initial system training for newly automated post offices, including :

- Operation of the counter system
- Generation and interpretation of reports
- Production of the Cash Account
- Reconciliation
- Cash and stock management
- Local office routines
- Self-help techniques

(The provision of these services is described in the answer to question SR7.3 as part of the roll-out proposals.)

(b) New product introduction, including :

- Incorporation of new procedures
- New applications
- New client interfaces

(These will be delivered by a combination of computer-based training, workbooks and usage of the system in training mode.)

(c) Training of new post office staff in the working of the Pathway system will be incorporated within the standard five-week POCL staff training course.

(d) Ongoing training, via the help desk, to assist with routine problems and questions.

The proposed system management facilities include provision for remote help sessions on the counter PCs, enabling central help desk staff to guide the user through a difficult task or perform the task directly, as appropriate. This will have particular value during early systems usage.

BA staff who will interact with the new service may also require some training and further discussion with BA is proposed to ascertain the precise requirements and most appropriate approach. This will cover the use of the CMS system by BA staff for card enquiries, monitoring and control operations and any information necessary to support the indirect use of PMS via the CAPS service interface.

I SR5.12 'State recommendations for customer education and marketing.'

Customer education

Successful implementation of the new services will depend on the reliability and excellence of the technology being deployed, as well as its acceptance by BA/POCL staff, clients and customers. The need for understanding and awareness is vital, and Pathway's ability to plan, implement, and support a comprehensive and professional staff training and customer education campaign will be key to success.

Pathway will commission comprehensive market research to ensure that we know which services customers are looking for, and how they will react when we introduce new services. Pathway proposes to use appropriate forms of advertising to communicate relevant messages which provide clear information about the services to all user groups. There are four key communications objectives :

- To educate customers about the changeover to new services and manage their expectations
- To inform customers when their service will be affected
- To ease customers' anxiety
- To educate and inform the general public about the benefits of the new service to avoid potential opposition

Advertising media will be selected from television, radio, bill-boards, posters, direct mail, point of sale, direct response TV and others. To monitor the success of the customer education campaign, and develop improved communications, Pathway will commission customer surveys in each region where new services will be introduced. In this way, we will address the people aspects of the new services and ensure that automation is perceived to be a success.

Marketing partnership

Pathway's marketing approach is summarised as follows :

- To build on POCL's current position through a partnership that combines the strengths of POCL with those of Pathway and uses automation as a catalyst for growth
- To assist POCL in improving the value for money offered to existing clients
- To encourage the use of tried and tested business development processes to grow existing and new business
- To assist POCL in becoming the natural first choice for all existing and proposed services

Pathway appreciates the major business opportunity presented by POCL as a primary outlet for existing and new clients' services. Pathway will work with POCL to create an integrated process that unlocks this growth potential. We will base this process on the one established by POCL and Girobank for financial in-payments, which has resulted in unprecedented growth in this area.

Pathway will work in partnership with POCL to establish quantified business development objectives based on combined strengths and a shared vision. The key objectives will be :

- To optimise POCL volumes
- To maximise POCL income
- To identify and implement innovative services for new and existing clients
- To develop and implement commercial plans with principal clients

Further details of Pathway's approach to marketing and business development support is provided in *Section 8.3.3*.

I SR5.13 *'State recommendations for the documentation that should be available for the steady state operation.'*

Pathway will develop a service operations manual and user guide for each of its services. These will cover all aspects of access to, and the operation of, the services by BA/POCL staff. A training guide and computer-based training for the counter interface will be developed to support new staff.

Pathway will develop a support service guide for BA/POCL staff. This will provide details of each of the support services available from Pathway and how they may be accessed, including instructions on how to log calls and obtain support from Pathway's help desk services.

Fall-back and emergency operations procedures will be formally agreed and documented and available to every BA/POCL user.

SECTION 5 - STEADY STATE SERVICES

Interface specifications between Pathway service systems and external systems will be available.

A number of documents developed to support the roll-out, such as planning and site preparation guides, are detailed in the response to question SR7.4. These will continue to be maintained as reference documents during the steady state service. All documentation will be developed to ISO9001 standard.

I SR5.14 *'State the level of project support that will be provided to support the steady state operations of the service, in terms of the number and qualifications of people assigned to the project, the proportion of their time which will be devoted to the project, and where they will be located.'*

The level of project support to be provided to support the steady operations of the service is indicated in the following table, together with an indication of qualifications, proportion of time to be devoted to the project and intended location : (This table excludes direct operations staff.)

Role	Qualifications	Minimum Numbers	Minimum Time Allocation	Location
Pathway Directors	Senior executives from shareholder companies	7	100%	Feltham
Commercial & Finance	Commercial and financial consultants with 5 to 10 years experience	3	100%	Feltham
Quality & Risk Management	Quality and risk management consultants with 5 to 10 years experience in the IT/Financial Services industry	3	100%	Feltham
Business Development	Business consultants with 5 to 10 years experience in the Financial Services/ Retail industry	5	100%	Feltham
Technical	Professional systems integration specialists/TickIT with 3 to 10 years experience in the IT industry	5	100%	Feltham/ Terminal House
Programmes	Project managers with 5 to 10 years experience	5	100%	Feltham
Operations	Process managers with 2 to 5 years experience in the Financial Services industry	9	100%	Bootle

The above table refers to steady state operations following full roll-out. However during the roll-out period which commences following automation of the first post office, it is expected that additional resources will be required to manage this transitional period. (See also the response to question SR7.5).

I SR5.15 *'Describe the logistics for introducing new, or new versions of, software (including third party products) and in particular state how the following functions would be carried out :*

- (a) initiating and logistics planning of version change;*
- (b) testing;*
- (c) code control;*
- (d) implementation planning;*
- (e) authorisation to implement;*
- (f) implementation;*
- (g) regression in the event of problems;*
- (h) training and document revision;*
- (i) configuration management update.'*

Pathway will operate to clearly defined procedures for software version control, agreed with BA/POCL, to ensure that the logistics for introducing new versions of software are fully understood by all parties and embody appropriate control mechanisms.

Pathway will incorporate a validation and integration centre (VIC). The VIC will have the responsibility for all procedures relating to the validation, integration and implementation planning of new software versions and related documentation.

(a) Initiating and logistics planning of version change

The VIC will identify the scope and implications of any new software version, in particular identifying compatibility issues, changes to operational procedures and end user implications, such as training and documentation requirements.

Where several software components require co-ordinated changes the VIC will have responsibility for identifying and testing valid combinations to ensure the logistics of the combined changes are understood, and defining practical implementation and regression paths.

Any implications on BA/POCL, their client systems, operational procedures or user interface will be identified and discussed. Software version changes will be categorised according to their scope and system implications, with standard procedures and authority levels set for each category of change.

(b) Testing

Testing will be undertaken within the VIC, with particular emphasis on compatibility and logistics issues. The VIC will identify any parallel running and pilot activities required to establish confidence in the new software before roll-out. Quality targets will be defined for the number of software errors (categorised into critical, major and minor) which are acceptable at each stage of the testing and implementation procedure.

(c) Code control

Control of code will be maintained centrally, using system management tools to define and manage version control information. A formal issue procedure will be used to transfer code versions from testing to implementation stages.

(d) Implementation planning

The VIC will identify all necessary implementation steps for each category of version change, reflecting its scale and scope. These will include activities required within Pathway, plus any activities to be planned in conjunction with BA/POCL or any POCL clients. Dependencies will be identified and managed where applicable.

For all significant software implementations, Pathway would wish to follow a suitable project management methodology acceptable to all parties involved. We have proposed the use of PRINCE in this role during the demonstrator phase.

(e) Authorisation to implement

The standard procedures for each category of version change will identify the authorising parties and level of authorisation required to move to implementation. A formal sign-off mechanism will be established incorporating assurances that :

- Software quality targets have been met
- Documentation and training, where required, is in place
- Any other necessary activities have been planned
- A regression route has been defined

Authorising parties will always include Pathway's Technical Director and Quality Director and their BA/POCL counterparts.

(f) Implementation

The appropriate implementation approach will be followed according to the category of software change. Software versions will be distributed and installed across the network using Microsoft's SMS software distribution facilities. Implementation will be planned so as to minimise impact on operational activities at post offices, typically occurring overnight.

(g) Regression in the event of problems

Implementation planning procedures will identify the necessary quality and acceptance criteria for the new software version; in the event of these not being met regression to the previous version will take place. This will also be controlled centrally, using system management tools.

(h) Training and document revision

The version change planning activities will identify any training and documentation revisions associated with the software upgrades. Training requirements will fall into the following categories :

- No user training necessary (software changes wholly transparent to the user)
- System broadcast facilities to inform staff of minor changes
- Computer-based training provided and distributed prior to software implementation
- System training mode provided as part of the new software
- Familiarisation training required, on- or off-site, prior to the new software version

Documentation requirements may involve :

- Revisions to existing material
- New documentation to be issued

(i) Configuration management update

The system management facilities will capture and maintain information relating to all configuration data within the counter interface and TMS. The proposed system management facilities support filtering of configuration management data by means of combinatorial operations on property values (for example, display details of all PCs with version X of software module Y, and peripheral of type Z). Filtering can also be used to control selective software distribution and installation.

I SR5.16 *'Describe the field engineering operation and in particular state :*

- (a) suggested call to fix times including any geographical differences;*
- (b) escalation levels and procedures;*
- (c) policies on 'swap out' versus 'on-site repair' of faulty equipment;*
- (d) involvement, if any, with the recovery of any locally held software or data;*
- (e) arrangements for ensuring availability and confidentiality of any locally held data on equipment removed from post offices;*
- (f) involvement, if any, with the introduction of new, or new versions of, applications;*
- (g) any routine preventive maintenance requirements.'*

The field engineering operation

This will be provided by Pathway through ICL Sorbus, the leading independent multi-vendor service organisation in Europe. Within the UK it employs over 3100 staff of which some 320 are field engineers dedicated to supporting PC systems.

(a) Call to fix times

ICL Sorbus provides a level of service specific to the needs of its customers and their end users. In relation to the service required by individual post offices we suggest that a 4-hour call to fix time would meet the requirement, as was contracted for the POCL ALPS project. Pathway would be happy to provide this level of service throughout the UK.

Geographical differences exist only where road transport communications are very restricted, for example, in some of the more remote parts of Scotland. However, the standard level of service cover can still be provided but at additional cost. Pathway would be pleased to discuss specific service levels for post offices in such areas during the negotiation stage.

(b) Escalation levels and procedures

Through ICL Sorbus, Pathway will operate escalation procedures conforming to ISO9001 quality standards. This ensures that problems are escalated to the appropriate authority and, if necessary, to ICL Director level.

Pathway's proposed escalation times are described in the table below.

Time :	Escalate to :	Reason :
0 mins	Pathway help desk	All Calls
5 mins	ICL Sorbus help desk	All Calls
60 mins	ICL Sorbus help desk manager	No estimated time of arrival given
120 mins	ICL Sorbus support manager	No estimated time of arrival given
180 mins	Pathway service manager	Calls that could exceed the agreed service level
240 mins	Pathway Operations Director	Call exceeds agreed service level

(c) 'Swap out' versus 'on site repair'

In order to minimise disruption to counter staff and customers, Pathway proposes to operate a 'swap out' policy for all items of equipment rather than causing disruption by repair on site. However, we would expect that minor adjustments or maintenance would be attempted before units are replaced.

Spares are managed to ensure that they are maintained to the latest hardware modification (version) level. All whole unit spares and hard disks will be loaded and configured with the appropriate system and application software and checked for viruses.

(d) Involvement in software or data recovery

Field engineers will have no involvement in the recovery of locally held software or data. Pathway's design provides automatic recovery.

(e) Availability and confidentiality of data

Pathway, through ICL Sorbus, maintains equipment for a vast number of top security customers, including the Ministry of Defence (MoD). As part of the MoD CHOTS project, nearly 7,000 workstations over 12 locations that are used by MoD corporate headquarters staff, involving secure access and information, are maintained. (*See Case Study 1 in Annex 6*).

Pathway will treat all BA/POCL data as Company in Confidence. We will not remove any information from site, in any format, unless requested to do so to help diagnose a problem. If required, all copies of information made to resolve a maintenance problem will be destroyed.

In order to protect POCL data security, if a disk is required to be replaced, then the failed disk will be returned to a secure Pathway approved service centre and destroyed.

(f) Introduction of new, or new versions, of applications

Field engineers will have no involvement in the introduction of new, or new versions, of applications.

(g) Routine preventative maintenance

In 1991, ICL implemented the first phase of its preventative maintenance strategy, called 'PUMA' (Prevent Unscheduled Maintenance Activity), which is currently in place on all ICL's major retail customer locations and some 200 mainframe customer sites.

Pathway will implement 'PUMA' to provide preventative maintenance services. This will involve regular visits to clean delicate parts and replace parts that are approaching the end of their life. In addition, electrical safety tests will be carried out on all equipment to meet the 1989 Electricity at Work Act. Site visits can be planned to avoid user and customer disruption and minimise unplanned emergency maintenance visits.

I SR5.17 'State what, if any, involvement from Contracting Authorities' staff will be required in the following processes :

- (a) introduction of new, or new versions of, applications;*
- (b) routine back-up of any locally held software and/or data;*
- (c) hardware fault rectification;*
- (d) software fault rectification;*
- (e) communications fault rectification.'*

(a) Introduction of new, or new versions of, applications

Contracting Authorities' staff will receive training and documentation in advance of any new, or new versions of, applications being introduced.

In cases where new applications interact across the service procurement boundary with existing or new applications of the Contracting Authorities or their clients, there will be a need to agree any required alterations to the service interface and procedures for testing and implementation.

The response to question SR5.15 outlines Pathway's proposed procedures for these purposes.

(b) Routine back-up of any locally held software and/or data

No involvement of the Contracting Authorities' staff is required for the routine back-up of locally held software or data. The counter interface system provides automatic back-up and recovery using local PCs and/or TMS correspondence servers.

(c,d,e) Hardware, software and communications fault rectification

Contracting Authorities' staff will be required to contact the help desk in the first instance in the case of hardware, software and communications faults. Where practical, they will be advised to undertake routine checks that may restore the service. Faults that are not rectified in this way will be the responsibility of Pathway.

Contracting Authorities' staff will be expected to handle routine replenishment of consumables, such as paper replacement, within the counter interface service.

I SR5.18 *'State details of the management information to be offered as part of the service.'*

Pathway will provide a comprehensive set of management information reports, including :

- Daily cash analysis and post office balances
- Weekly Cash Account summaries
- Remuneration reports, as required
- Sales and contribution analysis
- Quality of service

Any other requirements, such as regular and ad hoc reports on BA payment issues and encashments will be produced as agreed between Pathway and BA/POCL. When further operational support services are introduced, Pathway will provide management information reports for the following :

- Stock management
- Cash management
- Purchase order management
- Financial accounting, including General ledger, Fixed Asset register and Purchase ledger
- Staffing statistics
- Administration support

Any new reports required will be subject to discussion and agreement between Pathway and the Contracting Authorities.

I SR5.19 Describe the reconciliation process for providing a complete, accurate, automated daily reconciliation between the Service Provider's system and those of the Contracting Authorities and propose methods to resolve discrepancies that do not increase Contracting Authorities costs.'

All transactions will be input by the post office clerk at the counter interface resulting in data capture of, at least, transaction type, volume and value. The end-of-day procedure initiated by the Postmaster will produce a daily reconciliation summary showing the value of transactions processed together with cash and stock on hand. This information will be used by the Postmaster to reconcile to the actual cash and stock in the post office.

POCL may wish to gather this information on a daily basis from all automated post offices to give a national picture of daily transactions. This will be necessary for full cash or stock management facilities.

Following full automation, POCL may wish to produce a daily Cash Account reconciliation across all post offices. This will merely be an extension of the daily reconciliation process completed by the Postmaster.

Any discrepancies between the Pathway's and BA/POCL's figures will initially be investigated by the Postmaster to ensure the calculations are correct. If differences still exist after this, the Postmaster will be able to obtain a detailed report showing the method of payment (cash, cheque, and so on) for each transaction to enable resolution. This process is similar to current practice, however, the provision of more comprehensive information will enable easier resolution of differences and thereby reduce BA/POCL costs. The reconciliation process is described in more detail in *Annex 3*.



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6. PILOT PROGRAMME

6.1 INTRODUCTION

- 6.1.1 This section describes Pathway's approach to the pilot programme. Pathway will use the pilot programme to prove to the BA and POCL its ability to provide a viable roll-out solution. Our approach will deliver early benefits to BA/POCL by building on existing systems. These include the POCL Electronic Stop Notice System (ESNS), CounterAction that is in use by the Irish Post Office and also applications that have been prototyped for the Singapore Post Office. All these systems have been developed on a Microsoft and Riposte software platform and are available to Pathway.
- 6.1.2 Proving that our solution meets the BA/POCL objectives is complex and challenging. The way the process is managed is crucial to its success. Pathway wishes to continue the partnership approach that has been so successful during the roll-out of ALPS. Our approach to the pilot programme (*see Sub-section 6.2*) emphasises partnership and explains how we will prove to the various user groups that we can meet their requirements with our solution. We will prove our solution from three different viewpoints :
- (a) Business process to ensure the solution supports all BA/POCL business requirements.
 - (b) Service characteristics to prove our capability to provide quality services.
 - (c) Technical architecture to confirm that Pathway's solution will support all current and projected POCL infrastructure needs.
- 6.1.3 *Sub-section 6.3* describes the objectives of the demonstrator phase and explains how an agreed baseline will be established during contractual negotiations.
- 6.1.4 The operational trial phase is described in *Sub-section 6.4*. Pathway will prove to BA and POCL that the risks in rolling out the end-to-end services are understood and contained and show that the services provide the anticipated fraud prevention and POCL support benefits. The response to the business needs of BA and POCL is covered at *Sub-section 6.5 - Pilot Programme Proving*.
- 6.1.5 The outline PRINCE project plan contained in *Sub-section 6.6* covers the period between shortlisting and contract award. It identifies the roles and resources needed to produce the deliverables for the agreed baseline needed to submit financial proposals and then to refine them in the light of live user feedback. The matrix of service components and proving mechanisms confirms that all components are proved with regard to the technical, business practice and service characteristics.
- 6.1.6 The section concludes with a Summary at *Sub-section 6.7* and finally the answers to the Specific Responses requested in the SSR.



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6.2 PROVING APPROACH**6.2.1 BACKGROUND**

6.2.1.1 The pilot programme is about solution proving and the management of risk. Pathway is focusing its own organisation on proving the low-risk nature of our solution by providing firm evidence to BA/POCL of our capability. We are planning to complete a comprehensive proving exercise to ensure that BA/POCL and Pathway are satisfied that the services provided meet the business objectives and needs of the various user groups.

6.2.1.2 Pathway will exploit the experience and success of its shareholders and principle subcontractors in using prototyping and pilot implementations to prove our solution and minimise risks for subsequent roll-out programmes. We will use this experience and also that gained from other projects with similar requirements to POCL and BA, to provide the baseline for Pathway's proving programme. Examples of relevant experience that applies is summarised below. (See *Annex 6* for further details).

Case Study :	Relevant Experience :	Overview :
ALPS	Counter Interface Service Roll-out	ESNS Riposte-based system for POCL providing negative authorisation of benefit payments, integrated with ECCO+ and APT functionality. Being rolled out to 1,500 post offices within the M25 at an average of over 100 offices a week
An Post - CounterAction	PMS Counter Interface Service TMS Roll-out	Riposte-based counter interface system with a card-based positive authentication benefit payment system, OCR bill in-/out-payments, automatic reconciliation and savings bank account transaction support. Uses touch screen technology and has been implemented at over 400 locations
ICL Singapore Post Office prototype	Counter Interface Service TMS	Prototype using Riposte software being evaluated by the Singapore Post Office. The functionality includes a range of in-/out-payments, EPOS, cash and stock balancing and interfaces to a number of peripherals and mainframe systems
De la Rue AA Project	CMS	Manufacture and personalisation of 18 million cards at a rate of 50,000 cards per day
Girobank Girocheque reconciliation pilot	Reconciliation Roll-out	A five-month pilot for POCL, covering the processing, reconciliation and settlement of all BA girocheques cashed at post offices. Piloted in Wales and now used countrywide
Girobank Visa call centre	CMS	The establishment and management of a call management centre dealing with the production and issue of cards to 300,000 customers

Case Study :	Relevant Experience :	Overview :
CHOTS - competitive pilot	Roll-out	Pilot implementation undertaken by ICL-led consortium now rolled out into a large number of Ministry of Defence buildings

6.2.2 PROVING PROCESS

6.2.2.1 The pilot programme is an essential and vital part of the procurement process. It starts after the SSR shortlist and completes with final acceptance prior to award of contract. It provides the means by which BA and POCL can be sure that the Pathway solution is viable and that we are ready and able to roll out our solution nationwide. Proof will be provided that we understand the business requirements and can provide a socially and politically acceptable solution to a diverse set of users and customers.

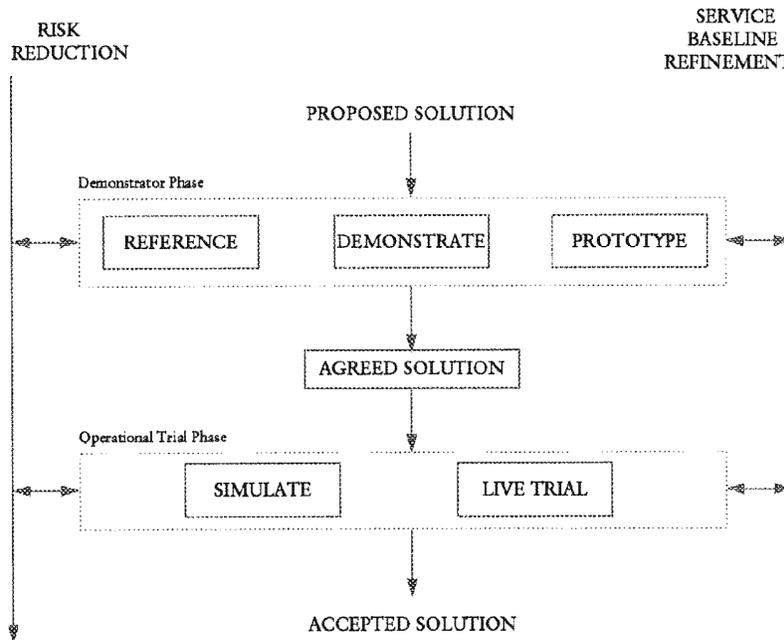


Fig. 1 - Proving Process

6.2.2.2 The Pathway proving process covers both the Demonstrator and Operational Trial phases. We will use different techniques to prove aspects of our solution in each phase. Any risks identified in our solution will be addressed, and removed or contained as the proving progresses. We intend to agree baselines with BA/POCL at each phase of solution development. This will ensure that all parties understand the progress that is being made towards the final and accepted solution.



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- 6.2.2.3 Our proposed solution is based on the use of proven service components and products. Each component has been selected on its ability to be tailored to the specific BA and POCL requirements. The selection process was designed to identify the 'best of breed' available. Components have been evaluated for their ability to meet evolving needs and provide flexibility, functional scalability and value for money over a protracted timescale. This proposed solution forms the SSR shortlist milestone 'proposal baseline' and the baseline for the start of the demonstrator phase.
- 6.2.2.4 The demonstrator phase will start with reference proving. This involves providing documented evidence of our ability to provide services that are acceptable to the various user groupings in environments similar to those required by BA/POCL. Site visits by BA/POCL users, clients, and service managers, as well as representatives of the Contracting Authorities will follow to gain confirmation of our understanding of the requirement and to capture user feedback on the overall acceptability of each service component.
- 6.2.2.5 The ergonomic and usability aspects of the counter interface are key to the success of post office automation. We will use demonstrations to evaluate potential hardware, software, documentation and training options. In order to enable users to evaluate the practical implications of alternative hardware configurations at the counter, we will establish the Pathway model post office.
- 6.2.2.6 Pathway will undertake prototyping of the counter applications to build on the results of the demonstrations and gain detailed user feedback, acceptance and 'buy-in' of the interface functionality. This continuous refinement process will result in an agreed solution, which will form the baseline for financial proposals and the start of the operational trial phase.
- 6.2.2.7 Following contractual negotiations, the operational trial phase will concentrate on end-to-end service proving and readiness for roll-out. We will use simulation to prove our ability to handle the anticipated steady state end-to-end service performance. During this exercise, we will simulate the impact on counter transactions of exception conditions and disaster recovery.
- 6.2.2.8 The live trial is the final element of the solution refinement process. We will use it to gain acceptance of our roll-out strategy and services by proving them in an operational environment. Confirmation of our simulation predictions will form part of the evaluation. We will use our build and test capability to prove our complete system prior to the live trial.
- 6.2.2.9 The live trial will prove our roll-out procedures and services including training, documentation and help desk support. The duration of the live trial will need to be sufficient to prove reconciliation processes. We will use the feedback obtained during this period to complete the refinement of our solution and achieve final acceptance.

6.2.2.10 As our solution develops throughout the proving process, risks identified by BA/POCL and Pathway will be reduced and removed. Both set of risks will be maintained on one register to aid the management of this process.

6.2.2.11 Risk management and baseline refinement form the framework within which the pilot project will operate. We will manage the project using the PRINCE project structure with Pathway directors on both the project board and Project Assurance Team (PAT). We wish to invite representatives of BA/POCL to attend project checkpoint meetings as members of the PAT (*see Sub-section 6.6 for details*). This will provide the risk management controls needed and the visibility to BA/POCL of our management processes.

6.2.3 PROVING MODEL

6.2.3.1 To prove that all services and their components meet the BA and POCL business requirements, that the required service levels can be met and that the system is scalable to meet the perceived demand, is complex. One reason for this complexity is that the proving requirements support three different but complementary views of the same solution. Pathway proposes to simplify the evaluation by using different techniques to prove our solution from the following three different 'proving' viewpoints (*see also Fig. 2, Proving Model*) :

- (a) Business Process Driven, proving that the functionality provided supports BA/POCL users, customers and clients business processes.
- (b) Service Characteristic Driven, proving that the services meet BA/POCL quality requirements for Service Level Agreements (SLAs).
- (c) Technology Driven, providing the capability to deliver the performance levels and functionality required now and in the future by the Contracting Authorities.

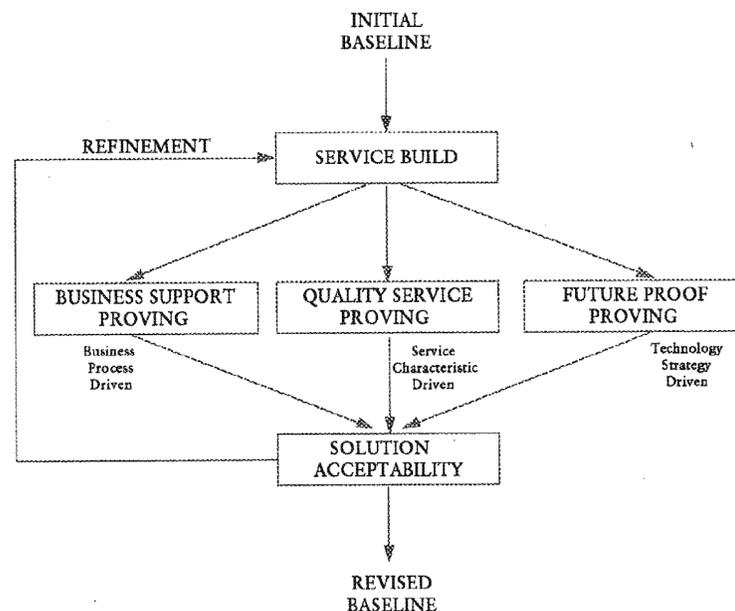


Fig. 2 - Proving Model



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6.2.3.2 This model will be used throughout the pilot programme. Each phase of the pilot programme will build on the baseline achieved during the previous phase.

6.2.3.3 Proving requires that the requirement is formally defined and that the solution reflects that requirement. We will establish with BA/POCL a formal model of the requirements for each viewpoint, which will be refined and expanded as proving proceeds. The services we build during the pilot programme will be measured for acceptance against these models. Our proving model includes both the proving process and the refinement required to gain user acceptance.

6.2.3.4 Involving the various user groups in the business process proving is essential to achieve user acceptance. To provide a low-risk solution that is value for money requires us to prove our service quality to the BA/POCL service managers and the future proof nature of our architecture to representatives of the Contracting Authorities.

6.2.4 PROVING TECHNIQUES

6.2.4.1 OVERVIEW

6.2.4.1.1 We will use the following techniques during the proving process to demonstrate all aspects of our capability as part of our solution development process. We will start by illustrating our track record and demonstrating our current capability. Feedback gained from working closely with BA/POCL users will provide valuable input to our solution development process. Some aspects of proving will involve reference to documentary evidence.

6.2.4.2 RESEARCH

6.2.4.2.1 Recently Pathway commissioned market research into card type acceptability. This type of research will continue, as will our participation in events such as the National Federation of Sub-Postmasters annual conference. Pathway will arrange for research findings to be presented to BA and POCL.

6.2.4.3 REFERENCE

6.2.4.3.1 We will use documented evidence to show our track record in service provision, project management, design, development, implementation and roll-out. Our proposal includes relevant case studies in *Annex 6*. We will present additional material on these and other relevant examples during the proving activity to gain confirmation of their acceptability as proof of our capabilities.

6.2.4.3.2 We will organise visits to sites using comparable services, to allow us to confirm that we have interpreted correctly the BA and POCL service requirement. We will input feedback from these visits into our development programme. The following agenda will apply to such visits :

1. A presentation to set the scope and purpose of the visit.
2. A demonstration of the end-to-end service in operation.

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3. A feedback session to identify the completeness of fit with BA and POCL requirements and any issues.
4. Distribution of literature summarising what has been seen and its relevance.

6.2.4.4 MODELLING

6.2.4.4.1 We will use modelling to define the requirements baseline formally from the three viewpoints identified earlier. Each model will cover end-to-end service definitions, exception conditions and any steady state or roll-out considerations. We will include any anticipated future requirements.

6.2.4.4.2 During the proving process, we will :

- (a) Create the model using the appropriate software and tools.
- (b) Present the models to BA/POCL to gain feedback to refine the model.
- (c) Calibrate the model as development proceeds until user acceptance is achieved.

6.2.4.5 MODEL POST OFFICE

6.2.4.5.1 Pathway will establish a model post office to provide a means of proving in a realistic environment. We will demonstrate all counter interface options. This will include alternative hardware configurations and counter applications. It will provide the opportunity to evaluate the impact of options on POCL users and customers. Proving will include the ergonomics of the hardware components and the usability of the Human Computer Interface (HCI).

6.2.4.5.2 We will create a modular and mobile office so that it can be established initially at the Pathway office in Feltham and later moved to the BA/POCL premises in Victoria if this is acceptable to BA and POCL. The model post office will provide :

- Counter positions reflecting multiple- and single-counter situations
- Front- and back-office areas
- Access for POCL counter staff and customers

6.2.4.6 DEMONSTRATION

6.2.4.6.1 During the service development process, we will demonstrate components of our solution to BA/POCL to gain feedback on their suitability. By the end of each proving phase, we will have refined our solution and obtained from BA/POCL confirmation of its acceptability.

6.2.4.7 PROTOTYPING

6.2.4.7.1 Prototyping is an essential element of our development programme. It provides the means of gaining user input into the development process to check options and preferences based on their experience of the business practice. Their acceptance and buy-in to the final solution is essential. We will use prototyping sessions to :

- Ensure that we understand fully the business requirements and that the counter interface meets these requirements
- Gain acceptance of the counter interface by counter staff
- Evaluate the security and fraud implications at the counter interface

6.2.4.8 AUDIT AND ASSURANCE

6.2.4.8.1 We will use quality reviews to provide firm evidence of our solutions compliance by :

- Establishing compliance with international standards
- Demonstrating compliance with established development methodologies
- Demonstrating conformance with Pathway guidelines and standards

6.2.4.8.2 The Pathway Quality Management System defines our quality procedures and principles. The Pathway Security Policy (*see Annex 5*) defines the security measures that will be applied. We will audit our compliance to both during the pilot programme using qualified internal and external auditors. We will present the results of these audits to the BA/POCL PAT representative(s) to prove that :

- Security standards are in place and are being incorporated in the design
- Quality procedures are in place and being adhered to by the project

6.2.4.9 SIMULATION

6.2.4.9.1 There are elements of proving which can be undertaken only by the use of simulation techniques. They include volumetric testing and the simulation of interfaces that do not yet exist. We will use simulation to prove :

- End-to-end service performance
- Scalability of critical individual service components
- Potential for future enhancement

6.2.4.9.2 We will use a workload generator to simulate transaction data flows from interfaces or other components. The generator will allow appropriate volumes to be passed across the interface.

6.2.4.10 LIVE TRIAL

- 6.2.4.10.1 We will use the live operational trial feedback to confirm and refine our solution prior to roll-out. All system components will be trialed to ensure the acceptability of end-to-end services in a live environment. The duration of the trial needs to be sufficient to prove reconciliation services.

6.2.5 BUSINESS PROCESS PROVING

- 6.2.5.1 The main objective of business process proving is to establish that our system provides user interactions that are seen by BA/POCL users, customers and clients as being an improvement on existing services. We will develop user interfaces that are intuitive and user-friendly. This can be achieved most effectively by involving directly in the development process those who will use the system.
- 6.2.5.2 We will obtain user acceptance and 'buy-in' of our solution in steps. Initially, we will present options for their evaluation. Once agreement has been reached, we will develop the solution further so that ergonomic considerations can be evaluated. Finally, the live trial will present an opportunity to evaluate the impact in an operational environment.
- 6.2.5.3 Options that we ask users to evaluate will include touchscreen- versus keyboard-driven counter applications, and menu-driven versus fast-track access to frequently used user functions. Counter times are an important aspect of user acceptability. We will use the model office environment to verify the impact of our solution on counter transaction times. We will request assistance from the POCL experts in this area so that we can gauge correctly the variations from current practices.
- 6.2.5.4 Our model post office provides also the environment for evaluation by both counter staff and customers. We will use the post office environment to gain feedback and advice from as many sources as possible. We will ask BA/POCL to provide as wide a range as possible of user and customer group representatives. We have already obtained offers of assistance from voluntary organisations, such as the Carers National Association, MENCAP, Help the Aged, SENSE and Age Concern and we will ask them to provide representatives during the proving exercise to gain feedback on the needs of these disadvantaged groups.
- 6.2.5.5 We will create business process models which define our understanding of the BA and POCL business processes. Each model will define the transactions that must be supported, the interactions between these transactions and any exception conditions. We will review these models with BA/POCL to reach a common understanding of the detailed business requirements against which to validate our solution.

6.2.5.6 The techniques we will use for business processes proving are :

Technique Used :	Component Proved :	Proving Objective :
Research	CMS	Confirmation of the acceptability of card types and formats
Reference	CMS, PMS, OSS, Counter Interface Service	Verification of suitability of Pathway's service capability. Baseline establishment
Modelling	CMS, PMS, OSS, Counter Interface Service	Provision of functional requirements baseline against which options and alternatives can be evaluated
Model post office	Counter Interface Service	Check of ergonomic acceptability of hardware and software options
Demonstrations	CMS, PMS, OSS, Counter Interface Service	Acceptability of the user interfaces
Prototyping	Counter Interface Service	Assurance of user acceptance of the functionality provided
Live Operational Trial	CMS, PMS, OSS, Counter Interface Service	Confirmation of readiness to roll out acceptable solution

6.2.5.7 We are assuming that site visits to view similar operational services and demonstrations will need representatives from the following user roles :

- POCL counter staff
- POCL Postmasters
- BA office staff
- BA financial managers
- POCL client representatives
- POCL or BA staff acting as, or selected actual benefit customers from various ethnic and linguistic communities, and disadvantaged groups
- POCL staff acting as (or actual) Bill Payment customers

6.2.5.8 For any Counter Interface Service prototyping or ergonomic proving, we are assuming that representatives of POCL counter staff and user groups will attend. We assume that the business modelling discussions will take place with the Contracting Authorities representatives.

6.2.5.9 By the end of the demonstrator phase, we will have produced and agreed a set of major deliverables as follows :

- (a) Documented and agreed Human Computer Interface (HCI) style guide which identifies the style acceptable to the various user communities.
- (b) Prototyped Counter Interface Service applications agreed with representatives of the user community.

- (c) Business Process Model defining the agreed business process requirements which defines the processes each user group will use.
- (d) Counter interface hardware configuration and product descriptions.

6.2.5.10 By the end of the operational pilot trial, our solution will have been refined in the light of operational experience. We will have gained acceptance of all business process related services by proving :

- Our ability to provide a user-acceptable counter interface
- The ergonomic acceptability of our counter hardware
- Our readiness to roll out benefit payment, EPOS, automated payments and local OSS applications to each post office

6.2.6 SERVICE CHARACTERISTICS PROVING

6.2.6.1 The main objective of service characteristics proving is to establish that we are developing the right services with the right characteristics to meet the BA/POCL requirements. We will work with the BA and POCL service managers to define and develop services that are responsive to user needs during roll-out and steady state operations. We will use the proving exercise to develop user support services and validate the Service Level Agreements (SLAs).

6.2.6.2 User support services include training, documentation and help desk support. We will prove the acceptability of our solution in these areas in steps. At the start of the demonstrator phase, we will develop our understanding of each user groups' training needs through discussions with representatives of the group. We will apply a similar principle to verifying user documentation needs, using in this case document synopses rather than a training needs analysis to document and achieve agreement.

6.2.6.3 We will demonstrate training and documentation options to confirm agreement to the style and content required. By the start of the operational trial phase, we will have developed the user training and documentation material ready for use during the live trial stage. We will apply feedback from this operational use to refine the material prior to achieving final acceptance.

6.2.6.4 We will discuss SLA requirements with the BA and POCL service managers to ensure that our help desk and interface services meet current and anticipated future charging mechanisms needs. We will model the responsiveness required of these services and calibrate the model during the live trial.

6.2.6.5 During the demonstrator phase we will present to BA and POCL our recommended roll-out approach, as described in *Section 7 - Roll-Out and Implementation*. We will discuss this approach and agree how migration and reconciliation will be handled by BA/POCL and Pathway during this period.

6.2.6.6 During the operational trial phase, we will prove our ability to implement our roll-out strategy and deal with any contract or change management issues that arise. We will implement change control on all baseline definitions at the start of the demonstrator phase and this will be extended to cover all hardware, software and service components prior to the live trial. We will incorporate any refinements needed to the procedures as a result of feedback from the live trial prior to final acceptance.

6.2.6.7 We will use the live trial to prove that the agreed migration and reconciliation processes are effective and provide BA/POCL and Pathway with the confidence to proceed to full roll-out.

6.2.6.8 The techniques we will use for service characteristics proving are :

Technique Used :	Component Proved :	Proving Objective :
Reference	Training, documentation, help desk support, reconciliation, roll-out, contract management, TMS, OSS	Verification of suitability of Pathway's service capability. Baseline establishment
Modelling	Response times and interface requirements	Provision of service requirements baseline against which SLAs can be evaluated
Demonstrations	Training, help desk support	Acceptability of user interface
Live Trial	Training, documentation, help desk support, reconciliation, roll-out, contract management, TMS, OSS	Evaluation of readiness to roll out solution

6.2.6.9 We are assuming that site visits to view similar operational services and demonstrations will need representation from the following user roles :

- BA Service Manager
- POCL Service Manager

6.2.6.10 For user-related demonstrations, we are assuming that representatives of BA/POCL users will attend. We assume that the service characteristics modelling discussions will take place with the Contracting Authorities representatives.

6.2.6.11 By the end of the demonstrator phase we will have produced and agreed a set of major deliverables as follows :

- (a) Training Needs Analysis that identifies the needs of the various user groups where the analysis has been underwritten by the user.
- (b) Synopsis for each type of user documentation underwritten by the users.



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- (c) Service Characteristics Model which reflects the service requirements of PMS, CMS, OSS, the Counter Interface Service and all interfaces to POCL client systems as agreed with the Contracting Authorities.
- (d) Roll-out plans agreed with BA/POCL service managers which identify how the solution will be rolled out.
- (e) Migration strategy plan agreed with BA/POCL service managers which identifies how reconciliation will be accomplished during roll-out.
- (f) Management, account and service-level reporting requirements agreed with the Contracting Authorities which identify those reports that form the reporting baseline between Pathway and BA/POCL service managers.
- (g) Service monitoring plans agreed with BA/POCL service managers covering all interfaces between Pathway-provided services and those provided by BA/POCL.

6.2.6.12 By the end of the operational trial phase, we will have gained acceptance of all support and interface services and agreement to our roll-out plan by proving that :

- We have effective contract change management procedures
- We understand migration issues and have contained them
- Reconciliation can be achieved using current and new system components
- Our training is effective and gives the users the confidence they need to use the system effectively
- Our installation co-ordination works well in the post office environments chosen

6.2.7 TECHNICAL STRATEGY PROVING

6.2.7.1 The main objective of technical strategy proving is to establish that we have a technical architecture that is viable now and in the future, and in particular that it can support any new business activities undertaken by POCL at minimum risk. It is important also that we can prove the capacity of the system to handle the anticipated workload before roll-out.

6.2.7.2 We will prove our technical architecture in steps. We will model the various architectural components by using discrete event-driven modelling. This kind of technique is the industry standard for volumetric modelling of distributed systems. Once this model has been agreed, we will place 'Thermometers' in key software components during the demonstrator phase to calibrate the models as the system is developed. We will use the models to validate end-to-end service performance.

6.2.7.3 During the operational pilot phase, we will use a workload generator to simulate the transaction volumes required to prove the scalability of critical individual service components and the potential for future enhancement.

- 6.2.7.4 We will use the workload generator also to simulate parts of the system that may not exist during the demonstrator and operational trial phases. The generator will allow transaction data flows to be simulated and passed to the other components in the appropriate volumes.
- 6.2.7.5 There are a number of exception conditions for which we will produce plans for agreement during the demonstrator phase. We will provide the fraud scenarios against which we have included prevention mechanisms within our solution. We will discuss these with BA/POCL and agree the fraud each mechanism is intended to prevent. Similarly, we will produce fall-back, recovery and contingency plans for agreement. These will identify the conditions that will cause them to be invoked and the responsibilities of all parties.
- 6.2.7.6 We will conduct design-assurance reviews during the demonstrator phase to establish the compliance of our solution with international standards. We will demonstrate our compliance with Pathway development methodologies also during this phase.
- 6.2.7.7 During both the demonstrator and the operational pilot phases, we will conduct quality and security reviews against the policies detailed in *Annex 2 and 5* respectively. We will use the reviews undertaken during the demonstrator phase to prove to ourselves and BA/POCL representatives that we have incorporated the security standards in our solution and that the quality procedures are being applied. We will audit the use of both again during the operational trial phase.
- 6.2.7.8 The techniques we will use for technical strategy proving are :

Technique Used :	Component Proved :	Proving Objective :
Reference	Technical architecture components	Verification of suitability of architecture to support BA/POCL requirements. Confirmation that the components proposed can be enhanced in the future at minimum risk. Baseline establishment
Modelling	Technical Architecture	Provision of technical baseline against which workload predictions can be evaluated
Demonstrations	Fraud scenarios, fall-back/recovery plans and contingency plans	Acceptability of exception-condition handling
Simulation	Missing components and anticipated workload transactions	Scalability of Pathway solution
Review	Security and Quality	Compliance with security and quality policies



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- 6.2.7.9 We recommend that representatives of the Contracting Authorities are present during technical architecture proving.
- 6.2.7.10 By the end of the demonstrator phase, we will have produced and agreed a set of major deliverables as follows :
- (a) Fraud scenarios which define the agreed fraud-prevention mechanisms included in our solution and identify the fraud they are intended to prevent.
 - (b) Technical Architecture Model which specifies the workload characteristics of each element of the system.
 - (c) Fall-back, recovery and contingency plans for the solution to be rolled out.
 - (d) Quality and security audit review reports which identify any non-conformance and corrective actions.
- 6.2.7.11 By the end of the operational trial phase, we will have gained acceptance of our technical architecture by proving that :
- We can meet the anticipated transaction volumes through end-to-end service simulation
 - We have included security procedures that provide acceptable fraud prevention measures in our solution
 - We have an acceptable fall-back and recovery plan
 - Our contingency plans are acceptable

6.2.8 WORKING RELATIONSHIPS

- 6.2.8.1 To ensure that the proving process is successful and that we develop a low-risk solution which meets BA/POCL requirements needs resources and commitment from all the organisations involved. Pathway has established an organisational structure, evolved from the one used during proposal production, to reflect and support the requirement of the diverse groups.
- 6.2.8.2 Success during the proving process will depend to a great extent on the working relationship developed between BA/POCL staff and the Pathway team. Partnership within the bounds of the contractual obligations will minimise the risk to all. Pathway recognises that BA/POCL staff have the in-depth understanding of the requirement, the organisational cultures involved and the POCL customer base.
- 6.2.8.3 The way that we see the working relationship building from the current proposal production phase through to roll-out is indicated in *Fig. 3* below.

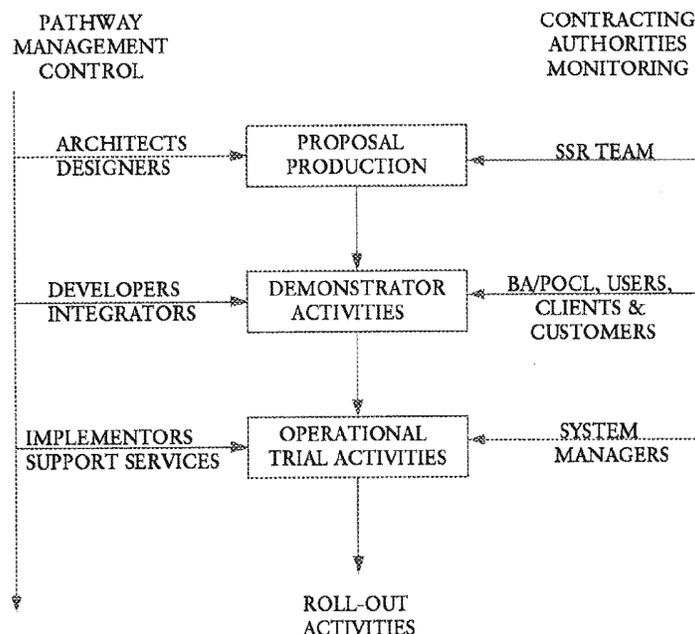


Fig. 3 - Working Relationships

- 6.2.8.4 The architects and designers who have developed our proposal solution will form the nucleus of our design team for the demonstration and operational trial phases. This team will be joined by development teams who will tailor our solution to deliver the BA/POCL application functionality and by the integrators who will be responsible for ensuring that these functional components combine to provide the required end-to-end services for the live trial. They will receive also the feedback from the trial so that lessons learnt can be included roll-out.
- 6.2.8.5 We will provide designers to develop training, documentation and help desk support during the demonstrator activities. The involvement of representatives of BA/POCL users, customers and clients in demonstrator activities has been described earlier. Their involvement will provide the Contracting Authorities team with visibility of Pathway activities during this period. We intend to manage the pilot programme as a PRINCE project with a Project Board and Project Assurance Team (PAT) consisting of Pathway directors (*see Sub-section 6.6 for details*).
- 6.2.8.6 Pathway recommends co-opting one or more members of the procurement team to act as an User Assurance Co-ordinator in the Pathway PAT. Their role is to :
- Ensure that the detailed business practices and requirements of BA and POCL users (in particular BA financial users and BA/POCL service management) are supported by the Pathway solution.
 - Monitor the way counter staff preferences for the ergonomics of the solution are handled during demonstrations and prototyping activities.
 - Observe and report on post office customer reactions to the service characteristics during demonstrations in the model post office.



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- 6.2.8.7 During the operational trial phase, we will include additional implementation and support teams in our organisation. These will form the nucleus of those teams needed for full roll-out after final acceptance. During the live trial we see the need for in-depth involvement of the BA/POCL service managers.
- 6.2.8.8 During the pilot programme we would offer BA/POCL representation on the Pathway PAT to :
- (a) Ensure that all interface requirements have been interpreted correctly and that our solution can handle the migration issues.
 - (b) Monitor the way training and documentation is received by users and the way feedback is incorporated into the accepted versions.
 - (c) Observe and report on post office reactions to the support provided so that maximum benefit can be gained from trial activities.
- 6.2.8.9 Pathway will work throughout the pilot programme with BA and POCL to develop an effective working relationship and prove that Pathway has the culture, capability and structure to provide a quality service throughout the life of the contract.

6.2.9 RISK MANAGEMENT

- 6.2.9.1 Pathway has established a risk management process and a Risk Register. This assigns each risk to the party best able to manage the risk. Once we are advised of the Pathway risks on the BA/POCL Risk Register, we will match them to our own and add any not previously identified. The Risk Register will evolve during the programme as circumstances and requirements change.
- 6.2.9.2 The combined Risk Register will be one of the prime inputs to the demonstrator phase. The activities planned during this phase cover proving of all services in a component and an end-to-end manner. Specific activities to deal with risks identified by BA and POCL can therefore be incorporated easily into our proving.
- 6.2.9.3 Risks that can be resolved in the demonstrator phase will be closed only when BA/POCL procurement management have signified the acceptability of the proof.

6.3. DEMONSTRATOR PHASE**6.3.1 INTRODUCTION**

- 6.3.1.1 The demonstrator phase forms the first part of the pilot programme. The main aim of this phase is to ensure that our solution is viable, meets the BA/POCL requirements and will be acceptable to its users.

6.3.1.2 During the demonstrator phase, we will work with BA/POCL to identify, eliminate and contain risks in the Pathway solution. We will prove to BA/POCL that the Pathway solution satisfies their primary needs as specified in *Chapter 6.4.3 of the SSR* using the techniques described in *Sub-section 6.2.4* of this proposal. By the end of the phase, we will have established the agreed baselines on which to base our financial proposals.

6.3.2 DEMONSTRATION MODEL

6.3.2.1 Using our proving approach, the proving model for this phase becomes the one shown in *Fig. 4*.

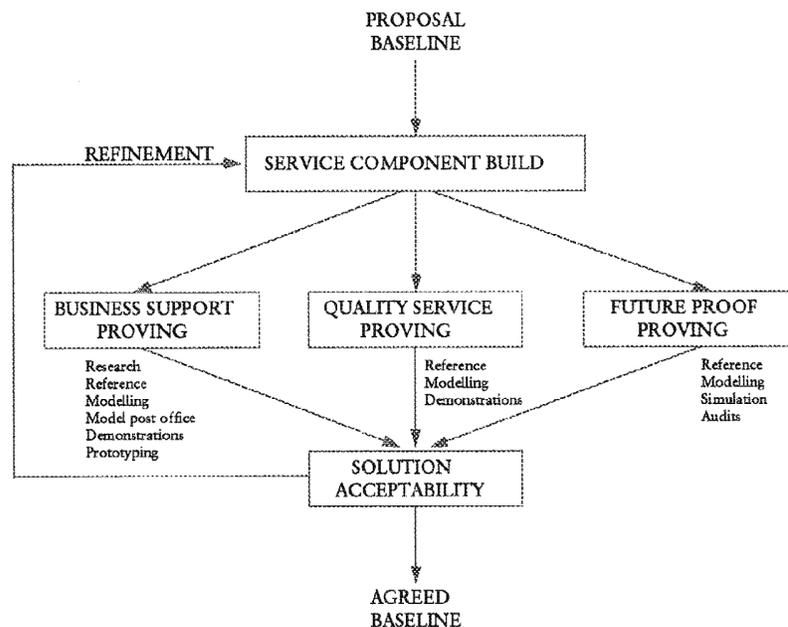


Fig. 4 - Proving Model

6.3.2.2 The proving techniques (*see Sub-section 6.2.4*) for business process proving (*see Sub-section 6.2.5*), service characteristics proving (*see Sub-section 6.2.6*) and technical strategy proving (*see Sub-section 6.2.7*) are as follows for the demonstrator phase :

- Reference visits to similar operational services
- Research into user preferences
- Modelling of requirements from the business process, service and technology viewpoints
- Demonstration of hardware and software options
- Model office illustration of counter interface interactions
- Prototyping of counter interface applications
- Design assurance activities
- Security and quality audits



6.3.3 DEMONSTRATOR PHASE CHECKPOINTS

6.3.3.1 The activities undertaken during this phase are *described in Sub-section 6.6*. The agreement checkpoints for monitoring this phase are :

- (a) Confirmation through reference visits that our proposed service characteristics meet the overall BA/POCL requirement.
- (b) Completion of the counter interface prototyping and HCI Style guide.
- (c) Completion of all demonstration activities to confirm selection from options available.
- (d) Completed user Training Needs Analysis and documentation synopses.
- (e) Reviewed roll-out strategy.
- (f) Final demonstration.

6.3.3.2 We will formally present the following results from the demonstrator phase to BA/POCL :

- Agreed solution, including reasons for selecting options
- Agreed baseline as represented by the business process, service characteristics and technical architecture models
- Status of all risks on the Risk Register
- Agreed roll-out strategy

6.3.4 PROPOSAL BASELINE

6.3.4.1 The initial baseline for the demonstrator phase will be :

- Business Process definitions as included in the SSR and the Pathway proposal *Section 4*
- Service characteristic definitions as included in the SSR and the Pathway proposal *Section 5 and 7*
- Technical architecture definitions as included in the Pathway proposal *Section 4*
- BA/POCL Risk Register
- Pathway Risk Register

6.3.4.2 We will use this baseline to create the various models which will be proved, calibrated and refined as the proving continues.

6.3.5 AGREED BASELINE

6.3.5.1 The agreed baseline at the end of the demonstrator phase will be based on :

- Business Process model
- Service Characteristic model
- Technical Architecture model
- Training Needs Analysis
- User documentation synopses



- Roll-out strategy
- BA/POCL Risk Register
- Pathway Risk Register

6.3.5.2 We will use this baseline as input to the creation of SLAs and the Pathway financial proposal.

6.4. OPERATIONAL TRIAL PHASE

6.4.1 INTRODUCTION

6.4.1.1 The operational trial phase forms the second part of the pilot programme. The main aim of this phase is to establish Pathways readiness for roll-out.

6.4.1.2 By the end of the demonstrator phase, Pathway will have proved to BA and POCL that our solution meets all current requirements, is low-risk and provides a forward path for any new requirements. We will have validated our understanding of the user requirements, have prototyped the user counter interface and have proved that the equipment we propose will operate in post office environments. The operational trial phase builds on this understanding and the working relationship that will have been built up with BA, POCL, and the various user groups.

6.4.1.3 During the operational trial phase, Pathway will complete the development, integration and testing of service components. Phase prior to the start of the live trial, we will conduct formal testing against the requirement models agreed during the demonstrator.

6.4.2 OPERATIONAL TRIAL MODEL

6.4.2.1 Using our proving approach *described in Sub-section 6.2*, the proving model for this phase becomes the one shown in *Fig. 5*.

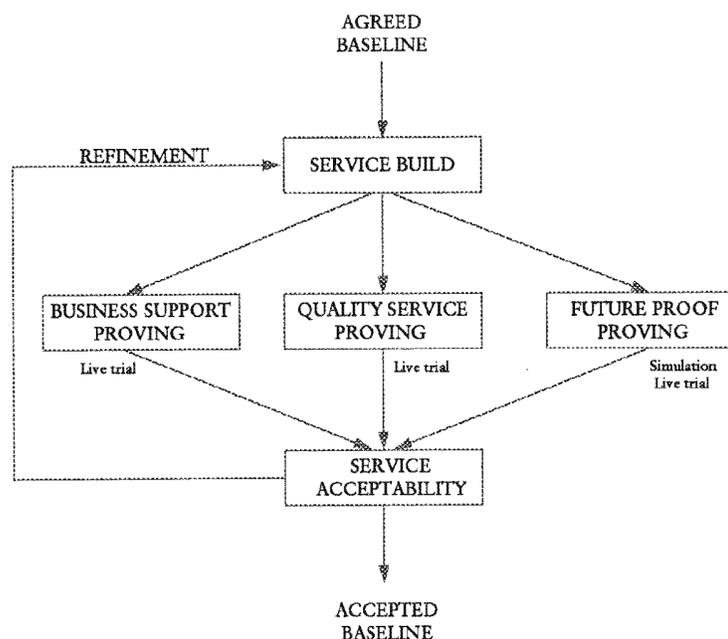


Fig.5 - Proving Model

6.4.2.2 The proving techniques (see Sub-section 6.2.4) for business process proving (see Sub-section 6.2.5), service characteristics proving (see Sub-section 6.2.6) and technical strategy proving (see Sub-section 6.2.7) in the operational trial phase are :

- Simulation of end-to-end services to prove scalability to anticipated volumes
- Live trial to establish the acceptability of all service

6.4.2.3 The initial baseline for this phase is the final baseline established at the end of the demonstrator phase.

6.4.3 OPERATIONAL TRIAL PHASE CHECKPOINTS

6.4.3.1 The activities we will undertake during this phase are described in Sub-section 6.6. The acceptance checkpoints for monitoring this phase are :

- (a) Initiation of live trial to exercise roll-out procedures and services.
- (b) Business process, service characteristics and technical architecture models representing BA/POCL requirements.
- (c) Training courses and user documentation.
- (d) Roll-out plan.
- (e) End-to-end service simulation of anticipated transaction volumes .
- (f) Change management procedures.
- (g) Contract management procedures.



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6.4.3.2 The SSR identifies the period from January to May 1996 as the time-window for the operational trial phase. Pathway will discuss the exact nature of the operational trial phase of the pilot programme with BA and POCL during Stage 3 Draft Contract Negotiations. However, Pathway's proposed schedule for the operational trial phase :

- Allows a month for planning the live trial
- Rolls out to a limited number of post offices starting in February
- Contains a three-month period of live usage from February to May 1996
- Involves reconciliation of Cash Accounts during the three-month period
- Simulates the CAPS interface, if necessary

6.4.3.3 This period will be sufficient to allow the BA/POCL evaluation team to confirm that our services have the characteristics required for the PFI contract and that the IT infrastructure meets the requirements of both BA and POCL.

6.4.3.4 During the demonstrator phase, the BA/POCL evaluation team will have had the opportunity to work with the Pathway team. Joint planning of the live trial will show the quality of Pathways project and service management. It will provide also the opportunity for BA/POCL to see the quality of the Pathway roll-out standards and procedures.

6.4.4 CONTRACTUAL BASELINE

6.4.4.1 We will establish formal change control at the beginning of the demonstrator phase. We will deal formally with all changes required as a result of proving, including end-to-end system simulation and the live trial during the operational trial phase. This will give us the opportunity to resolve any issues with the Pathway change control procedures and exercise the interface between these and any used by BA/POCL.

6.4.5 FINAL ACCEPTANCE

6.4.5.1 Deliverables will be agreed during the demonstrator phase and accepted by the end of the pilot programme. Agreement to final acceptance will represent the point at which the contract can be issued and roll-out started. We will agree the format and content of this acceptance activity during the contract negotiation stage but we anticipate that it will involve the production and presentation of a report of :

- (a) The simulation and modelling activities, indicating any volumetric or interface issues that arose, how they were tackled and their current status .
- (b) The live trial, indicating any roll-out issues with SLAs or planning that were raised and the state of their resolution.
- (c) The status of user group agreement to the acceptability of user interfaces.
- (d) The agreed roll-out plan.

6.4.5.2 Final acceptance would then be achieved after discussion and acceptance of the report.

6.5. PILOT PROGRAMME PROVING

6.5.1 INTRODUCTION

6.5.1.1 This section addresses *Chapter 6.4* of the SSR which details the pilot programme requirements. It summarises how the Pathway proposal has addressed the requirement for the supplier to prove capability during the pilot programme. The tables that follow list the requirements stated in the SSR and provide a description of the proving technique we will use during either or both the demonstrator or operational pilot phases

6.5.2 OVERALL PRIME CONTRACTOR CAPABILITY

6.5.2.1 We will manage the pilot programme proving as a PRINCE-based project. All Pathway directors will be involved on either the Project Board or the PAT. We invite BA/POCL to provide representatives for the PAT. This will allow BA/POCL to evaluate our management processes. We will use reference to prove our overall capabilities during the demonstrator phase with direct observation being possible during the live trial. We will include representatives of the Contracting Authorities in all proving of our capabilities as a prime contractor, as identified below :

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(a) Project and service management	Reference visits PAT activities Project management Live trial service management	Demonstrator/ Operational trial
(b) Quality of standards and procedures	Reference visits including Camelot Security and quality audits Live trial procedures	Demonstrator/ Operational trial
(c) Understanding of business and of service requirements	Reference experience including ESNS and girocheque reconciliation Business process modelling Service characteristics modelling	Demonstrator
(d) Cultural and commercial compatibility to work within both the BA and POCL business environment	Reference experience of ALPS roll-out PAT activities Demonstrations Prototyping Reviews	Demonstrator/ Operational trial
(e) Flexibility and responsiveness to cope with change and fast roll-out	Reference experience of ALPS roll-out and Camelot Live trial roll-out	Demonstrator/ Operational trial

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(f) Technical and logistical competence	Reference visits to development, build and test capabilities Technical Architecture Model Roll-out implementation	Demonstrator/ Operational trial
(g) Speed of implementation	Reference experience of ALPS and Camelot roll-outs Roll-out strategy Live trial roll-out	Demonstrator/ Operational trial

6.5.3 POCL PRIME NEEDS

6.5.3.1 POCL wishes to satisfy itself that Pathway can provide a flexible and usable, quality set of services that provides compatibility with current systems, can be reconciled at various levels and provides an acceptable migration path. During the demonstrator phase we will cover these issues in the main by reference, prototyping, modelling and simulation. We will extend the proof during the operational trial phase to provide the end-to-end proof needed to achieve acceptance of the various services.

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(a) Flexible solution	Demonstration of An Post and Singapore counter applications including stock control, additional in/out payment applications, support systems and reporting Counter application prototyping Security audit Technical Architecture Model	Demonstrator
(b) Capability of being introduced at all post offices	Demonstration of hardware and software options in model post office Live trial	Demonstrator/ Operational Trial
(c) Secure, accurate and auditable accounting and reconciliation	Reference to Girobank girocheque reconciliation service OSS business process model Service characteristics modelling Live trial	Demonstrator/ Operational Trial
(d) Compatibility with existing systems strategy and interfaces	Technical architecture modelling Service characteristics modelling Simulation	Demonstrator/ Operational Trial
(e) Service which is easily understood by counter clerks	Direct user experience of the ALPS ESNS application Prototyping of counter applications Demonstrations Training Live trial	Demonstrator/ Operational Trial

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(f) Improved quality of service to clients and customers	Reference visit to An Post post office Experience of ALPS implementation Prototyping Model office demonstrations Live trial	Demonstrator/ Operational Trial
(g) Migration of existing systems with minimum disruption	Reference to girocheque reconciliation Migration plan Roll-out strategy Live trial roll-out	Demonstrator/ Operational Trial

6.5.4 BENEFIT AGENCY PRIME NEEDS

6.5.4.1 For the Benefit Agency, the emphasis during proving is on the end-to-end Benefit Payment Service and card issue, their impact on reducing fraud and providing benefit reconciliation and their suitability as a method of migrating from existing paper-based encashments. Again the developments undertaken during the demonstrator phase will be extended into an end-to-end service.

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(a) Reliable and consistent 'end-to-end' service	Reference to An Post end-to-end service Business process modelling Service characteristics modelling Live trial	Demonstrator/ Operational trial
(b) Large scale card issue and management operation	Reference visit to De La Rue card production and issue facility Reference visit to A&L card management service	Demonstrator
(c) Migration to card-based service	Reference to An Post post office Migration planning	Demonstrator
(d) Proven methods for fraud reduction that are practical and politically and publicly acceptable	Research Fraud scenarios Security Audit Live trial	Demonstrator/ Operational trial
(e) Secure, accurate and auditable accounting.	Reference to Girobank girocheque reconciliation service OSS business process model Service characteristics modelling Live trial	Demonstrator/ Operational trial



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6.5.5 CUSTOMER / CLERK NEEDS

6.5.5.1 The need to assess the acceptability for POCL counter staff and customers is the driver for undertaking prototyping and demonstrations during the demonstrator phase. Having achieved agreement to the counter interface, the operational trial phase will confirm the acceptability and allow real life proving. We will use this proving to ensure that the system is focused on supporting the counter staff in their every-day activities and that customers receive the quality of service expected.

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(a) Post office space and environmental constraints	Reference to ALPS roll-out Demonstration of hardware and software options in model post office Live trial	Demonstrator/ Operational Trial
(b) Payment method acceptable to all kinds of customer	Research Reference to ESNS system and Singapore post office applications Model post office demonstrations to elderly, disable and non English speaking representatives Live trial	Demonstrator/ Operational Trial
(c) Service can cope with exception conditions	Business process modelling Model office demonstrations	Demonstrator
(d) Contingency in the case of full or partial system failures	Reference to An Post system Fall-back/recovery planning Contingency planning Model office demonstrations.	Demonstrator
(e) Migration options acceptable to customers	Reference to An Post post office Migration planning Model office demonstrations	Demonstrator

6.5.6 TRAINING AND DOCUMENTATION

6.5.6.1 Both BA and POCL need to satisfy themselves before roll-out commences that the training and documentation provided with the system meets the needs of the various user groups. During the demonstrator phase, we will prove our capabilities by reference, training needs analysis and demonstration. During the live operational trial we will extend the proving by undertaking training courses and evaluating their effectiveness.

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(a) Training capability	Reference to Camelot training programme Demonstration of training techniques and options Training needs analysis Live trial training	Demonstrator/ Operational trial
(b) Quality and standard of documentation	Reference to Camelot documentation Demonstration of options Documentation synopses Live trial usage	Demonstrator Operational trial
(c) Documentation of the service for users, counter clerks and staff	Reference to Camelot documentation Live trial usage	Demonstrator/ Operational trial
(d) Ability to integrate with existing systems and documentation	Demonstration of options Documentation synopses Live trial usage	Demonstrator/ Operational trial

6.5.7 SERVICE DELIVERY

6.5.7.1 Service delivery proving during the demonstrator phase will occur in parallel with producing SLAs. We will ensure that the scope and completeness of each service and its interfaces are modelled and reflect the SLAs. Live trial proving will calibrate our service characteristics models.

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(a) Operational services meet the full functional requirement	Business process modelling Service characteristics modelling	Demonstrator
(b) Roll-out and support services are comprehensive and meet the availability and responsiveness requirements	Roll-out strategy Service characteristics modelling Simulation Live trials	Demonstrator/ Operational trial
(c) Effective project management and contract management procedures exist	Project planning Change control procedures Contract management and usage procedures and usage Live trial service	Demonstrator/ Operational trial
(d) Contingency, fall-back and recovery plans exist	Fall-back/recovery planning Contingency planning	Demonstrator
(e) Interfaces to PAS, CAPS and POCL systems are accurate and auditable.	Service characteristics modelling End-to-end service simulation Live trial usage	Demonstrator/ Operational trial

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(f) Procedures exist for developing future services.	Demonstration of procedures and mechanisms used for developing BA/POCL services	Demonstrator
(g) Commitment to Quality Assurance	Quality audits	Demonstrator/ Operational trial

6.5.8 IT INFRASTRUCTURE

6.5.8.1 IT infrastructure proving is about ensuring that our solution is future-proofed, that is it can be extended over a period of time, that new products can be introduced and technology improvements intercepted.

Summary of SSR Evaluation Criteria	Proving Techniques	Phase
(a) Technology has capability to cope with increased volumes or functionality	Technical architecture modelling Technical papers Demonstrations	Demonstrator
(b) Solution adheres to industry and health & safety standards and compatible with IS/IT strategies	Product descriptions Technical architecture modelling	Demonstrator
(c) IT infrastructure can handle technology refresh without disruption	Demonstrations	Demonstrator
(d) Appropriate security exists	Security audit	Demonstrator
(e) Workable configuration management exists	Configuration management procedures Live trial	Demonstrator/ Operational trial
(f) Data integrity and resilience measures have been included	Technical architecture modelling Technical papers	Demonstrator

6.5.8.2 Pathway will present to BA/POCL options which represent value for money. We will evaluate any changes agreed with BA/POCL during the pilot programme for their commercial and financial impact.

6.6. PILOT PROJECT PLANS

6.6.1 INTRODUCTION

6.6.1.1 The plan outlined in this Sub-section covers the entire pilot programme. The timetable we are using is that described in *Chapter 9 of the SSR* where a calendar-related version is given. This identifies the following :

- July to November 1995 for the demonstrator phase



- January to May 1996 for the operational trial phase

6.6.1.2 We will discuss the implications of these dates with BA/POCL and adjust our plan in the light of agreement reached.

6.6.1.3 Our plan describes the stages into which we have divided the work. It identifies checkpoints within the plan at which we will conduct management reviews with BA/POCL to confirm progress. It includes a description of deliverables and when they will be accepted, and identifies the resource types needed to develop them. We will need the involvement of BA/POCL users, customers and clients during the programme. The plan summarises the requirements identified in earlier Sub-sections.

6.6.2 MANAGEMENT STRUCTURE

6.6.2.1 We will manage the pilot programme as a PRINCE project with a Project Board and Project Assurance Team (PAT). The project will report to a management committee consisting of the Pathway Managing Director, the Business Development Director and the Financial and Commercial Director. All the Pathway directors have roles within the project reporting structure as shown in Fig. 6.

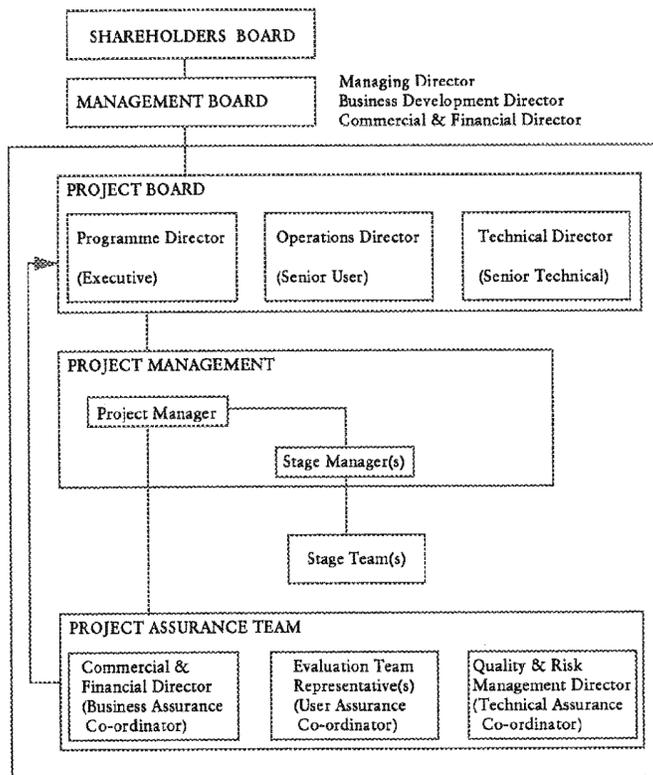


Fig. 6 Project Management Structure

6.6.2.2 As discussed earlier, Pathway invites representatives of BA and POCL to act as User Assurance Co-ordinators to ensure that all user-related issues are raised and dealt with in a timely fashion. The responsibilities allocated to each role are:

Pathway Director :	PRINCE Role :	Pilot Programme Responsibility :
Programme Director	Executive	To co-ordinate all aspects of the proving programme
Operations Director	Senior User	To ensure that the services are developed that will be rolled out after contract award
Technical Director	Senior Technical Representative	To ensure that the integrity of the technical solution is maintained during the development process
Quality & Risk Director	Technical Assurance Co-ordinator	To ensure that all risks identified are addressed and removed or contained
Finance and Commercial Director	Business Assurance Co-ordinator	To ensure that any contractual and cost implications are identified and addressed as the programme proceeds
BA/POCL Representatives	User assurance Co-ordinator	To ensure that any user related issues are identified and addressed

6.6.1.4 We will conduct the pilot programme in three phases. Each will continue throughout the programme and is targeted at a different proving viewpoint as follows :

- Stage 1 covers Business Process proving
- Stage 2 covers Service Characteristics proving
- Stage 3 covers Technical Strategy proving

6.6.1.5 The stage managers will have access to the specialist resources needed to conduct the proving from their particular viewpoint and they can be appointed for each stage.

6.6.3 DELIVERABLES

6.6.3.1 During the pilot programme deliverable products will be produced for agreement with BA and POCL. These deliverables will form the following baselines :

- Proposal baseline - start of the demonstrator phase
- Agreed solution baseline - at the end of the demonstrator phase
- Accepted service baseline - at the end of the operational pilot

6.6.3.2 The deliverables for each stage, which form part of the agreed and accepted baselines, are given below.

6.6.3.2 BUSINESS PROCESS DELIVERABLES

Deliverable :	Description of Content :	Acceptance Point :
HCI Style Guide	Identifies the style acceptable to users	Demonstrator phase
Prototyped Counter Interface Service	Counter application functionality	Demonstrator phase
Business Process Model	Business requirements definition	Demonstrator phase
Counter interface hardware configuration	Selected counter hardware	Demonstrator phase
Counter Interface Service	Counter application functionality including Benefit Payment, EPOS and automated payments	Operational pilot phase
Card Management Service	Card management and production functionality	Operational pilot phase
Payment Management Service	Benefit Payment functionality	Operational pilot phase
Operational Support Service	Local OSS functionality	Operational pilot phase

6.6.3.3 SERVICE CHARACTERISTICS DELIVERABLES

Deliverable :	Description of Content :	Acceptance Point :
Training Needs Analysis	User training requirements	Demonstrator phase
User documentation synopses	User documentation definition	Demonstrator phase
Service Characteristics Model	Service characteristics requirement definition	Demonstrator phase
Roll-out plans	Plan for roll-out of services	Demonstrator phase
Migration strategy plan	Plan for handling migration issues during roll-out	Demonstrator phase
MIS Reporting	Management, accounting and service level reporting requirements	Demonstrator phase
Service monitoring plans	Definition of all interfaces between Pathway and BA/POCL provided services	Demonstrator phase
Support services	TMS and central OSS functions	Demonstrator phase
Transaction Management Service	Transaction management functionality	Operational pilot phase
Operational Support Service	Central operational support functionality	Operational pilot phase
Help desks	CMS, PMS, TMS and OSS support	Operational pilot phase
User Training	Courses for all user groups	Operational pilot phase
User documentation	Documentation to support users	Operational pilot phase
Change Management	Procedures to control changes	Operational pilot



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Deliverable :	Description of Content :	Acceptance Point :
Procedures	to services	phase
Roll-out procedures	Procedures to be followed during roll-out	Operational pilot phase

6.6.3.4 TECHNICAL ARCHITECTURE DELIVERABLES

Deliverable :	Description of Content :	Acceptance Point :
Fraud scenarios	Agreed fraud prevention mechanisms	Demonstrator phase
Technical Architecture Model	Definition of workload characteristics of architectural components	Demonstrator phase
Fall-back and recovery plans	Plans to handle exception conditions	Demonstrator phase
Contingency plans	Plans to handle contingency conditions	Demonstrator phase
Audit reviews	Reports on quality and security audits	Demonstrator and operational trial phases
Fall-back and recovery simulation	Proof of fall-back and recovery plans	Operational Trial phase
Workload simulation	Proof of capability to process anticipated workload	Operational Trial phase

6.6.4 PILOT PROJECT

6.6.4.1 We will appoint project and stage managers, produce deliverable products and manage activities using checkpoint reporting. We will produce a PRINCE project plan and stage plans based on the descriptions, definitions and outline plans given in our proposal.

6.6.4.2 The overall schedule on which we have based our activities for the pilot programme is given below. It covers the period from submission of the Pathway proposal to BA/POCL and ends at the point where final acceptance has been achieved of the services which are to be rolled out. Our plan covers the activities that will occur during procurement stages :

- Stage 3 Contract Negotiation/Pilot Commencement
- Stage 4 Evaluation and Selection
- Stage 5 Operational Trials

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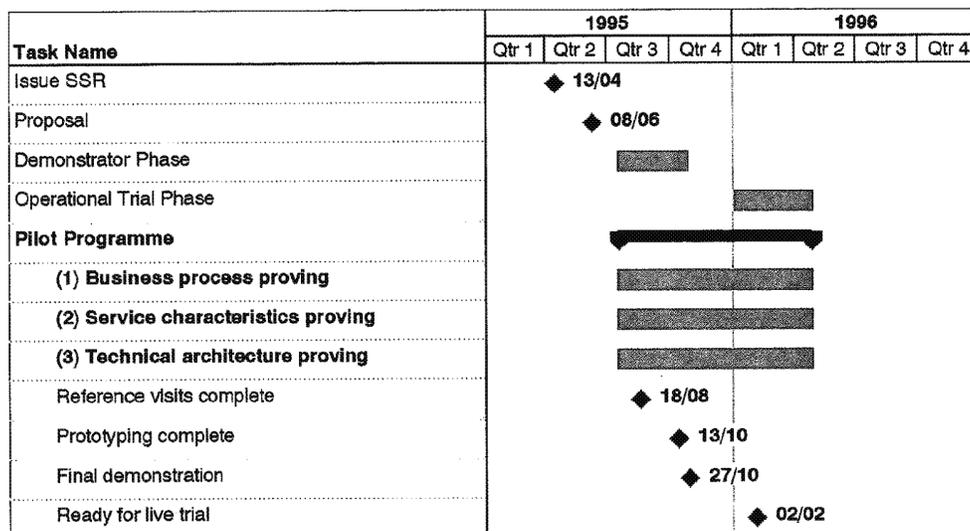


Fig. 6 - Project Schedule

6.6.4.3 The schedule identifies the key activities we will undertake during the pilot project and the key checkpoints, which are :

- (a) Completion of reference visits to see similar systems in operation, which is the point at which we will confirm that our proposal solution is well-founded and can be developed to provide the services required by BA/POCL.
- (b) Completion of Counter Interface Service prototyping activities, which is the point at which we will have achieved user buy-in to our counter functionality and an agreed HCI format.
- (c) Final demonstration at the end of the demonstrator phase, which is the point at which we have an agreed low-risk solution to BA/POCL requirements.
- (d) Start of live trial activity, which is the point at which we need to start an initial trial to check procedures, migration issues and reconciliation implications.

6.6.5 STAGE 1 BUSINESS PROCESS PROVING

6.6.5.1 Stage 1 is about providing a set of user services which enhance the business process support provided to BA and POCL users, customers and clients. The key user interface is at the post office counter. Prototyping and demonstrations are the key activities we will use to understand the user requirements and achieve their acceptance of the solution we develop.

6.6.5.2 The schedule given below for Stage 1 identifies the key activities we will undertake during the demonstrator and operational trial phases.



SECTION 6 - PILOT PROGRAMME

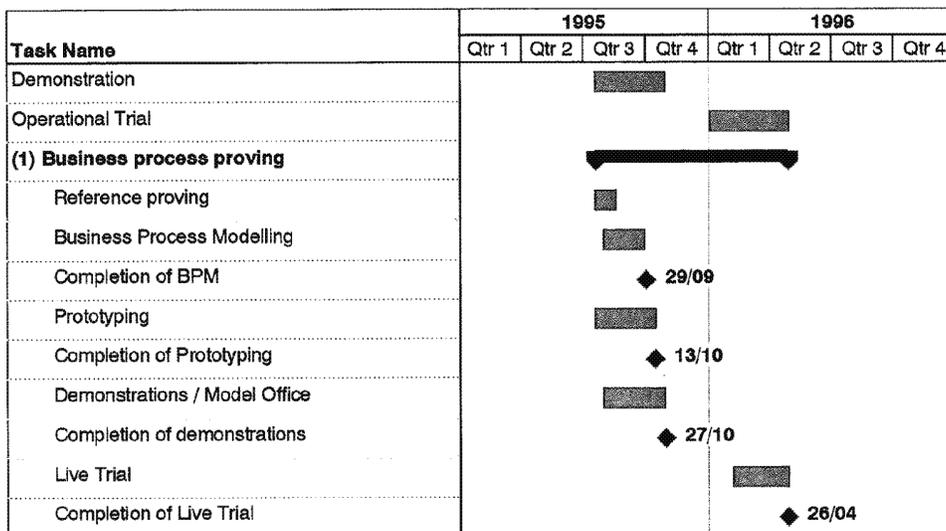


Fig. 7 - Stage 1 Schedule

6.6.5.3 The schedule identifies the following key checkpoints during the stage 1 :

- (a) Completion of demonstration activities, which is the point at which we have an agreed counter hardware configuration selected from the options presented.
- (b) Completion of the business process model which is the point at which we have an agreed definition of the business processes to be supported.
- (c) Completion of the live trial, which is the point at which we will have an accepted definition of business process and user services providing support for them.

6.6.6 STAGE 2 SERVICE CHARACTERISTICS PROVING

6.6.6.1 Stage 2 is about providing the set of support services which enable BA/POCL users, customers and clients to feel confident in their use the services provided. The key elements of this level of confidence are the quality of the training and help desk support. We will involve users from the requirements confirmation stage to ensure that quality services are developed.

6.6.6.2 The schedule given below for Stage 2 identifies the key activities we will undertake during the demonstrator and operational trial phases.

SECTION 6 - PILOT PROGRAMME

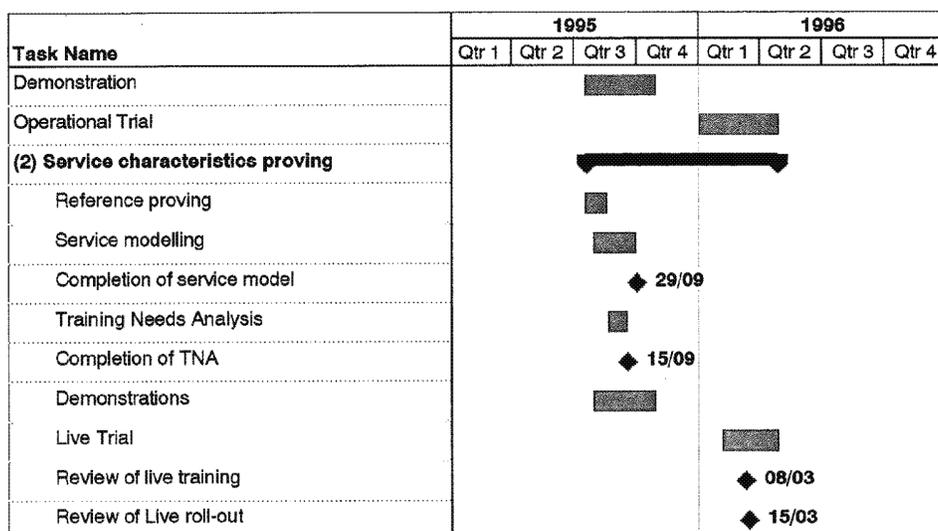


Fig. 8 - Stage 2 Schedule

6.6.6.3 The schedule identifies the following key checkpoints during stage 2 :

- (a) Completion of training needs analysis and documentation synopses which is that point at which we have an agreed definition of all user requirements.
- (b) Completion of the service characteristics model which is the point at which we have an agreed definition of the service and interface requirements.
- (c) Completion of the review of our roll-out strategy, which is the point at which we will have an accepted plan for the live trial roll-out.
- (d) Completion of the review following live trial training, which is the point at which we have an accepted set of training material and user documentation.
- (e) Completion of the review following live trial roll-out, which is the point at which we have an accepted set of roll-out procedures and plans.

6.6.7 STAGE 3 TECHNICAL ARCHITECTURE PROVING

6.6.7.1 Stage 3 is about proving that our solution has the architectural characteristics required to support the anticipated BA/POCL workload and is capable of cost effective future enhancement. We will use modelling and simulation to prove this level of flexibility.

6.6.7.2 The schedule given below for Stage 3 identifies the key activities we will undertake during the demonstrator and operational trial phases.

SECTION 6 - PILOT PROGRAMME

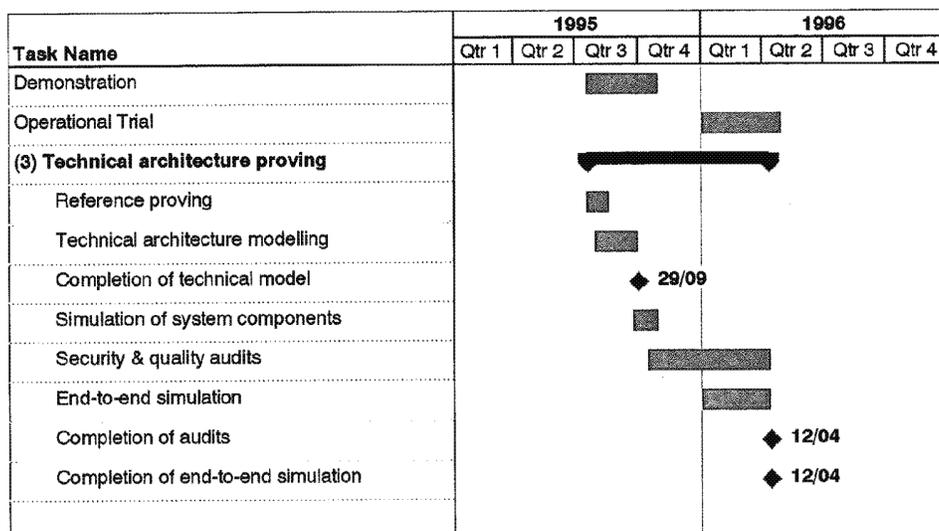


Fig. 9 - Stage 3 Schedule

6..6.7.3 The schedule identifies the following key checkpoints during stage 3 :

- (a) Completion of the technical architecture model which is the point at which we have an agreed definition of the system performance characteristics.
- (b) Completion of the end-to-end service simulation activities, which is the point at which we will have proved our solution can handle the anticipated workload.
- (c) Completion of security and quality audits.

6.6.8 RESOURCING

6.6.8.1 We will vary the resourcing during the pilot project depending on the phase being supported at the time. The pilot programme management resources will remain constant. Other teams within the Pathway organisation, each belonging to its own directorate, will provide resources and deliverables during the proving process. The Pathway resourcing profile for the pilot programme is :

Project and Stage	Resource Type	Resource Source
Pilot Project	Project/stage management Planning Administration BA/POCL Liaison	Programme Directorate
Business Practice	Modelers Designers/ Developers Testers Integrators	Technical Directorate

Project and Stage	Resource Type	Resource Source
Service Characteristics	Modelers Trainers Technical authors Help desk staff Installation specialists System managers	Operations Directorate
Technical Architecture	Modelers Architects Security consultants Quality consultants Hacking specialists Change control consultants	Technical Directorate

6.6.3.2 We will seek assistance also from voluntary organisation representatives who can advise on specialist customer requirements. The Carers National Association, MENCAP, Help the Aged, SENSE, and Age Concern have all offered assistance to Pathway in this area.

6.6.9 RESOURCE DEPENDENCIES

6.6.9.1 During the prototyping and demonstrating activities we invite involvement from representatives of as many of the user and customer groups as practicable. The closer we can work with these representatives the more acceptable our solution will become. We will need representatives of the following groups during the demonstrator phase :

- BA staff and financial users
- POCL counter staff, Postmasters
- POCL users, customers and clients
- Disadvantaged groups
- Ethnic minorities

6.6.9.2 We will arrange activities involving these resources to make maximum use of their time. Prototyping and demonstration, in particular, can take place either on Pathway premises in Feltham or in the procurement team accommodation in Terminal House, Victoria.

6.6.9.3 Pathway proposes a three-month period of live trial running during the operational trial phase. This requires a similar commitment from the various user groups. The live trial would be conducted on POCL premises.

6.6.9.4 The resource dependencies on BA and POCL during the pilot programme are summarised below :

SECTION 6 - PILOT PROGRAMME

Proving Stage	Requirement	Resource Type
Business Process Proving	Reference site visits	BA/POCL users, customer, clients
	Demonstrations	BA/POCL users, customer, clients
	Prototyping	BA/POCL users
	Business process modelling support	BA/POCL users
	Reviews	Contracting Authorities representatives
Service Characteristics Proving	Reference site visits	BA/POCL service managers
	Service characteristics modelling support	BA/POCL service managers
	Discussion on training needs	BA/POCL users
	Discussion on documentation needs	BA/POCL users
	Training course attendance	BA/POCL users
	Reviews	Contracting Authorities representatives
Technical Architecture Proving	Reference site visits	Contracting Authorities representatives
	Simulation support	Contracting Authorities representatives
	Reviews	Contracting Authorities representatives

6.6.10 COVERAGE MATRIX

6.6.7.1 The following matrix identifies the service elements that will be demonstrated during the pilot programme. It contains references to the descriptions of each service element in sections 4,5 and 7 of our proposal. Where appropriate, the organisation that will provide supplementary evidence in the form of reference site visits to other like services has been indicated.

Service Proved	Service Component Demonstrated	Reference Visits To	Principal Proposal Section Reference
Benefit Payment Service	Card Production & Distribution	De La Rue	4.4.4.4 & 4.4.4.5
	CMS	A&L	4.2.7 & 4.4.3
	PMS	Girobank	4.2.6 & 4.4.5

Service Proved	Service Component Demonstrated	Reference Visits To	Principal Proposal Section Reference
POCL Strategic Infrastructure	TMS	An Post	4.2.8 & 4.3.4
	Counter Interface	An Post	4.2.9 & 4.3.3
	OSS	Girobank/An Post	4.2.10 & 4.3.6
Support Services	Pathway Call Reception Centre	ICL/Girobank	5.4.2
	BPS (CMS & PMS) Help Desks	Girobank	5.4.3.2 & 5.4.3.3
	Hardware Specialist Help Desk	ICL	5.4.3.5
	Software Specialist Help Desk	ICL	5.4.3.4
	Network Specialist Help Desk	BT/ICL	5.4.3.6
	Contract Management	ICL	5.6
Roll-out	Verification	ICL	7.4.5
	Supply Management	ICL	7.4.6
	Site Preparation	Camelot/ICL	7.4.8
	System Build	ICL	7.4.9
	Training	Camelot/ICL	7.4.10
	Delivery & Installation	Camelot/ICL	7.4.11

6.7 SUMMARY

6.7.1 Pathway has approached the complex proving activities of the demonstrator and operational trial phases by focusing proving from three viewpoints :

- Business Process completeness and support
- Service Characteristics comprehensiveness and completeness
- Technical Architecture strength and scalability

6.7.2 Our strategy is to prove to each user group that our solution meets their requirements and will provide them with a low-risk quality service which improves on the current working practice.



SECTION 6 - PILOT PROGRAMME

- 6.7.3 We will manage the pilot programme as a PRINCE project to provide the controls and visibility needed by both Pathway and BA/POCL. We will involve BA/POCL user, customer and clients directly in the development process to learn from them and ensure that we provide the services they require.
- 6.7.4 Our project plan covers the demonstrator and operational trial phases. We consider the development process to be continuous during the entire pilot programme.
- 6.7.5 We have been comprehensive in our proving approach to ensure that our solution meets current requirements and is capable of expansion and enhancement in the future.
- 6.7.6 We look forward to working with BA/POCL to complete this demanding programme of work.

6.8. SPECIFIC RESPONSES

I SR6.1 State any deviances from the requirements given in chapters 4, 5 and 7 relevant to the services to be used during the pilot programme.

The deviances from the requirements given in *Chapters 4, 5 and 7* which are relevant to the services to be used during the pilot programme are :

Service :	Deviation :
Payment Management Service	Dependencies exist on the availability of the CAPS interface definitions and the interface itself during the programme
Card Management system	It is not intended to provide full roll-out of cards during this programme
Transaction Management system	It is not intended to provide inter-operability with each POCL client, but to prove the capability to connect to such clients using generic software agents
Operational Support Service	Only those facilities identified in the SSR as being part of the initial solution will be trialled
Counter Interface	Only those facilities identified in the SSR as being part of the initial solution will be trialled

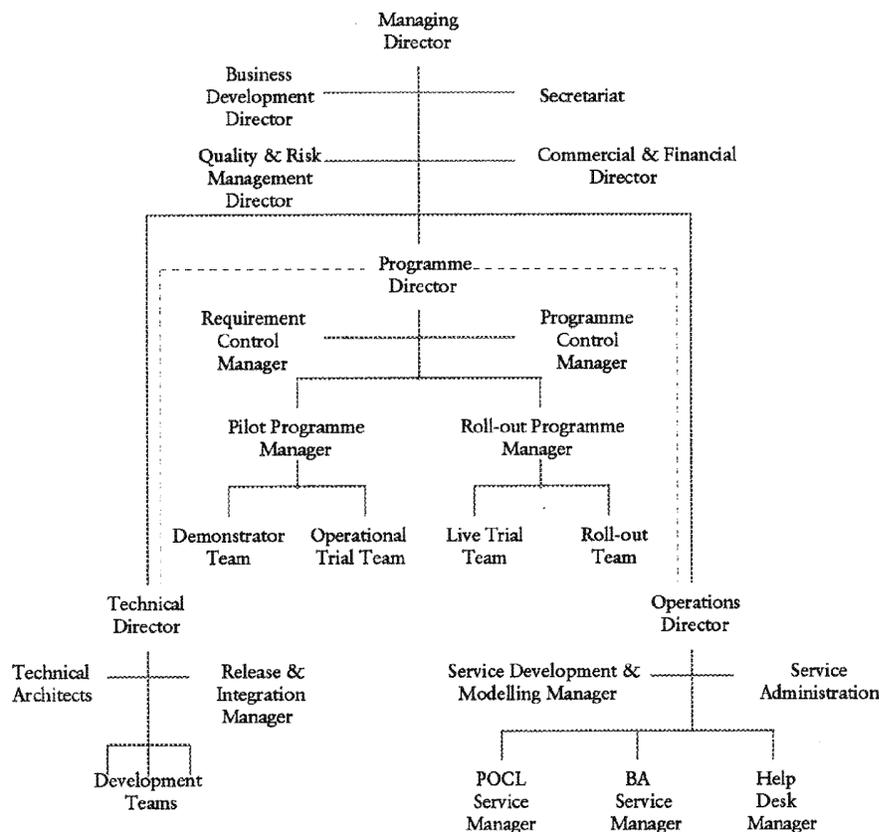


SECTION 6 - PILOT PROGRAMME

I SR6.2 *State the level of project support that will be provided pre-contract-award, in terms of the number and qualifications of the people assigned to the project, the proportion of the time which will be devoted to the project, and where they will be located.*

Pathway is evolving its proposal development team structure into one that will support activities during the period to contract-award. All Pathway directors are in-post and committed to the proving activity. The management structures and the teams resourced by Pathway itself are being assembled. Subcontract resources have been committed and work packages are being assigned.

The overall management and control structure that we will use is based on the use of PRINCE control structures. An executive organisation (Management Board) under the Pathway Managing Director will control and monitor all activities. A series of programmes or projects will be established under the control of the Programme Director (Project Board Executive). The Technical Director (Project Board Senior Technical representative) and Operations Director (Project Board Senior User representative) will be present on all project boards. The overall management structure is shown below :





SECTION 6 - PILOT PROGRAMME

Within this structure, each Pathway director has specific responsibilities during the proving programmes :

- (a) Managing Director is the chairman of the Pilot Project Management Board. He is responsible for ensuring that there is co-ordination between proving activities, risk management and the development of the Pathway financial proposal.
- (b) Business Development Director is a member of the Pilot Project Management Board. He is responsible for ensuring that we provide to BA and POCL evidence of our ability to support their current and potential future business requirements.
- (c) Risk & Quality Director is a member of Pilot Project Assurance Team. He is responsible for ensuring that all risks identified by BA/POCL and Pathway are addressed, and removed or contained.
- (d) Financial & Commercial Director is a member of both the Pilot Project Management Board and the Pilot Project Assurance Team. He is responsible for ensuring that any commercial, contractual and cost implications are identified and addressed as the programme proceeds.
- (e) Programme Director is the Executive chairman of the Pilot Project Board. He is responsible for co-ordinating all aspects of the pilot programme and the roll-out programme that follows it.
- (f) Technical Director is the Senior Technical representative on the Pilot Project Board. He is responsible for the development and integrity of the Pathway solution.
- (g) Operational Director is the Senior User representative on the Pilot Project Board. He is responsible for the development and operation of all the supporting services.

Under each director we are establishing teams of full-time Pathway staff and subcontractors. The Pathway teams are based at the Pathway offices in Feltham. Subcontractors are based at various locations in the United Kingdom, the Irish Republic and the United States of America. All teams have been selected for their qualifications in terms of the relevance of their experience and track record in successfully undertaking similar tasks.

Each team has been allocated specific roles during the demonstrator and operational trial phases. These are identified below together with the numbers of Pathway staff involved. An indication has been given also of any subcontractor involvement.

Responsible Director :	Team Roles during Pilot :	Pathway Staff Numbers :
Managing Director & Pathway Directors	Overall management	7
Business Development	Reference visit support and formal interface to BA/POCL during this programme	5

SECTION 6 - PILOT PROGRAMME

Responsible Director :	Team Roles during Pilot :	Pathway Staff Numbers :
Risk & Quality	Risk register administration, risk management, quality system management	3
Financial & Commercial	Development of financial proposals, subcontractor management, contract negotiation	3 (+ Girobank, ICL and De La Rue as subcontractors and Hambros as advisors)
Technical	Development, modelling and agreement of solution architecture, component selection, subcontractor control	3 (+ An Post/Escher subcontractors)
	Solution integration, releases packaging and documentation	2 (+ ICL subcontractors)
	System design, development, test and documentation	(An Post/Escher, ICL, A&L, Girobank subcontractors)
Programme	Requirements modelling, acceptance testing and change control management	3
	Programme planning control across all directorates	3
	Pilot activity planning, demonstrator phase proving control, system building, prototyping, demonstrations, operational trial control	7 (+ internal subcontractors)
	Live trial and roll-out programme implementation	<i>As shown in SR7.5</i>
Operations	Service administration	<i>As shown in SR5.1</i>
	Service definition & modelling	3
	POCL, BA and Help Desk managers	<i>As shown in SR5.14</i>



SECTION 6 - PILOT PROGRAMME

I SR6.3 *State the service levels that can be attained during the operational trial.*

The table below indicates the target service levels, relative to the steady state, that can be attained during the operational trial.

Service Measure :	Expected performance level(s) :
Counter system availability	98% of steady state level, improving to 100% by end of trial
Counter system transaction time	100% of steady state level
Call to fix time for equipment faults	100% of steady state level
Help desk queue times	To reach 80% of steady state level by end of trial
Transaction transfer to & from client systems	To reach >95% of current service level by end of trial (Note : We would wish to discuss the approach to delivering these services during the live trial including use of the POIT Host Data Polling Centre)
Availability for BA interrogations	To be discussed (depends upon the service offered and CAPS status)

We assume that the number of live users and hence the volumes of transactions that have to be processed will be such that a maximum of 2% of the anticipated steady state volumes will be reached. We would wish also to discuss and agree various characteristics of the operational trial, such as geographic scope, which might have an impact on service levels.

I SR6.4 *State any differences between the operational trials and the roll-out in respect of proposals for training, documentation, procedures and other support services.*

We intend to use the live trial to prove the training, documentation, procedures and other support services prior to full roll-out. The versions of each used during the trial will be of final draft status and we will amend them in the light of the experience gained during the trial. At the end of the trial, the contractual versions will be presented for acceptance with any changes from the trial versions highlighted.

I SR6.5 *State how the Service Provider ideally sees the "Demonstrator" process taking place and in what environment.*

Pathway sees the demonstrator phase as an essential part of our proving programme. We need to prove to BA/POCL and ourselves that our solution is low risk, is built from proven components and will provide a user friendly and intuitive interface to users, customer and clients.



SECTION 6 - PILOT PROGRAMME

Proving our solution is a complex process. It requires us to prove that our solution meets the needs of three different classes of user, BA/POCL users/customers/clients, BA/POCL system managers and the Contracting Authorities themselves. We will use different proving techniques for each perspective :

Perspective :	Proved To :	Techniques :
Business process	BA/POCL Users, customers, clients	Reference visits to see similar applications Demonstrations of options Prototyping of counter applications Business process modelling
Service characteristics	BA/POCL service managers	Reference visits to see similar services Demonstrations of options Service characteristics modelling
Technical architecture	Contracting Authorities	Reference visits to see similar architectures End-to-end service modelling End-to-end service simulation Security and quality audits

Proving is about gaining buy-in to the system by being involved in its development. We wish to involve BA/POCL users, customers, clients and service managers as well as representatives of the Contracting Authorities in the solution development process. We invite BA/POCL representatives to become members of the Project Assurance Team (PAT) established to provide advice and guidance during the pilot project. We will demonstrate hardware, software and roll-out support alternatives to allow evaluation and selection of the preferred option. We will establish a model office in which to validate the ergonomics of counter hardware configurations and to measure counter transaction times.

We will demonstrate our capabilities in each of the service components by a combination of reference, demonstrations, and model office usage. We will prove our end-to-end service capability by reference and modelling during the demonstrator phase in preparation for using simulation and live trial proving during the operational trial phase.

We will base the demonstrator activities in our Feltham office but anticipate considerable interaction with the BA/POCL evaluation team in London. It may turn out in practice to be more effective to base the majority of demonstration and prototyping activities in the BA/POCL-supplied accommodation in Victoria. Review meetings can take place wherever most convenient to the BA/POCL team but it is recommended that at least some of the reviews take place in Feltham to allow the BA/POCL team to get to know the Pathway organisation and see how it operates.



SECTION 6 - PILOT PROGRAMME

I SR6.6 *State the Service Provider's view of how the post-award refinement of the service and "live" testing will take place and how the results will be monitored.*

The refinement of services can best take place by trialling them in live rather than simulated environments. Pathway would like to start the live trial as soon as possible after the start of the operational trial phase. This has a number of benefits :

- Feedback from live use will cover migration issues as well as normal operational use
- Live operation allows reconciliation processes to be exercised and the scale and scope of the issues relating to reconciling in a mixed part-automated part- non-automated environment to be evaluated and plans confirmed for handling them during roll-out
- Training and documentation effectiveness can only be checked if the system is used for a reasonable period of time to judge whether users feel confident of using the system once the initial reactions to it have worn off
- Service Level Agreements need time to show trends so that improvements can be monitored and the quality of service enhanced prior to roll-out

We consider the operational trial phase to be part of the overall pilot project. The management and control structure we will use for this phase is that described in SR6.2. During this phase, the operational element of our organisation will build. We will gain direct feedback from our service managers and would hope to receive similar information from their BA/POCL counterparts. We will refine service components in the light of any feedback we receive. In particular, we will monitor closely the acceptability of the counter interface.

We will use the live trial period also to confirm our procedures for parallel running and application cut-over. Subsequent phases of our roll-out will require us to be able to handle live testing in parallel with normal operational usage. This capability will be refined post contract-award.

We will monitor the results of both the end-to-end simulation activities and the live trial by means of checkpoint meetings. We invite the BA/POCL members of the PAT to attend. We would like also to have representation on any BA/POCL monitoring committees for the live trial so that any issues raised, lessons learnt and feedback gained can be dealt with as rapidly as possible. We wish to work in partnership with BA/POCL to make a success of this phase and to proceed to roll-out with confidence.

I SR6.7 *State the Service Provider's view of how the post-award refinement of the service and "live" testing will take place and how the results will be monitored.*

Please see our response to SR6.6.



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ANNEX 1 ADDITIONAL FINANCIAL INFORMATION

1) ALLIANCE & LEICESTER ANNUAL ACCOUNTS

1994

1993

1992

2) BRITISH TELECOMM ANNUAL ACCOUNTS

1994

1993

1992

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2. PATHWAY QUALITY POLICY

2.1 GOALS

Pathway's goal is to meet or exceed BA and POCL expectations throughout the life of the contract.

This goal will be achieved by :

- (a) Adopting the Strategic Quality Model (SQM) within Pathway for Total Quality Management, driven by customer needs.
- (b) Establishing and implementing a Quality Management System and relevant processes, e.g. Subcontractor Performance Management, Service Level Management, auditing and performance analysis and improvement.
- (c) Gaining ISO9001 or equivalent accreditation via Third Party assessment, and ensuring all subcontractors meet this standard.
- (d) Developing a culture of continuous improvement in association with its people, suppliers and processes.
- (e) Developing professional and interactive relationships with Pathway's suppliers to ensure customer satisfaction.
- (f) Building on the excellent pedigree in Quality Management brought by Pathway's subcontractors.
- (g) Cultivating a sense of pride and achievement in all the people associated with Pathway.

This strategy for quality is depicted in *Fig. 1* below :

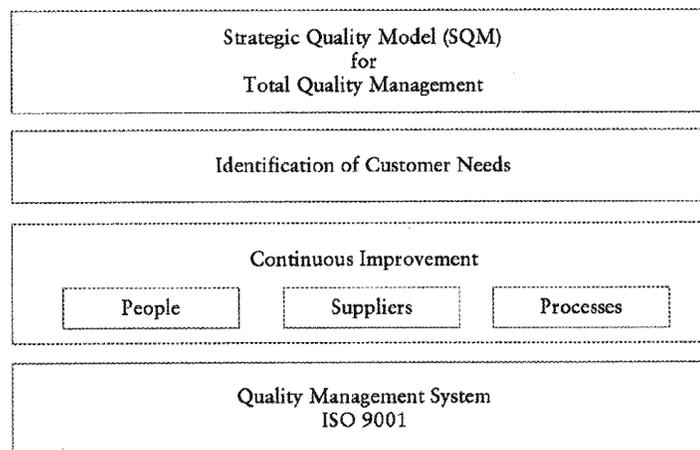


Fig. 1 - Pathway Quality Management

2.2 TOTAL QUALITY MANAGEMENT

Pathway has adopted the Strategic Quality Model (SQM) for total quality management. This model was developed by the European Foundation for Quality Management, an organisation established in 1988 in recognition of the potential for gaining competitive advantage through the application of total quality.

The model has also been adopted by a number of national quality organisations among them the British Quality Foundation of which ICL is a founding member and whose Chairman and Chief Executive is Vice Chairman of the Foundation.

SQM provides the framework for continuous development by harnessing best practice, encouraging teamwork, sharing knowledge and focusing on the customer.

The model comprises nine management elements shown in *Fig. 2* below :

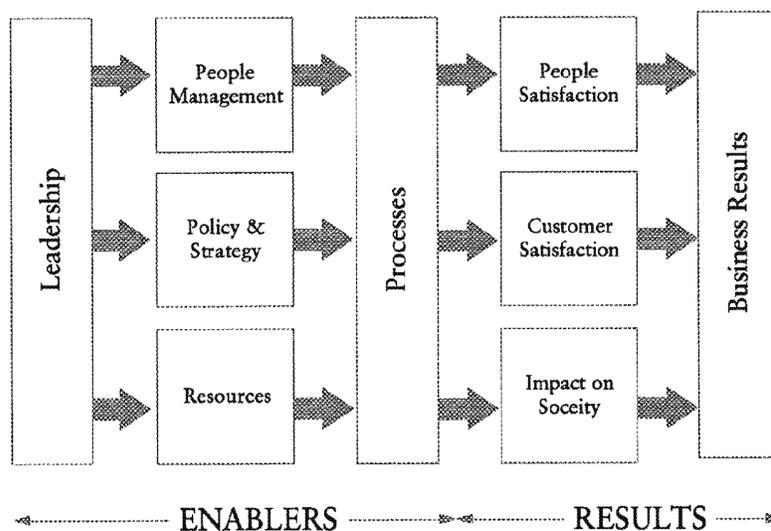


Fig. 2 - Strategic Quality Model

2.2.1 LEADERSHIP

Overall ownership of the Quality Policy, and SQM process is vested in the Managing Director of Pathway.

Each Director of Pathway is responsible for leading total quality management within his functional area. The Director, Quality and Risk Management has specific responsibility for establishing and maintaining the quality management system.

Directors will be personally involved in defining and promoting Pathway's strategy and its provisions for quality to staff and subcontractors. They will ensure that all feasible improvements are implemented and that people responsible are duly recognised.

Pathway's Directors and staff will play their full part in developing the spirit of partnership with BA and POCL through regular meetings and reviews.

2.2.2 POLICY AND STRATEGY

The overall strategic and business plans are fully aligned and consistent with total quality management.

Pathway will monitor the performance of all processes and subcontractors closely and will strive to improve such performance through the revision of plans, quality improvement programmes, and interactive cross-functional team approaches.

2.2.3 PEOPLE MANAGEMENT

Pathway's management style will be based on devolvement of responsibilities to enable staff to achieve targets and objectives.

Pathway's plans for the recruitment, training, appraisal and development of our people will be derived directly from and aligned with business plans.

Through the process of continuous improvement described below all our people will be involved jointly and severally in generating improvements.

Pathway will provide structured training in for example job skills, quality development skills and customer service, to ensure that our people are fully competent in what they do.

2.2.4 RESOURCE MANAGEMENT

Through the management information system, relevant performance data on all aspects of Pathway's service and operation, including the use of resources and suppliers, will be readily available to appropriate staff within BA, POCL, Pathway and suppliers.

2.2.5 PROCESSES

The structure of Pathway is based on its end-to-end processes each of which has a nominated owner at Director level and, by the time of contract award, will have been fully defined and characterised by specific performance indicators.

Responsibility for ensuring that ongoing process improvement is actively pursued, is specifically assigned to the Director, Quality and Risk Management.

During the specification, design, build and implementation phase, performance will be ensured by the use of the PRINCE project management methodology. This is recommended by CCTA and defined in the NCC document entitled 'Introduction to PRINCE'.

All operational and support processes will comply with ISO 9001, and we will focus on :

- (a) Internal processes that support the end-to-end operation of the Pathway business
- (b) Service level management, to ensure that Pathway meets or exceeds expectations. The process will be agreed with BA and POCL
- (c) Subcontractor performance management, which will include quality assurance standards and procedures. Performance standards will be specifically agreed with subcontractors at an early stage of system development.
- (d) Audit procedures will be developed in accordance with the requirements of ISO9001. Internal audits of processes will take place regularly. Pathway will expect external audits from customer representatives and relevant accreditation bodies. In addition, we will undertake a programme of surveys, visits and on-site audits of subcontractors. All audit trails, logs, procedures, standards, non-compliances and reports will be available for inspection at all times.

2.2.6 CUSTOMER SATISFACTION

The satisfaction of BA and POCL with Pathway's services will be evaluated by :

- (a) Ongoing management of the partnership between Pathway, and BA and POCL, at every level.
- (b) Specific monitoring and control of actual service delivery against the contractual service level agreements.
- (c) Applying robust measurement criteria in, for example, the following areas; subcontractor performance, internal responsiveness.
- (d) Conducting six-monthly reviews at dedicated meetings of the Management Board.

These evaluations will be used to :

- Confirm customer satisfaction levels
- Agree targeted improvement plans
- Identify changing customer needs

2.2.7 PEOPLE SATISFACTION

The satisfaction of our people, in all aspects of their work, will be evaluated by an annual questionnaire and targets and programmes established for improvement. These, and the results of the questionnaire will be communicated through action-orientated team meetings. Regular comment and constructive criticism will be encouraged at all times to maintain a focus on continuous improvement.

2.2.8 IMPACT ON SOCIETY

Pathway will be actively seeking, through its partnership with BA and POCL, to promote a shared and favourable impact on society in terms of conservation and contribution to the community mindful that their clients comprise a large subset of the public.

2.2.9 BUSINESS RESULTS

Pathway's business performance is dependent upon achieving service level agreement and therefore performance against these agreements will be reviewed at relevant intervals.

Performance of Pathway's internal processes will be similarly managed to ensure that service level is totally without threat.

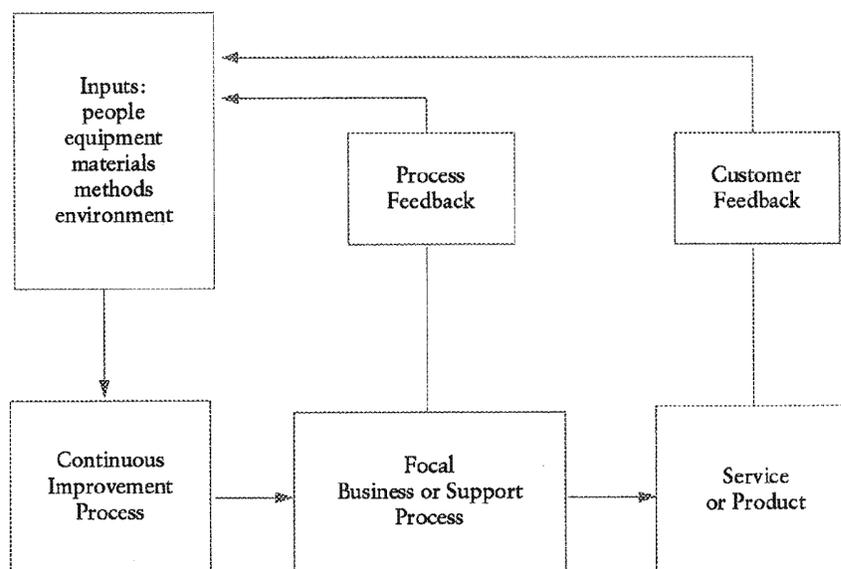
2.3 CONTINUOUS IMPROVEMENT

Fig. 3 - Continuous Improvement

Pathway will implement continuous quality improvement within the overall framework of the Strategic Quality Model.

Inputs to continuous quality improvement plans will be derived from :

- (a) Feedback from BA, POCL and their clients
- (b) Regular internal and external audits of business and support processes
- (c) Feedback from suppliers and Pathway staff

This will be facilitated by regular meetings led by process owners, with the objective of agreeing action plans, monitoring and controlling progress.

2.4 QUALITY MANAGEMENT SYSTEM DOCUMENTATION

The Quality Management System will be supported by a comprehensive set of documentation, describing appropriate processes and procedures, in accordance with the requirements of ISO9001. This will consist of :

- (a) Quality Manual, which will state Pathway's policy, define end-to-end processes and provide a documented set of managerial instructions.
- (b) Control procedures, which will define detailed methods and controls used to assure Quality, for example, design procedures and standards, subcontractor standards, change procedures, audit procedures.
- (c) Work instructions which will define procedures for specific tasks, for example, test specifications, upkeep of documentation, meeting minutes.



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3. CASH MANAGEMENT AND POST OFFICE RECONCILIATION

3.1 CASH MANAGEMENT

3.1.1 POST OFFICE/CASH CENTRE INFORMATION LINK

3.1.1.1 As an optional Value Added Service, Pathway will provide an automated system for the complete management of the large volumes of cash circulating throughout the Post Office network, with the ability to control distribution of cash and provide forecasting and funding information. Pathway recognises the requirement for the system to be secure with restricted access because of the high value of cash involved. Benefits of fully automated Cash Management include :

- Breakdown of notes by denomination
- Maximum investment opportunity and return for overnight cash holdings
- Accurate funding and forecasting information
- Reduced risk of fraud at counters and cash centres
- Information on end-of-day balances which will enable the cash centre to alert security carriers to collect and distribute cash
- Accurate calculation of security carrier fees
- Reduced need for manual cash orders
- Audit trails of cash distribution
- Improved control of coin stocks

3.1.1.2 Pathway will provide a system to link all post offices electronically with their affiliated cash centres in order to introduce a total cash management system. A two-way link will allow communication between an individual post office and its cash centre providing the facility to monitor cash availability throughout the day.

3.1.2 FLOOR/CEILING LEVELS AT POST OFFICES

All post offices will be given pre-determined floor and ceiling levels for cash held. In addition to random daily cash monitoring by the cash centre, any post office with a cash position falling outside the floor and ceiling levels will automatically alert the cash centre that a delivery or collection is required.

3.1.3 CASH DISTRIBUTION

With a given post office's cash position being available at any time throughout the day, the cash centre is able to collect or supply cash to offices when required. End-of-day cash availability ensures that collection can be made quickly and visits to post offices are only necessary if the end-of-day cash position has fallen outside the floor or ceiling level, or a Postmaster has declared a surplus for collection. This cash distribution procedure will improve security for POCL and their security carriers by minimising the number of trips necessary. It will also bring associated cost savings and improved investment opportunities.

3.1.4 BA INFORMATION LINK

If required to facilitate the pre-funding of certain smaller post offices for high-value social fund loans, an electronic link to the system may be provided to BA to allow notification of such details to POCL. This information link would be password-protected with restricted access granted to BA which would not allow interrogation of the overall cash position within POCL.

3.1.5 OTHER CLIENT INFORMATION LINKS

Following full automation, it may prove advantageous for other major POCL clients to have restricted access to the cash management system to allow notification of high-value deposits or receipts that may significantly affect the POCL cash availability. This service will be provided subject to negotiation with POCL.

3.1.6 REPORTING AND MIS

In addition to the general reports available to each post office covering their day-to-day business, a comprehensive set of reports will be available to POCL centrally covering the following :

- Daily national cash availability
- Cash available for each post office at the end of the working day
- Cash collections and deliveries
- Floor and ceiling level amendments
- Pre-funding requirements
- Security carrier fee calculations

3.2 POST OFFICE RECONCILIATION

During roll-out the Cash Account for all post offices (automated and non-automated) will continue to be produced each Wednesday.



ANNEX 3 - CASH MANAGEMENT AND POST OFFICE RECONCILIATION

3.2.1 AUTOMATED POST OFFICE

As part of the Operational Support Services, Cash Account production, Postmasters remuneration and Cash Management facilities are required from day one of the procurement for all automated offices. During roll-out it is envisaged that the production of the Cash Account will remain weekly. The Pathway system is flexible and will allow for the production of the Cash Account on a daily basis if required. Post offices that are automated will capture all transactions including those that are not automated (see *Annex 3.2.1.3* below). Transaction data will be polled to provide single settlement figures for POCL clients and the Postmasters' remuneration information for POCL.

3.2.1.1 DAILY BALANCE

The facility to provide a daily balance at each counter position will be available from day one for automated offices. Cash and value stock movements between counter positions will be identified and recorded for security purposes. Balances from each counter position will be summarised to provide the overall post office daily balance.

3.2.1.2 START-OF-DAY PROCEDURE

The Postmaster must 'open' the system at the start of each day. This will prompt the breakdown (by type, quantity and value) of the cash and stock on hand to be displayed. The system will provide the facility for the Postmaster to add or transfer stock (including cash, cheques and other items of financial value) to and from the office and provide him with an up-to-date figure of cash and stock available to complete the day's transactions.

3.2.1.3 INPUT OF NON-AUTOMATED TRANSACTIONS

Transactions that are not automated will be input at summary level at each counter position before the end-of-day procedures are activated.

3.2.1.4 END-OF-DAY PROCEDURE

Following input of the final transactions for the day (including non-automated transactions) each counter clerk must initiate the end-of-day procedure. The Postmaster will be able to complete stock transfers and identify the next day's cash requirements enabling completion of business within the same day.

3.2.1.5 DAILY CLIENT SUMMARY PRODUCTION

Summaries of automated transactions will be produced during the end-of-day procedure for every client. Information produced will be at transaction level and will include volume, value, type and fees where applicable.

3.2.1.6 DAILY REPORTING & MIS

Daily reporting will be available after the completion of the end-of-day balance at the counter. The information will include :

- (a) Sales Analysis - an analysis of product sales by volume, value and time.
- (b) Contribution Analysis - a report of business performance for individual post offices.
- (c) Quality of Service - an analysis of the transaction time and customer count for individual post offices from transaction details.

3.2.1.7 CASH ACCOUNT PRODUCTION

During the roll-out, which is expected to take between 24 and 36 months, it is envisaged that the production of the Cash Account summary will continue on a weekly basis to enable the full integration of the automated information and the manual Cash Account, raising one settlement figure for each client.

3.2.1.7.1 When the end-of-day procedure on the last day of the Cash Account week has been completed, weekly client summaries and MIS reports will be output. The Postmaster will be prompted to initiate production of the Cash Account, using a series of screen commands. Data from the full office balance will be transmitted to Pathway.

3.2.1.7.2 Following roll-out, the Pathway solution will provide POCL with the facility to build in pre-determined dates for the production of the Cash Account.

3.2.2 NON-AUTOMATED POST OFFICE

During roll-out, non-automated offices will transact business as usual and produce a full reconciliation and Cash Account summary. Post offices will continue to complete cash and stock reconciliations, the Cash Account summary and any other paperwork (for example, client summaries and other client documentation). ECCO+ or Capture systems within these post offices will still be fully functional.

3.2.3 POCL CENTRAL PROCESSING

3.2.3.1 POCL receive weekly Cash Account documents from all post offices and CRUs at either Chesterfield or Edinburgh processing centres. Cash Account documents from automated and non-automated post offices will be merged within the POCL reconciliation system to produce a national balance. Transaction data is then forwarded to clients electronically or in paper format as with current POCL client agreements.

3.2.3.2 As a Value Added Service, Pathway would welcome the opportunity to bid for all the processing of the Cash Account summaries during the roll-out period.



3.2.4 CASH ACCOUNT SUMMARIES FROM AUTOMATED POST OFFICES

Following close of business, each automated office will complete the end-of-day procedures necessary to generate the daily post office reconciliation. All post offices will be 'polled' to ensure 100% availability of data to POCL.

3.2.5 CASH ACCOUNT SUMMARIES FROM NON-AUTOMATED POST OFFICES DURING ROLL-OUT

Cash Account summaries from non-automated post offices are remitted to POCL for input into the reconciliation system. Current arrangements for despatching the Cash Account to the central processing units will not change during roll-out.

3.2.6 DOCUMENT PROCESSING

Current arrangements for POCL client paper processing will apply until such time that clients specify their full requirements of the automated system. The Pathway solution has the functionality to provide transaction data to clients electronically after full data capture at the counter. It is envisaged that existing arrangements for the processing of financial items (such as transfers, gift vouchers, saving stamps, other banks' cheques and cheques made payable to 'Post Office Counters Ltd') will not change.

3.2.7 REPORTING AND MIS

As part of the Operational Support Services, Pathway will provide the reporting and MIS function for automated offices from day one of the procurement. Reports and MIS will be generated centrally by Pathway following implementation of end-of-day procedures. The frequency of reporting will be determined by POCL, however the nature of the system allows all reports (including the Cash Account) to be produced on a daily basis if required.

3.2.7.1 Reports will be available as described in *sub-section 3.1.6* above.

3.2.8 DATA DISTRIBUTION TO CLIENTS

If required fully reconciled data will be delivered electronically to POCL client systems within agreed timescales. Clients may complete their own reconciliation to balance against the incoming figures from POCL.

3.2.9 ERROR NOTICE ACCOUNTABILITY

Where errors are identified following completion of the Cash Account summary, error notices will be raised against the post office concerned, as is currently the case. Error notices will be brought to account, as with current procedures, by adjusting the cash-on-hand situation and including them as transactions to the appropriate customer.

3.3 CLIENT/POCL RECONCILIATION

3.3.1 BENEFITS AGENCY

3.3.1.1 AUTOMATED POST OFFICES

3.3.1.1.1 To achieve a full reconciliation between BA and POCL, all transactions (automated and non-automated) will be input at the counter for inclusion within the Cash Account.

(a) Capture of automated BA transactions authorised by CMS and PMS will be complete and provide a full issue/encashment reconciliation. Reporting and MIS will be available for BA and POCL from day one via OSS and the Benefit Payment Service (BPS).

(b) Non-automated BA transactions will be input at the counter before the end-of-day procedures are activated. Girocheques will be sent to Girobank, where a full reconciliation will be completed and settlement figure raised. Foils will be despatched to Benefit Agency as per current arrangements.

3.3.1.1.2 Following roll-out and full automation, all BA transactions will be captured at the counter and a full BA/POCL and issue/encashment reconciliation will be completed as required.

3.3.1.2 NON-AUTOMATED POST OFFICES

During roll-out there will be no change to the current procedure for BA issue/encashment reconciliation. Girocheques will be reconciled, settlement raised via Girobank and foils despatched to Benefit Agency.

3.3.2 OTHER POCL/CLIENT RECONCILIATION

During roll-out Cash Account data will be delivered electronically or in paper format on a weekly basis to POCL client systems within agreed time scales. Following roll-out, the Pathway solution will have the flexibility to meet POCL and client requirements for the provision of transaction and settlement information.



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4 BASELINE PROPOSAL SUMMARY AND OPTIONS

4.1 INTRODUCTION

This Annex describes the baseline proposal in terms of operational and support services and provides a summary of the hardware and software that Pathway envisage using for these services. An alternative approach to the counter infrastructure for certain post office counters is described in *Sub-section 4.4 of this Annex*. *Sub-section 4.5 of this Annex* provides a more detailed technical description of the hardware that Pathway envisages using for the baseline proposal. A number of alternative counter peripherals are available and some options are also included.

4.2 SERVICES

4.2.1 OPERATIONAL SERVICES

4.2.1.1 CARD PRODUCTION AND DISTRIBUTION

The manufacture, personalisation and distribution of cards to post offices and BA offices.

4.2.1.2 CARD MANAGEMENT SERVICE

A centrally managed service to control the issue of new and replacement plastic cards (magnetic stripe and smart). The service maintains records of the status of all cards and supports on-line status enquiries.

4.2.1.3 PAYMENT MANAGEMENT SERVICE

A secure, robust and fully auditable service which manages the authorised benefit payments and their subsequent encashment or expiry.

4.2.1.4 TRANSACTION MANAGEMENT SERVICE

A fault-tolerant messaging system based on Riposte. It manages all the counter interface transactions, invokes value added processes and interfaces with POCL client systems in a secure manner.

4.2.1.5 COUNTER INTERFACE SERVICE

The counter system which enables counter staff to use the POCL infrastructure for EPOS, benefit payments, Bill Payments, etc.

4.2.1.6 OPERATIONAL SUPPORT SERVICE

A number of applications (some local to post offices and some run centrally) that provide reports to help manage the POCL business. These include Outlet Remuneration and Reconciliation, Reporting and MIS. Future applications include stock management, cash management, purchase order management, financial accounting, staffing, administrative support.

4.2.2 SUPPORT SERVICES

4.2.2.1 HELP DESK CALL RECEPTION AND CALL TRACKING

A sophisticated Call Reception Centre with a call handling system and incident database, which records calls and progresses the resolution of problems. The database assists with identifying the reported problem and the call details are passed on to the appropriate help desk.

4.2.2.2 SPECIALIST HELP DESKS

There are a number of specialist help desks, which provide a comprehensive set of support services and are normally accessed via the Pathway Call Reception Centre. Each of the help desks is interrelated and is staffed by experts in its own field :

- CMS
- PMS
- Technical help desks - Software, Hardware and Networks
- Roll-out help desk

The technical help desks can use the appropriate support services, including equipment repair teams, software specialists and BT engineers.

4.2.2.3 UNDERLYING SUPPORT SERVICES

A comprehensive range of support procedures and activities which include change control, configuration management (including network changes), upgrades, equipment relocation, reference data management, training and documentation, MIS and SLA monitoring.

4.2.3 CONTRACT MANAGEMENT SERVICE

This handles contract variations, audit controls, security controls, quality management (including Codes of Practice), monitoring customer complaints, and business development.



ANNEX 4 - BASELINE PROPOSAL SUMMARY AND OPTIONS

4.2.4 CONTRACT TRANSFER SERVICE

The activities and procedures needed to facilitate the seamless transfer of any service from Pathway to a new Service Provider, at the end of the initial contract term.

4.3 HARDWARE, SOFTWARE AND APPLICATIONS

The following table summarises the baseline proposal, and sets out the options available.

<u>The baseline proposal</u>	<u>Examples</u>	<u>Options</u>
<p>(a) <u>Per Counter</u></p> <ul style="list-style-type: none"> • 486 DX PC • 540Mb disk • 16Mb RAM • Colour Monitor • Tally-roll Impact Printer • Compact Keyboard • Magnetic Stripe Reader (MSR) • OCR Reader • Smart Card Reader • Windows - NT • Riposte 	<p>Fujitsu ICL ErgoPro e440/66</p> <p>“</p> <p>“</p> <p>ICL 9” SVGA model C90C</p> <p>Ithaca 50PLUS</p> <p>Alphameric</p> <p>} ARL (combined</p> <p>} OCR/MICR/MSR +</p> <p>} Bar Code wand)</p> <p>Current APPU or combine in above reader</p>	<ul style="list-style-type: none"> • Touch Screen • Thermal Printer • Multi-function printer • Weigh Scales • Customer-Facing Display
<p>(b) <u>Per Office</u></p> <ul style="list-style-type: none"> • Ink Jet/Matrix Printer for back-office • ISDN Card • CBT 	<p>Fujitsu DL3700</p> <p>Eicon DIVA</p>	<ul style="list-style-type: none"> • Alarm system link-up • Separate 486 DX PC for back-office with some/all counter peripherals



ANNEX 4 - BASELINE PROPOSAL SUMMARY AND OPTIONS

<u>The baseline proposal</u>	<u>Examples</u>	<u>Options</u>
<p>(c) <u>Backbone Network servers</u> (over 4 physical sites)</p> <ul style="list-style-type: none"> • Correspondence Servers (multiple Intel dual/quad Pentiums) • ISDN front-end processors, Agents & System Management servers (multiple Intel dual Pentiums with Windows - NT or UNIX) • Riposte • Windows - NT 	<p>Compaq ProLiant model 4500R</p> <p>Eicon S2M ISDN card</p>	
<p>(d) <u>PMS (2 sites)</u></p> <ul style="list-style-type: none"> • Tandem Himalaya configurations, highly resilient 		
<p>(e) <u>CMS (2 sites)</u></p> <ul style="list-style-type: none"> • Tandem Himalaya configurations, highly resilient. • ACI's card management application 		

<u>The baseline proposal</u>	<u>Options</u>
<p>(f) <u>Applications</u></p> <p>Bill Payment</p> <ul style="list-style-type: none"> • APT migration • Additional Utilities and other companies <p>Benefit Payment</p> <ul style="list-style-type: none"> • ESNS • Enhanced ESNS • Full payment (PMS) <p>EPOS</p> <ul style="list-style-type: none"> • ECCO+ replacement 	<p>Options in roll-out stages</p> <p>“ “ “ “ “</p> <p>“ “ “ “ “</p>



ANNEX 4 - BASELINE PROPOSAL SUMMARY AND OPTIONS

<u>The baseline proposal</u>	<u>Options</u>
<p>OSS Local</p> <ul style="list-style-type: none"> • ECCO+ replacement • Postmasters Remuneration • POCL Reconciliation (Cash Account) • MIS & Reporting <p>OSS Central</p> <ul style="list-style-type: none"> • MIS & Reporting • BA/POCL Reconciliation 	<p>Integration of RIVA back-office cash accounting and stock control</p> <ul style="list-style-type: none"> • Reconciliation of non-automated BA transactions (foils) during transition • POCL Cash Centre Management & Reconciliation • Client/POCL Reconciliation • Resource Planning • Product Line Profitability
<p>(g) <u>Other Applications</u></p>	<ul style="list-style-type: none"> • Mails • Licences • Savings Accounts • Foreign Exchange • Insurance • Travel Tickets

4.4 REDUCED COST STRATEGIC INFRASTRUCTURE

4.4.1 F85 OPTIONS

Pathway recognises that transaction volumes across post office counters peak on Mondays and Thursdays due to particular benefits becoming due. This is particularly acute in the larger post offices since they handle a large proportion of the overall transaction volume. As a consequence Pathway believes that a number of counter positions in these offices may not be utilised fully at other periods.

It is also estimated that 5,000 of the smallest rural sub-post offices together perform approximately 1% of the total business transactions.

ANNEX 4 - BASELINE PROPOSAL SUMMARY AND OPTIONS

In order that the costs of the POCL Strategic Infrastructure can be optimised for these counter positions Pathway can provide an alternative to the full PC-based infrastructure. This is based on the De La Rue Fortronic F85 payment terminal which provides the minimum functionality offered by the full PC solution, including receipt printer, OCR reader, magnetic stripe and smart card reader.

The F85 is a small-footprint, integrated payment terminal, currently used at over 120,000 retail points of sale within the UK and Europe to process credit and debit transactions.

The F85 is used also as a bill payment terminal by a number of the electricity companies, *see the Case Study in Sub-section 4.4.4 of this Annex.*

The F85 is a compact, integrated terminal (220mm by 260mm) with keyboard (numeric plus function keys), display (2 rows of 20 characters), journal printer, magnetic card reader, and smart card reader. It also incorporates the communications required (including 3 RS232 ports to facilitate the attachment of other peripherals such as bar code/OCR readers) to meet the post office and Benefit Agency requirements.

Two options exist (*see Fig. 1*) for using the F85 instead of a PC at the counter position :

- (i) The use of the F85 as a slave terminal from a PC in the larger post offices. In this case the PC will run two copies of the Riposte software and the counter application software with a simple device driver interfacing to the F85 from the PC. Logically this makes a single PC look like two counter positions to the correspondence server.
- (ii) The use of the F85 as a PC alternative in the small post offices with only one counter position (or where the volume of transactions could not justify a PC). In this case the F85 will appear as a PC equivalent and BA transactions would be transmitted and stored within the F85. A front-end terminal concentrator will be employed at the correspondence server to handle the connection to F85s at remote offices.

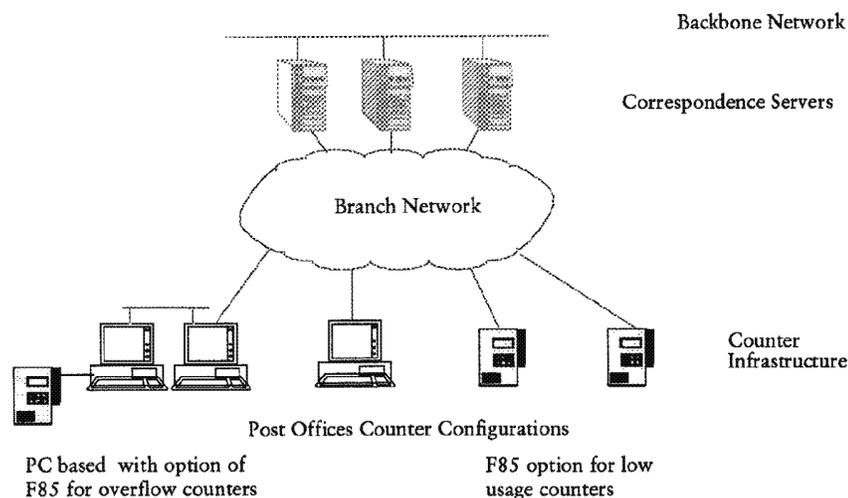


Fig. 1 - F85 options

Each of these two options is considered in more detail below.

4.4.2 **OPTION 1. F85 SLAVE TERMINAL TO A PC IN A LARGE OFFICE**

In this option the F85 would act as a set of remote but highly integrated peripheral devices to the PC and provide access to Benefit Agency transaction data stored on the PC. This allows two counter positions to access the data processing capability of the PC and the full capability of the Pathway solution. The PC contains all transaction data related to the F85 and the generic architecture of the Pathway solution is maintained. From a system point of view a single PC appears as two counter positions.

This is proposed as an option since it is not an off-the-shelf solution and would require development of the PC software to support the slave devices and development of the F85 terminal application to interface with the PC.

This proposal provides a small-footprint integrated terminal for a number of counter positions that may only be used at peak periods in the larger offices (Monday and Thursday mornings).

While the user interface of the F85 is different to a PC, the logical flow of a transaction on an F85 and a PC would be the same and would involve the following actions :

1. Swipe customer card to identify customer
2. Access PC database to retrieve benefits due (or access across the network in the case of foreign payments)

3. Display amount and confirm amount with customer
4. Print receipt and request customer signature
5. Verify signature and make payment to customer

Since all transactions performed on the F85 are recorded on the PC, the full end-of-day reconciliation facilities as performed on the PC are also available to the F85 (including automation of the Postmaster's Daily Record and ECCO+ facilities).

4.4.3 OPTION 2. STAND ALONE F85 TERMINAL EMULATING A PC.

In this option the F85 would receive BA payments from the correspondence server in the same way as a PC running the Riposte software. The F85 will store the BA payment details in the terminal's secure battery-backed CMOS memory. Transactions would be performed on the F85 in the same way as on a PC as described above in Option 1, and the completed transaction details forwarded to the correspondence server in a similar way to the PC solution, with F85-specific processing on the correspondence server.

The F85 has the capability of storing approximately 1000 BA transactions and 1000 Bill Payment transactions along with the full application required for the BA, Bill Payments and a simple ECCO+ end-of-day application in the 1 Megabyte of memory available.

4.4.4 DE LA RUE - F85 CASE STUDY

4.4.4.1 MAIN FEATURES OF CONTRACT

- Customer Service Driven
- Accurate Collection of Sales Data
- Futures Options

4.4.4.2 CONTRACT TERMS

In 1985, East Midland Electricity introduced card-operated token meters for domestic customers. Initially this service was provided for premises where there were security problems, i.e. break-ins. The meters were a success, however the number of card meters grew and the demand for cards caused large queues which caused adverse reactions from customers and staff.

East Midland Electricity then invested in automatic token-dispensing machines provided by De La Rue. The business objectives of the new system are therefore to improve customer service and efficiency with inherent reduced costs.

4.4.4.3 DESCRIPTION OF TASK

For the data capture equipment, the company invited nine electronic receipting equipment suppliers to tender. Originally, sixteen terminals were used on trial. After three months, everybody agreed that the system worked well.

The most important requirement was to capture the sales data and have it passed quickly and accurately back into the records system. East Midlands also needed control of the stocks of tokens and the costs held by the retailer to protect themselves against any possible fraud or loss.

The customer's meter continues to be read every three months and charges for electricity calculated from the reading. Every time the customer purchases tokens, he presents a plastic card (which has been encoded in-house with the customer's account number and his meter type) to identify him and authorise the transactions.

Each transaction is entered onto his account record every three months and an invoice is prepared which reconciles meter readings with token pre-payments so that, hopefully, the invoice will be zero.

4.4.4.4 BUSINESS BENEFITS

- Improved Customer Service
- Improved Productivity
- Cost Effectiveness

A measure of the success of the installation of the Fortronic terminals may be gauged from the fact that some £400,000's worth of transactions were handled by them in the first three months of operation.

4.5 PRODUCT DESCRIPTIONS

Brief product descriptions for selected hardware components for the counter interface and TMS follow. These are given for illustrative purposes only at this stage. Final selection of the counter infrastructure will take place following the usability and functionality assessments described in *Section 6.2, Proving Approach*.

4.5.1 COUNTER PC**(a) Fujitsu ICL ErgoPro e440/66**

The ErgoPro e440/66 is based on the powerful Intel P24D-66 processor supporting ISA and offering integrated fast local bus graphics.

The principal facilities are :

Integrated fast local bus graphics supporting overscan
IDE interface
PowerMaster 2.2 for efficient power management
Maximum fixed disk capacity of 1GB
Optimised temperature control
Quiet in operation
Technical specification

Processor

Bus Architecture	ISA	
Processor		Write-Back enhanced Intel DX2-66
Clock Frequency	66 MHz	
Memory	4 to 64MB RAM	
Cache	0 or 256Kb second level cache	
OverDrive processor support	Intel DX40DPR100	

Storage Device Options

One front-accessible 5.25" bay. Options include Tape streamer or CD-ROM.
Two internal 3.5" bays for 540MB hard disks.
One 3.5" 1.44MB diskette drive.

Expansion Slots

Four 16-bit ISA slots

Operating Conditions

Power supply unit	120W (switchable, with monitor outlet)
Ambient temperature	+10°C to +35°C
Relative humidity	20 to 80 %, non-condensing
Mains input	115/230 V AC +15/-22 %, 50/60 Hz ± 5%
Noise Level	≤ 32 dBA at + 25°C when idling
(according to ISO 7779, ISO 9295 operation)	≤ 40dBA at + 25°C when in operation

Dimensions and Weight

Height	122mm	Depth	432mm
Width	368mm	Weight	8 to 12 Kg

4.5.2 COUNTER MONITOR**(a) ICL 9" SVGA Colour Monitor**

Resolution	800 x 600
Scanning Frequency	Vertical 56Hz, Horizontal 35.2 Khz
Dot Pitch	0.28mm
Input Voltage	100-240, 50/60 Hz
AC Power Consumption	60W (max)
Weight	6Kgs
Dimensions (mm)	262 (width) x 315 (height) x 260 (depth)
Temperature	5 - 40°C
Operation	5 - 80% relative humidity

(b) Options

Options that could be considered for the counter monitor are :

Touch screen monitors including 10" SVGA colour TruePoint monitor or 9.5" colour LCD touch monitor from MicroTouch.

4.5.3 KEYBOARD**(a) Mini Desk PC/AT Keyboard**

A compact 86-key keyboard which is fully PC/AT compatible.

Dimensions (mm) 290(width)x x140(depth) x 22(height)

(b) Options

A wide variety of keyboard designs are available including separable numeric keypads, combined card readers and a re-configurable and programmable key matrix.

4.5.4 COUNTER PRINTER**(a) Ithaca 50plus counter printer**

The Ithaca 50plus series printer is a 4-lines-per-second impact printer which can use one-, two- or three-part paper and can combine receipt, journal and validation printing functions.

Media

Receipt / Journal paper	Standard size (82.5 mm x 89.0 mm)
Single/Double/Triple ply paper	74.6m / 38.1m / 25.9m
Dimensions (mm)	171.5(width)x292.1(length)x177.8(height)
Weight	6.81 Kg
Temperature range	5°C to 50°C
Humidity range	20 to 90% Relative Humidity
Reliability	20 million print lines
Mean Cycle between Failure	25,000 hours
Mean time to Repair	15 minutes
Print Head life	200 million characters
Ribbon life	6 million characters
Cutter life	1 million cuts

(b) Options

Options that could be considered for the counter printer are :

(i) AXIOHM APOS thermal printer

This range of thermal printers provide simple, fast and silent operation for a range of point of sale applications. The printer is easy to use with paper loading taking less than two seconds.

Printing method	Fixed thermal head
Paper	Standard thermal paper or industrial label stock
Paper roll length	82 m
Print speed	80 mm/sec
Printhead life	100 km of paper
Cutter life	1 million cuts
Dimensions (mm)	170(width) x 115(height) x 205(depth)



ANNEX 4 - BASELINE PROPOSAL SUMMARY AND OPTIONS

(ii) Siemens Nixdorf ND69 POS printer

The ND69 pin printer is a high-performance POS system printer of receipts, journals and A4 documents. It provides an option at the counter for printing a wide range of document types and sizes that may be required in EPOS applications.

Print	bi-directional
Receipt/Journal paper	up to 76mm wide up to 90m long (single ply)
Document paper	single or multi-ply paper
Print Speed	4 lines per second - receipt printing 1.8 lines per second - A4 roll / forms
Ribbon life	violet (9M characters) black (6M characters)
Printhead service life	100 million characters
Cutter service life	500,000 cuts
Dimensions (mm)	280(width) x 367(depth) x 222(height)
Weight	13.5kg
Operating temperature	5°C to 40°C
Humidity	5% to 85%
Power	80 Watts

4.5.5 READER DEVICES**(a) Multi-function reader module (OCR, Magnetic Stripe, Bar Code, MICR)**

Utilising existing, proven and reliable technology Pathway, in conjunction with Advanced Recognition Limited, can provide a basic Multi Function Reader Module which meets the requirements for OCR, Mag. Stripe, Bar Code and MICR data capture requirements in the minimum footprint size. The basic Multi Function Reader Module, which is based on the DOCUmatic 7000 Motorised Reader, provides the following data capture functions :

(i) Optical Character Recognition (OCR)

The basic Multi Function Reader Module has two OCR readers. The first OCR reader is an optical reading head mounted within a motorised document transport. This enables Utility bills and potentially girocheques to be easily read with the minimum of user activity.

ANNEX 4 - BASELINE PROPOSAL SUMMARY AND OPTIONS

The read head is designed to read E13B/OCR-B Mixed Font Code lines, but may be electronically switched to also read OCR-A or OCR-B.

The optical read head is a fixed-position device and is designed to scan any code line printed in accordance with the UK Inter Bank standard for code line height, i.e. characters printed from 3/16" - 5/16" from the bottom reference edge of the document.

The second OCR reader is a Hand Held 'OCR Wand'. This is a 'near contact' device capable of reading single or multiple data fields of OCR-A or OCR-B characters and 1D Bar Codes. The hand held wand reader is a bi-directional reader and has a reading speed of from 30-130 characters per second.

(ii) **OCR Security**

The hand-held 'OCR Wand' reader is able to read OCR machine printed characters which have been totally obscured, making them completely invisible to the human eye. This security process is achieved by using a different ink formula for printing the data to that used to obscure the data. The data to be read would appear to the viewer as a black block.

When the black block is scanned by the 'OCR Wand' the data is captured in the usual manner. Any attempt to photocopy the data fields will only produce a further black block.

(iii) **Bar Code Scanning - One Dimensional**

The hand-held 'OCR Wand' mentioned above can also be provided with the facility to read most one-dimensional bar code symbologies. Due to the technology used in the hand-held wand, this system is unable to read two-dimensional bar codes.

(iv) **Magnetic Ink Character Recognition (MICR)**

The basic Multi Function Reader Module has one Magnetic Ink (MICR) read head which is mounted within the motorised document transport. The magnetic ink read head is designed to read E13B (MICR) characters typically found on bank cheques and credits.

The magnetic ink read head is a fixed position device and is designed to scan any code line printed in accordance with the UK Inter Bank standards for code line height, i.e. characters printed from 3/16" - 5/16" from the bottom reference edge of the document.

ANNEX 4 - BASELINE PROPOSAL SUMMARY AND OPTIONS

(v) Magnetic Stripe Reading

The basic Multi Function Reader Module also incorporates a manual bi-directional Magnetic Card 'swipe' reader capable of reading Tracks 1/2 & 3. The magnetic card reader head is fixed position device and is designed to read all magnetic cards encoded to established banking standards.

(vi) Host Interface

The basic Multi Function Reader Module provides an RS 232C interface for connection to counter PC. Other interfaces are available subject to the user requirements.

(vii) Software Programming

The basic Multi Function Reader Module has a variety of custom user-programming options to allow the validation of captured data prior to transmission. These would include Field Length Validation, Check Digit Verification, Field Content Validation, Joint Giro Code Line Edit (For Mixed Font Code Lines) and many more.

The amount of validation to be carried out by the reader would be subject to user application requirements.

The data output format for verified and processed data is also a fully user-programmable function.

The RS 232C communications interface parameters may also be programmed to the users requirements.

(viii) Physical Specification

Dimensions (mm)	180(length) x 114(width) x 107(height)
Weight	1.3Kg

Temperature	0°C to 40°C
Humidity	10% to 90% relative humidity

(b) Smart Card / Smart Key

Pathway would welcome discussions with POCL on the role that the APPU could play in continuing to provide smart-card and smart-key reading and writing capabilities at the counter.

(c) Options

Options that could be considered for the reader devices include :

(i) **Advanced Multi Function Reader Module**

Pathway are actively investigating the development of the advanced Multi Function Reader Module. This uses the same basic reader modules as described above in 4.5.5 (a) and also integrates additional data capture functions as follows :

2D Bar Code Scanning (Including Royal Mail Code)
IC Chip (Smart Card) Reading/Writing

2D Bar Code Scanning

If there is a requirement to read two-dimensional bar codes, Pathway would propose to interface a further bar code scanner to the Advanced Multi Function Reader Module. Integration of a 2D scanner read head into the Advanced Multi Function Reader Module would also be possible, subject to standard positioning of 2D Bar Code symbols on plastic card media.

The type of 2D bar code scanner to be integrated would be capable of reading most 2D symbologies or those symbols recognised as industry standards, including the Royal Mail Code. Power for the 2D code scanner would be provided by the Advanced Multi Function Reader Module or via a separate power adapter.

IC Card (Smart Card) Reader/Writer

The integration of an IC Card (Smart Card) Reader/Writer within the Advanced Multi Function is under active consideration.

These developments would provide POCL with a single integrated unit which meets all the card and document reader requirements and occupies the minimum of counter space.

(ii) **Advanced Hand Held Wand Reader**

Pathway are investigating the possibility of a more advanced wand reader which can read a wide variety of captured images including OCR, CMC 7 font, machine printed characters (including typewriter and line printer fonts), hand written numeric characters and other printer characters.

The device, currently under development, is a small lightweight device with a 15mm scanning window capable of scanning at 3cm to 20cm a second.

The technology that will be used in the wand devices will also be available for integration into other devices including printers, PC's, document readers, etc.

4.5.6 BACK-OFFICE PRINTER

(a) Fujitsu DL3700 dot matrix printer

The DL3700 is a 24-pin dot matrix printer with a maximum printing speed of 400cps. It will support up to DIN A3 paper and it incorporates an auto-load function to simplify paper loading.

Resolution	
Letter quality	360 x180 dpi
Correspondence	180 x180 dpi
Print Speed	
Letter quality	120cps
Correspondence	240cps
Paper width	102mm to 267mm
Paper feed	Bi-directional push/pull tractor Auto cut sheet feed (2 bins)
Dimensions (mm)	133(height)x434(width)x330(depth)
Weight	7Kg
Noise level	less than 49dB(A)

(b) Options

Pathway can provide many varieties of back-office printer ranging from matrix, ink-jet or page printers. The final choice will depend on the variety of paper types that have to be supported, the print volumes and the range of physical post office environments.

4.5.7 ISDN CARD

(a) Eicon ISDN DIVA

The Eicon ISDN DIVA card uses a Digital Signal Processor operating at 40Mhz. It supports the application interfaces CAPI 1.1 and CAPI 2.0 enabling very fine control to be exercised by the application over call connection and network usage time.

4.5.8 ADDITIONAL POST OFFICE OPTIONS

In addition to the hardware options identified above, Pathway recognises that new business streams will also require additional counter peripherals. These will include weigh scales and customer-facing displays and bar-code printers for a Mails/Track&Trace application. Some large post offices may require a PC configuration for local staff training or to run additional software packages.

The precise requirements of each individual or group of post offices will need to be agreed with POCL.

4.5.8.1 POST OFFICE SECURITY

Pathway recognises the concern of Postmasters and the Federation of Sub-Postmasters in the physical security of the post office. Pathway (including BT) would welcome the opportunity of entering discussions with POCL to assess how the POCL Strategic Infrastructure and supporting network might be utilised to improve overall security.

4.5.9 SERVERS ON THE BACKBONE NETWORK

TMS will be configured across 4 sites with 2 or 3 racks of e.g. Compaq ProLiant 4500R servers at each site, to provide full resilience. These will fulfil the roles of correspondence servers, front-end processors (for ISDN Primary rate connections), agents (for connections to external client systems) and system management servers. They will each have very similar specifications, other than their network connections. Considerable interchangeability is intended to enhance the resilience of the backbone network.

(a) Correspondence Servers

The majority of the processors on the backbone network will be correspondence servers. It is proposed that these be rack-mounted systems, which have the advantage of a small footprint, and are designed for ease of management and maintenance.

The racks measure 85" (height), 24" (width), 34" (depth) and weigh 227Kg (for sample rack configuration with 3 servers, monitor, 60Gb disk storage, DLT tape drive).

(b) Front-end Processors

Front-end processors will support, for example, Eicon S2M primary rate ISDN connections via an EISA slot. In all other aspects, they will have similar configurations to correspondence servers.

ANNEX 4 - BASELINE PROPOSAL SUMMARY AND OPTIONS

(c) Agent Servers

Agents will connect to the backbone LAN and additionally to any specific communications interface required to talk to particular client systems. The hardware configuration will be similar to that of correspondence servers.

(d) Systems Management Servers

These will be used by the systems management team to monitor and control server and network activities across the enterprise. The hardware configuration will be similar to that of correspondence servers.

Technical Specifications (per Correspondence Server)

Processors	2 Pentium 100Mhz processors (expandable up to 4 per server, with migration to P6 processors)
Memory	128Mb (expandable from 64Mb to 1Gb of advanced Error Checking & Correcting memory)
Cache	512Kb (expandable to 2Mb)
Architecture	Compaq Triflex System Architecture
Internal Expansion	6 available EISA slots
Drive Controller	SMART SCSI Array Controller (RAID)
Disk Storage	5 x 4.3Gb disk drives (expandable to over 300Gb with additional bays in rack). Hot pluggable disks are available.
Tape (e.g. back up)	10/20Gb Digital Linear Tape (DLT) - (one per rack)
Backbone LAN	100Base-T fast Ethernet (standard Ethernet, FDDI, Token Ring also supported).
Monitor & keyboard	One per rack
Operating System	Windows NT
<u>Operating Environment (per server)</u>	
Power Supply	540 watts (external Uninterrupted Power Supply proposed)
Operating Temperature	+10° to +35°C
Humidity	20% - 80%, non-condensing

Notes

Additional devices, such as an optical juke box (for archiving) and CD-ROM may be provided on a per-site basis.

System monitoring and management tools, for instance Compaq Insight Manager may be provided in addition to any enterprise-wide systems management facilities (e.g. HP OpenView).



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5. PATHWAY SECURITY POLICY AND APPROACH

5.1 INTRODUCTION

The purpose of this document is to give an overview of Pathway's security policy. The policy applies to Pathway itself and to all subcontractors employed by Pathway for the purposes of supplying services to the Benefit Agency and Post Office Counters Limited.

Each of the shareholders and subcontractors already has security policies, and standards and practices in place. Therefore, it is inappropriate for Pathway to impose security standards and practices upon them.

This document addresses Pathway's approach to security by concentrating on the threats within the system and the methods that will be used to counter these threats.

5.2 OBJECTIVES

The objective of the Security Policy document is to ensure that all parties are fully aware of their responsibilities in relation to all elements of security as they relate to Pathway and that they are aware of their legal obligations as they relate to the provision of the Pathway service.

The Security Policy is a practical combination of the many years of experience in computer and physical security of Pathway's principal shareholders (Girobank, De La Rue and ICL).

Girobank's parent company, Alliance & Leicester has had 25 years experience of operations of a financial institution with its requirements for privacy and security. De La Rue bring a strong tradition of security, emanating from their background in security-printing of banknote, and other bearer documents, to the security of card production. ICL has been involved in the provision of many different types of service but their work with Government is particularly relevant.

The objective of the Security Policy is to draw the best practices from each of these companies and provide a coherent strategy tailored to the requirements of the Pathway system. Particular emphasis has been placed on the need to secure information as it flows from one secure environment to another.

5.3 RESPONSIBILITIES

The responsibility for the Security Policy and the related standards lies with the Director of Quality and Risk Management who reports to the Managing Director of Pathway.

All parties, Pathway staff and subcontractors have responsibility for adhering to the Security Policy.

Each subcontractor will nominate a equivalent high-level person to be the day-to-day contact on any matter relating to security. Each subcontractor has its own Security Policy and related standards in place which will be audited by Pathway to ensure compliance with Pathway's policy.

5.4 PATHWAY SECURITY STANDARDS

Pathway's security standards have been based on the Code of Practice for Information Security Management issued by the BSI and the DTI. Additionally, the security standards of each of the shareholders have been examined and best practice assessed and applied to Pathway.

Particular emphasis has been placed on information that flows from one secure environment to another and information that must exist in non-secure environments, such as post offices.

Pathway is conscious that there is no such thing as 100% security and that the security practices employed must be constantly assessed and updated. Pathway, its shareholders and subcontractors, are dedicated to ensuring that the best practice is used at all times and at all stages of the service.

The Director of Quality and Risk Management is a key member of the Project Assurance Team (PAT) and is responsible for ensuring that appropriate security measures are included in all system elements.

5.4.1 SUBCONTRACTORS

Every subcontractor has been advised of Pathway's Security Policy and has agreed to abide by it.

5.4.2 PATHWAYS RIGHT TO AUDIT

Pathway has negotiated a 'Right to Audit' with each of the subcontractors and will liaise closely with each organisation's internal Audit department, where applicable, or external auditors if there is no internal department.

Pathway acknowledges that BA/POCL will also have a right to audit and will make any documents available to BA/POCL. Pathway will work in partnership with BA/POCL to ensure that the Pathway service has, and continues to have, the most appropriate levels of security in all of its elements.



5.4.3 OTHER DOCUMENTS

Within Pathway, all personnel are given a copy of ICL's Information Security Handbook and are required to assess the security of the systems and information they are responsible for.

All personnel, either permanent or attached to Pathway, have signed a confidentiality undertaking covering all work related to BA/POCL.

5.4.4 LEGAL REQUIREMENTS

Pathway, and its subcontractors, are aware of their legal obligations under the following legislation :

- Data Protection Act 1984
- Copyright, Designs and Patents Act 1988
- Computer Misuse Act 1990
- EC Directive on Legal Protection of Databases 1993

Pathway recognises that further legislation will be introduced during the life of the contract which may effect the provision of the service and/or the controls in the service. Pathway wishes to assure BA/POCL that the requirements of any such legislation will be introduced into the Pathway system in a manner that is timely and cost-effective for all parties.

5.5 THE PATHWAY APPROACH TO SECURITY

Pathway's approach to security is to document and understand the threats applicable within the system.

The scope, therefore is :

- Pathway Systems
- Subcontractors Systems
- The Links between Systems
- The Network both between Systems and to the Post Office Counters
- The Counter Terminals
- The Plastic Cards

The document concentrates on the controls necessary in the following three basic security components :

- Confidentiality
- Integrity
- Availability

and addresses a fourth key element (Auditability) that will ensure that the controls in the above three areas are in place and working correctly.

To ensure that the policy is complete it is necessary to understand, and document, the threats that exist, where they exist and the appropriate controls that are to be used to prevent a breach of security in each of the areas.

Accordingly this document is structured to examine each of the threats, by type and who could commit them, examine the methods available to ensure confidentiality, integrity and availability, assess how an audit trail can be provided for each of the security methods and document the types of control and how they should be implemented in Pathway. The individual controls in the system are not included in this document. Details of the controls used will be made available to BA/POCL on a need-to-know basis.

Additionally, there are legal implications and we cover the relevant Acts, and how they are addressed by this document.

5.6 THREATS

Before deciding on a security method to be used, it is essential to undertake an assessment of the environment in which the system is going to reside.

At the simplest level, a system can be said to exist in either a hostile or non-hostile environment. A hostile environment is one outside the control of Pathway or Pathway's subcontractors and is generally in the public domain. The terminals, their programs and data are in a hostile environment. A non-hostile environment is one within Pathway's domain, or one of Pathway's subcontractors' domains, one where Pathway or its subcontractors can control access to programs and data.

Some threats are therefore exclusive to a hostile domain and some are common to both domains.

Against each of the types of threat listed below is an indication of the domain affected.

5.6.1 TYPES OF THREAT

Listed below are the types of threat to which the Pathway service could be subjected and where the threat could occur :

5.6.1.1 DATA THREATS

- Alteration of Data (Central, Network and Terminal)
- Addition of Data (Central, Network and Terminal)
- Deletion of Data (Central, Network and Terminal)
- Privacy of Data (Central, Network and Terminal)



5.6.1.2 EQUIPMENT THREATS

- Stealing Equipment (Central and Terminal)
- Substitution of Equipment (Terminal)

5.6.1.3 SYSTEM THREATS

- Denial of Service (Central and Network)
- Substitution of Software and Operating Systems (Central and Terminal)
- Hacking including Mimicking (Network)
- Sabotage (Central and Network)
- Collusion (Central and Terminal)
- Strikes (Central, Network and Terminal)
- Counterfeiting of Cards (Central and Terminal)

5.6.2 THREATS - BY WHOM

Many different classifications of people can commit acts that expose Pathway and the Pathway service to threats. Listed below are the types of people who can commit threats and the elements of the system exposed to that threat :

- Maintenance Staff (Terminal and Central)
- Network Staff (Network)
- Hackers (Network)
- Pathway Staff (Central and Terminal)
- Subcontractors Staff (Central and Counterfeiting)
- Post office Staff (Terminal)
- Sub Postmasters and their staff (Terminal)
- Franchisees (Terminal)
- Casual Staff (Terminal)
- Royal Mail Staff (Interception)

5.7 CONTROLS

There are many different types of control that can be employed to make a system or system elements secure. Appropriate controls will be included in the Pathway system. Listed below are the types of controls used. We also discuss in this section where the controls are used and whether the control is applicable to Confidentiality, Integrity, Availability or Auditability.

5.7.1 TYPES OF CONTROL

- Procedural (e.g. Recovery)
- Physical Security
- Access Controls
- Change Control Systems
- Staff Vetting

- Identification Systems
- Encryption and Authentication
- Secure Key Management System
- Back up Systems
- Contingency Plans
- Insurance

5.7.2 CONFIDENTIALITY

There are two principal methods of ensuring confidentiality : by restricting access to those with a need to access the data, or by scrambling the data so that it can only be read by a program or set of people with access to the encryption keys. Both methods will be used in the Pathway system.

5.7.2.1 ACCESS CONTROLS

Access controls are primarily used in central systems and at terminals to ensure that only people with the appropriate security clearance can access confidential data.

5.7.2.2 ENCRYPTION

Encryption will be used primarily when data that must be kept confidential is moved, usually by transmission from one secure environment to another. Pathway is aware that there will be data held on central files that is sensitive and file encryption techniques will be used for this data.

An encryption system is only as secure as its key management system. Accordingly, appropriate controls will be in place to prevent access to, or reading of, the keys used to encrypt data in transmission or on files.

5.7.3 INTEGRITY

Integrity applies equally to data and programs. It is pointless to protect the data but allow the program to be changed so that the data protection is effectively by-passed.

Data and program integrity can only be ensured by using a combination of security methods and by ensuring, through regular audits, that the controls in place are being followed.

5.7.3.1 PHYSICAL SECURITY

The first level of control will be physical security - denying access to any person who is not cleared to enter an area where data and programs are kept. This control is applicable at central sites and also at the terminal level if physical locks are present on the machines.

5.7.3.2 ACCESS CONTROLS

Access controls will be in place to ensure that only people with a need to access programs or data can do so. For the central systems, file access and password control systems are in general use in Pathway and its subcontractors. At the terminal level, passwords are needed to access the system and, additionally, it is impossible to break out of the application into native windows or DOS.

5.7.3.3 CHANGE CONTROL

All programs and standing data will be subject to change control procedures to ensure that illegal code or amended data cannot be introduced to the system.

5.7.3.4 DATA AUTHENTICATION

Where appropriate, data and programs will be authenticated. That is a cryptographic checksum will be computed, added to the data or program and checked every time the data or program is used. This control will therefore detect all illegal alterations to either data or programs. Different methods are used; Cyclic Redundancy Checking at a record level, digital signatures generally at a file or program level and encryption selectively applied at both record and file levels.

It is understood that this form of control is only as secure as the key management system employed and accordingly appropriate measures will be in place to ensure the confidentiality of the keys used.

5.7.3.5 STAFF VETTING

Where appropriate, staff vetting is used to ensure that staff placed in a position of trust are suitable for the purpose. The principal shareholders of Pathway all have staff vetting procedures in place.

5.7.4 AVAILABILITY

Service availability will be a key requirement for BA/POCL. Accordingly, controls, procedures and plans will be put into place to ensure that the service is available according to the service level agreed. The Pathway service is built around existing systems and services with a similar critical nature. Accordingly, there are contingency plans in place to ensure continuity of service.

Similarly, the network option chosen provides redundancy and resilience to allow the service to continue despite localised problems. The terminals have a high mean-time between failure and a service level for replacement of parts of the machine will be negotiated.

Pathway is confident that their controls will ensure availability of service.



5.7.5 AUDITABILITY

The Pathway Security Policy mandates that an audit trail be included in the system design from the development stage.

Pathway has negotiated a 'Right to Audit' for all system components run by a subcontractor. The audit trails necessary for all the above controls are in place and will be regularly checked by Pathway to ensure that the controls are operating and are sufficient for the purpose. Pathway is willing, as a minimum, to make their findings known to BA/POCL.

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6.1 MINISTRY OF DEFENCE CHOTS PROJECT

DATE : OCTOBER 1991
CLIENTS : MINISTRY OF DEFENCE
ANNUAL VALUE : £50M

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- System development
- Systems integration
- Implementation of change
- Support and help desk facilities
- Supplier collaboration

CONTRACT TERMS

The Ministry of Defence procurement programme for secure office automation began in the mid-1980s and in 1988 TOPIX, the ICL-led consortium, won one of two pilot contracts. Following successful implementation of its pilot system, TOPIX won the full contract in October 1991.

BUSINESS OBJECTIVES

CHOTS is an MoD project to equip 18,000 MoD Corporate Headquarters staff with a terminal or workstation giving them full secure office automation facilities and access to other local and corporate applications systems.

DESCRIPTION OF TASK

The scope of the CHOTS contract comprises development and supply of the systems, their operation, support and maintenance, user training and user support, and all associated project management. The initial contract value was £250m of which 70% is services.

The TOPIX consortium was formed in 1987; it comprises ICL, Hewlett Packard, Coopers and Lybrand, BICC and Data Logic.

Effective management of the consortium was crucial to the delivery of the successful pilot. The consortium, under the prime contractorship of ICL, operated as a single entity with its own corporate identity (TOPIX), its own management team and headquarters.

The working relationships thus established proved a major strength, particularly when the pilot system went through periods of stress, as expected, and extra effort was needed to keep to the plan.

The consortium worked closely with a subset of the customer's project team to identify the technical challenges and the business objectives. Both parties accepted from the start that the activities were only to be part-funded and that one objective was to refine the requirements, before roll-out to 20,000 or so desks.

The project was the first implementation in the world of a secure UNIX system supporting an office infrastructure and mounted across several platforms. It required technology initiatives of the highest order, but also capabilities within the consortium and the customer's team to handle the management of change issues which were quite substantial in the culture then prevailing.

Today the consortium is unchanged, and there is a close relationship between the parties at all levels from UK Director downwards.

The CHOTS project currently covers 12 MoD locations in the South of England. The CHOTS programme is on time and budget, and to date has nearly 7,000 live users on 160 distributed systems.

The service covers all aspects of the provision of secure office automation, including system development, system operations, security, support provision, networking, configuration management, staff training, system changes, staff moves and maintenance.

The CHOTS project has an annual release policy where a package of various tailored products are combined to provide a stable system. Typically this includes versions of UNIX, office automation software, communications and hardware, all of which will have been altered to meet the MoD's specific requirements for security and functionality. The project will also develop supporting functions such as training, data conversion and documentation to ensure that the changes are implemented efficiently and effectively.

BUSINESS BENEFITS

- Single secure interface to all systems
- 15% saving on staffing and IT costs
- Staff movement flexibility

6.2 IT IN ICL - MAJOR CHANGE PROGRAM

DATE : 1991
CLIENTS : ICL PLC - WORLDWIDE
VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Managing major change over a large user population
- Managing regular change
- Managing change over a wide geographic distribution
- Outsourcing of internal IT

CONTRACT TERMS

The responsibility for the delivery of the systems that support ICL's information requirements rests with the company's own, internal information technology group, "IT in ICL". This group delivers IT services to the various functions of ICL.

A change programme began in early 1991, with initial studies establishing a set of underlying principles upon which the major change programme would be based. The result is an implementation of these principles and a fundamental re-organisation of the way in which IT in ICL provides its services to ICL plc. Services are now provided to each of ICL's Business Divisions by the Group Outsourcing Division.

BUSINESS OBJECTIVES

ICL recognised that effective IT operation management was a key driver in ensuring that an increasingly successful and competitive market position was maintained.

At the same time, investment in Information Technology and Telecommunications within ICL was considered to be excessive and unquantifiable in terms of business benefit. The challenge was to create an IT environment that better supported (measurably) the company's strategic objectives (such as business unit autonomy), but was able to provide the required range of services based largely on existing resources and a more realistic budget.

DESCRIPTION OF TASK

The efficient delivery of internal management information is crucial to the smooth running of ICL's current operation and its future success. The company realised that the full potential of its human and technical resources was not being realised under the existing IT structure.

ICL has had to absorb radical changes in customer demands for products and services, vertical alignment between ICL and its suppliers and integration of operations with those of Nokia Data, Technology plc and Sorbus. Such changes could only be managed successfully in an environment where immediate and accurate information is readily available. IT in ICL was aware that meeting the twin challenges of providing an improved service for its client and reducing its excessive expenditure could only be addressed by the implementation of a major change programme. This programme would have two key objectives :

- To establish an organisational structure and technical environment within which all information required in ICL could be delivered electronically
- To create an IT infrastructure for ICL from which competitive advantage could be gained, by more effective and efficient business processes, providing a fully integrated supply chain for products and services

Particularly affected would be the approach to systems provision. The key principles, adopted as critical success factors for the change programme, were as follows :

- To gain tighter control over application development, integration and support activities
- To implement end-to-end management of application services with measurement of the performance experienced by the end users
- To achieve tight management of the telecommunications services, including voice, data and video links, provided over the ICL worldwide network
- To gain acceptance of Business Process Re-engineering and the need for more effective process support as the catalyst for any change in information systems
- To use quantifiable business benefit or improved customer satisfaction as the only justification for any application development or change
- To gain corporate commitment to Business Process Management, Electronic Trading and a commitment to implement the recommendations of ICL's strategic business report
- To implement remote application management and telecommunication service management facilities

The group's business practises were redrawn by three functional teams and a systems approach developed which responded to the strategy of focusing delivery on the end users of systems.

BUSINESS BENEFITS

- Greatly increased productivity of IT in ICL's staff
- Realignment of IT towards support of business processes
- Technical performance has improved quantifiably
- Reduction in application development time
- Improvement in user satisfaction
- A saving in operating costs of £25m in three years

6.3 INLAND REVENUE - SERVICE MANAGEMENT CENTRE

DATE : APRIL 1986
CLIENTS : INLAND REVENUE
VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Use of automation
- Efficiency through rationalisation
- Management of distributed environment

CONTRACT TERMS

The IRSMC was set up by ICL in April 1986, at the request of Inland Revenue, to provide a dedicated single point of contact for the co-ordination of all ICL engineering and software support services to Inland Revenue. This has been extended for a seven-year period as of October 1992.

BUSINESS OBJECTIVES

The IRSMC assigns a priority category for all reported problems commensurate to the impact of the problem and manages the reported problem for the entirety of its life-cycle. The task demanded a high level of control for which a call management system, CALCAM, was developed.

DESCRIPTION OF TASK

The IRSMC is a managed support service provided by ICL and is an integral element of the Inland Revenue support infrastructure. All relevant problems are reported to the IRSMC help desk, and logged on CALCAM via the Inland Revenue Problem and Inventory Management System (PIMS). This process has been in place some six years and has successfully managed some 25,000 hardware and software incidents annually.

Using the CALCAM system, the IRSMC assigns a priority category for all reported problems commensurate to the impact of the problem and manages the reported problem for the entirety of its life-cycle.

This problem-management activity includes notifying and co-ordinating the appropriate support authority to ensure the necessary support resources are made available to resolve the problem.

CALCAM will escalate the calls according to the SLAs in place, adhering to the escalation procedures when necessary.

Since its inception the IRSMC has reduced the call-to-fix time for incidents in the network, resulting in increased overall IT systems availability.

Through monitoring and managing the response to all Inland Revenue service calls, CALCAM maximises availability of service to Inland Revenue's end users.

Some of the functions provided by CALCAM are set out below :

- Passing all calls on to the appropriate service provider
- Notifying ICL Customer Service via the ICL call management system of all installations and upgrades
- Producing statistical and management measurements of the service supplied by ICL to Inland Revenue
- Provision of a consistent value added service performed to quality procedures audited to BS 5750/ISO 9000 standards

BUSINESS BENEFITS

The use of an automated system at the IRSMC has resulted in the following benefits :

- Reduced cost of administration
- Faster call resolution leading to improved end-user efficiency
- Configuration control of software leading to less incidents

6.4 CAMELOT

DATE : 1994
CLIENT : OFLOT
ANNUAL VALUE : £130M

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Systems integration
- Installation and commissioning
- Recruitment and training
- Supplier collaboration

CONTRACT TERMS

ICL is part of the successful Camelot consortium selected by the UK Government to manage the National Lottery. The consortium is responsible for running the Lottery and providing and maintaining the infrastructure with which to run it.

BUSINESS OBJECTIVES

OFLOT expects to have two thirds of the UK population participating in the UK National Lottery, thus making it the biggest lottery in the world.

By the end of 1996, nearly 40,000 retail outlets will be selling Lottery tickets, including corner shops, petrol stations, confectioners, newsagents and post offices throughout the country.

DESCRIPTION OF TASK

The Camelot consortium comprises De La Rue, Cadburys, GTech, Racal, and ICL. ICL holds a 10% stake in the company formed for the Lottery, sat on the original steering committee and was a prime co-ordinator in producing the business plan.

Camelot plans to have a ticket outlet for every 1,500 people, and four out of five people should be within 2 miles of a ticket sales point.

In this major programme management and logistical exercise, ICL has responsibility for building and installing the terminals, training retailers and recruiting staff for the Camelot company.

The infrastructure for the National Lottery is being installed by ICL to challenging timescales. From award of contract to the first prize draw was just 25 weeks.

In this time 500 staff needed to be recruited by ICL to run the Lottery infrastructure, 11 regional offices and two central computing centres needed to be installed, 31,500 specialist ticket terminals had to be manufactured and these are currently being installed by ICL at a rate of 2,000 per week. In addition 30,000 retailers were trained in the use of the equipment in just five weeks and this was organised at 180 locations across the UK.

BUSINESS BENEFITS

- 1st prize draw 25 weeks from award of contract
- Optimum mix of specialist suppliers
- Consortium shares OFLOT's risk on the project

6.5 ALPS - ESNS (AUTOMATION OF LONDON POST OFFICES)

DATE : JANUARY 1995
CLIENT : POST OFFICE COUNTERS LIMITED
ANNUAL VALUE : £9M

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Significant roll-out over short time period
- Integration of many different hardware components
- Iterative software development

CONTRACT TERMS

Post Office Counters Ltd. (POCL) placed a contract with ICL Enterprises on 23rd January 1995 for the development, implementation and service of the Electronic Stop Notice System (ESNS) to run on 4,500 PCs in 1,500 post offices within the London area.

BUSINESS OBJECTIVES

- Achievement of the required fraud-reduction targets by meeting the challenging deadlines for systems implementation
- Delivery of systems based on a modular architecture, designed and built to preserve the significant financial investment in hardware and software
- Implementation of systems that encourage rapid user acceptance and minimum business disruption

DESCRIPTION OF TASK

The system included the provision of bespoke applications software, PC hardware, bar code readers, printers, other associated peripherals, and associated delivery, installation and maintenance services.

The requirement was to begin roll-out of the systems to the post offices beginning on 24th April 1995 with total implementation due for completion on 6th August 1995. At this stage, the project is on track to meet these dates. At the maximum rate, ICL will install 550 systems in one week.

The success of the project to date has been due mainly to the excellent partnership approach developed between POCL and the ICL project team.

BUSINESS BENEFITS

Already, following installation of over 400 offices, ESNS is delivering real benefit to the Benefit Agency in terms of identified fraud and the return of benefit books for amendment.

The installed systems are future-proof and will be used as part of Pathway's implementation of the main systems.

The system has received very positive acceptance from the users due to its very simple and 'friendly' user interface. The aim in design was to make the system intuitive to the user. This is proving to be the case with only minimum user training necessary.

6.6 POSTBANK (GERMANY)

CONTRACT AWARD : 1991
CLIENT : GERMAN POSTBANK
TOTAL VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Large-volume card manufacture, card personalisation, PIN generation, PIN mailer printing
- Card design and plastic proofing
- Hologram design, origination and supply
- Secure card despatch to bank branch
- Secure PIN mailer distribution to cardholders
- 100% audit trail of production and despatch processes
- High-security production facility (internationally approved security licences)
- Daily liaison with the PostBank's Card Management Service
- Product produced in a language other than English

CONTRACT TERMS

In 1991 the German PostBank required the services of a company to provide a complete range of card-making and personalisation services. The contract required De La Rue Card Technology to manufacture and personalise 3.5 million cards over 23 weeks, as well as generate and print the PINs for each cardholder.

BUSINESS OBJECTIVES

PostBank needed to provide its customer cardbase with approximately 150,000 personalised cards and PINs per week. The objective was to achieve cost savings and service benefits by dealing with a single supplier capable of providing the complete end-to-end service for all card-related products.

DESCRIPTION OF TASK

De La Rue won this major full-service contract against local competitors who argued that a company manufacturing and personalising cards in England for the German market would fail to match the strict delivery schedules and quality levels demanded. In addition to the card production, the contract also demanded the following requirements :

(a) Secure PIN generation and PIN mailer printing

The PIN production processes required De La Rue to carry out these two activities in strict accordance with the security procedures and time schedules stipulated by the PostBank. The despatch of printed PIN mailers to Germany needed to be closely coordinated against the despatch of live cards.

(b) Hologram Design, Origination and Supply

De La Rue was able to call on its industry-renowned holographic capability (De La Rue Holographics) to design, originate and supply a security hologram for the PostBank card. The security hologram produced by De La Rue greatly increased the cards' resistance to counterfeit.

(c) Sourcing of Stationery Items

De La Rue needed to source and maintain adequate stock levels for the stationery items (card carriers, envelopes, inserts and PIN mailers) required for the contract. The printed information on these items was in German and De La Rue had to ensure that any changes in the text or design were accommodated in a timely manner.

CONCLUSION

To meet the challenges of this project, De La Rue increased its staffing levels and extended the production capacity accordingly. Day-to-day communications with PostBank were conducted in German by De La Rue's project team. The logistical problems of supplying personalised cards to PostBank branches and printed PIN mailers to cardholders on time were resolved by working closely in partnership with the secure transport providers and by improving the internal despatch processes used by De La Rue.

BUSINESS BENEFITS

- Single source supply for a complete range of card manufacturing and personalisation services
- Efficient and secure delivery of items to branches in accordance with an agreed schedule
- Service and quality which PostBank could pass on to their customers
- Flexibility to change the card issue program (increase production capacity and stationery items)
- Supplier capable of providing a migration path to new card technologies
- Ability of supplier to reduce fraud costs by having access to new security features
- Minimisation of the risk by using a high-security and stable supplier who is internationally approved

6.7 GIROCHEQUE RECONCILIATION PILOT

CONTRACT AWARD : 1992
CLIENT : BENEFIT AGENCY
TOTAL VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Cash Account reconciliation
- Provision of management information for Benefit Agency cheque encashment
- Pilot proving capability

CONTRACT TERMS

A system that provides the processing, reconciliation and settlement figure for all Benefit Agency cheques cashed at post offices in England Scotland and Wales. A number of critical factors contributed to the success of the project. One of which was to provide the Benefit Agency with the facility to run a parallel pilot process with the bank from initial capture of the cheques to the production of fully auditable reconciled settlement accounts.

BUSINESS OBJECTIVES

- Reduce reconciliation timescales
- Improve management information
- Improve customer service

DESCRIPTION OF TASK

The following key elements formed the pilot plan :

- Conversion of historical and unreconciled issues and encashments at an agreed point
- Receipt of issue information for all girocheques issued in England, Scotland and Wales
- Receipt of all girocheques encashed in Wales
- Joint capture and reconciliation of all girocheques for post offices in Wales
- The production of fully auditable settlement accounts
- Production of the Benefit Analysis and its reconciliation to the DSS (Master) version
- Liaison with National Audit Office to confirm NAO outputs from Girobank system

The pilot ran for a period of five months, during which a number of cash account weeks were fully reconciled and the bank was able to prove the integrity of its Benefit Analysis to the satisfaction of Benefit Agency.

Implementation was based on a clean-down of the Girobank system with all data being reloaded as at an agreed point. Benefit Agency undertook work prior to conversion to clear down.

BUSINESS BENEFITS

- Complete reconciliation of Benefit Agency cheque payments
- Improved funding and settlement
- Improved accounting
- Reduced costs

6.8 VISA CALL CENTRE

CONTRACT AWARD : 1994
CLIENT : A&L (INTERNAL)
TOTAL VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Creation of call centre
- Use of latest telephone technology help desk
- Change management

MAIN FEATURES OF CONTRACT

- Creation of a call centre and help desk
- Production and delivery of large volumes of plastics and stationery
- Interface to numerous Group systems as well as outside agency systems
- Recruitment and training of suitable personnel
- Set-up and management of various databases
- Enhanced telephone technology, for example, ACD, voice response, power dialling

DESCRIPTION OF TASK

The Visa operation was originally launched in 1988 to enhance the Personal Banking function's (pre-legal integration) range of products and services. Prior to the launch of our Visa call centre in 1994, the main focus was almost exclusively on productivity, increasing throughput and driving down costs.

However, although the introduction of the annual fee lifted the Visa operation into profit, we were seeing a reduction in our customer base, partly as a result of new players introducing themselves to the Visa card market with aggressive pricing policies.

It was recognised that building strong customer relationships would ultimately provide a profitable and loyal customer base and this was to be achieved by developing a staff focus on service, efficiency and customer care which would be complemented by customer-retention and cross-selling initiatives.

Although Visa had an established centre on Merseyside, with a cardholder base and an established workforce, the call centre was designed and built from scratch, with much more emphasis placed on servicing via the telephone. New methods and cultures had to be developed, which meant replacing existing staff with new people capable of providing the skills that would be required in the new call centre.

The call centre manages a card base of approximately 300,000 customers, and is staffed by 49 FTEs which is set to rise to 62 FTEs. Total call traffic from launch of the call centre in April 1994 to the end of that year was 685,277.

A major task associated with the information call centre was to introduce a change of culture and focus into the area. It was a major personnel issue to replace existing staff with new call centre staff. To complement the new focus, the new area had to be completely refurbished with new carpets, workstations and lighting, all within tight timescales.

The development of the call centre was in progress at the same time that preparations for legal integration were being formulated and this meant that key personnel had to be involved in both of these projects, and that a massive card-replacement programme had to take place soon after the call centre was opened.

Training of new staff was very intensive and had to be specifically geared towards customer service, cross-selling, customer retention and product knowledge. This also involved the development of new operating procedures, all designed to BSI standards and this process alone had to be very carefully co-ordinated and controlled.

Customer perception of the new initiative was also a complex issue because the initiative was designed to benefit them. The improved levels of service were an obvious benefit but customers became direct targets for outbound selling and customer loyalty initiatives, a new experience with potentially negative consequences.

Finally, and probably most complex of all, there were many different functions which helped to support the operation of the call centre such as lost and stolen stationery, authorisations from retail outlets and debt collection areas. There was a requirement to know the workings of other available Group account management systems in addition to the many and varied Visa International operating rules and regulations.

BUSINESS BENEFITS

- Improved culture
- Improved customer focus
- Improved customer retention
- Enhanced cross-selling opportunities

6.9 ALLIANCE ACCOUNT

CONTRACT AWARD : 1993
CLIENT : A&L (INTERNAL)
TOTAL VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Innovation
- Service creation
- Systems integration

MAIN FEATURES OF CONTRACT

- Unique distribution system via call centre/branch/post office counters, ATMs and the post
- Full banking facilities including cheque books, cheque cards, debit cards, standing orders and direct debits
- 24 hours per day, 365 days per year opening, manned by a dedicated team of staff
- The availability of other Group services, on a one-stop-shop basis, for example, fund transfers, personal loans and Visa cards

BUSINESS OBJECTIVES

To develop a flagship current account aimed at the customers of the Alliance & Leicester Building Society

DESCRIPTION OF TASK

The new account needed to be developed from scratch, within 12 months, with the necessary systems and infrastructure in place to support a national TV launch and the anticipated growth targets (in excess of 50,000 new accounts ledgered within six months).

From one call centre we needed to handle everything from account opening, literature fulfilment and account procurement through to ongoing account management. The infrastructure needed to be sufficiently robust to handle in excess of 25,000 calls per week within the first few months, with quite significant peaks of traffic because we responded in real time to television advertising of our hot-line numbers.

BUSINESS BENEFITS

- Strategic product development
- Key customer relationship vehicle
- Business development platform

6.10 GIROBANK - LEGAL INTEGRATION

CONTRACT AWARD : 1993
CLIENT : A&L (INTERNAL)
TOTAL VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Management of change
- Systems integration

CONTRACT TERMS

In January 1993 the A&L Board gave approval to progress the strategy for optimising the strengths of the different parts of the group. The nucleus of this strategy was to create a single, broadline personnel financial services business complemented by a unique corporate business. To achieve this aim it was necessary to legally integrate the Personal Bank into the Building Society.

BUSINESS OBJECTIVES

To integrate the Personal Banking arm of Girobank with the Personal Financial Services division of the A&L Building Society.

DESCRIPTION OF TASK

The project was successfully implemented on time on 1st May.

Despite significantly underestimating the volume of stationery and card orders during the first month of operation, both our internal systems and our key suppliers managed to handle the volumes within the agreed service-level targets.

The implementation of the main project addressed the re-issue of stationery and plastics to customers who needed new suppliers but did not consider the low-usage customers who did not require new stationery before 30th April 1995.

In October 1994, there were still 400,000 cheque books and cards to be issued. Processes were written, tested and released which 'drip-fed' these items to our suppliers in a manner which guaranteed that we would meet the deadline imposed by the Bank of England, whilst maintaining the service-level targets with our suppliers.

This exercise was completed by March 1995 and the project has now been formally completed.

- On implementation (1st May 1994) all customer correspondence (letters, statements and leaflets) had to bear the new brand/owner name
- The different Group brandings had to be discreet with no possibility of errors
- In accordance with Bank of England requirements, 1.2 million plastic cards and cheque books had to be re-issued before 30th April 1995
- The assets on the balance sheet had to be correctly apportioned between PFS and Corporate Bank as at 1st May 1995
- The profitability reporting for Personal Banking had to be transferred before 1st May 1995

To successfully deliver this project in a limited time period, it was essential to create a project structure that included all the affected areas of the Group but was not so large that it became unmanageable. This was achieved by creating a clearly focused steering committee and control group, with various sub-groups (such as communications, testing, implementation) set up with the authority to take action on the day-to-day project issues.

BUSINESS BENEFITS

- Strategic alignment of customer base
- Enabler for cross-selling of Group products

6.11 BRITISH GAS BILL PAYMENT SERVICE

CONTRACT AWARD : 1994
CLIENT : BRITISH GAS
TOTAL VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- The Partnership approach
- Business development with POCL

CONTRACT TERMS

In the summer of 1994, Post Office Counters Ltd. (POCL) and Girobank identified an opportunity for both organisations to work together to satisfy market demands for a complete Bill Payment Service.

POCL had for some time been developing an Automated Payment option at the counter using a plastic card issued to the end consumer. Some success had been achieved in selling the service to the Utility market.

Girobank already offered Transcash as a means of paying bills at post offices and was also able to complement this with the ability to collect payments made by direct debit or standing order. As a consequence, facilities were already in existence for a number of the Utility companies.

By approaching the target market as a partnership it was believed that a complete package could be made available, thereby offering the potential for entire revenue collection.

Having made the decision, the partners were faced with an immediate challenge as the opportunity to deliver such a service for British Gas arose within a matter of weeks. The challenge was increased further when a delivery date was requested for the third quarter of 1994.

BUSINESS OBJECTIVES

To provide a complete Bill Payment Service in partnership with POCL.

DESCRIPTION OF TASKS

During early discussions, relationships and joint groups formed at senior level in order to identify a shared vision. In order to deliver the complete service it was necessary to bring the two organisations together at the operational and development levels. A complete formal structure was adopted to oversee marketing, development and implementation activity.

To satisfy the requirements of British Gas, a joint implementation team was created involving technical and managerial staff from both organisations and customer representatives.

Clear roles and responsibilities within the joint team were agreed and structured plans were formulated in order that all parties (including British Gas) could identify what was expected of them, and the dependencies. As British Gas was to be the first customer to make use of the service, building an infrastructure between Girobank and POCL had to be included within the plan and completed to the same timescales.

Regular and frequent liaison between Girobank and POCL staff at all levels generated a clearer understanding of each other's individual and collective needs and abilities. Because of the limited timeframe available to satisfy British Gas, this understanding was essential to our success.

It is an undoubted credit to both organisations and their collective ability that the service was delivered to British Gas in accordance with the agreed specifications and timeframes. The Transcash Service went live with effect from 31st May 1994 and the Automated Payment Service from 16th August 1994.

BUSINESS BENEFITS

The joint expertise developed between the two organisations to deliver this service to British Gas has subsequently been used to generate additional benefit for both partners and create a joint identity under the 'Collections Connections' banner.

Five further Utility customers have been implemented onto the same service, each having its own specification and development plan. These existing customers are :

- Eastern Electric
- Severn Trent Water
- South West Water
- Welsh Water
- Yorkshire Water

Further Utility customers are now being implemented and additional market opportunities identified are being jointly explored and developed. Further implementations are scheduled for these additional customers :

- Seeboard
- MEB
- South East Water



- Mid Southern Water
- North West Water
- Birmingham Cable Communications
- Teesside Cable
- Glasgow City Council

The Bill Payment Service is a singular example of how Girobank and POCL are able to work together at all levels, identify market opportunities efficiently and effectively, develop services and facilities to meet those opportunities and deliver the services to the end customer. The level of understanding that has developed between the staff of the two organisations is of significant and undoubted value. This has clearly been a significant factor in the success of the partnership approach. Whether either party could have achieved this success single-handedly is less certain.

6.12 COUNTERACTION CASE STUDY

CONTRACT AWARD : 1992
CLIENT : AN POST
TOTAL VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Counter infrastructure
- Roll-out
- Partnership with clients
- Support services
- Business development

MAIN FEATURES OF CONTRACT

- Develop retail sales ability
- Advance its customer service standards

CONTRACT TERMS

An Post wanted a stable, flexible systems platform to enable front-office applications to be gradually expanded and their functionality increased.

BUSINESS OBJECTIVES

- Increase counter productivity
- Reduced transaction time and cost
- Enable marketing of retail and financial products
- Enable take-on of new business streams
- Reduce administration and accounting time

DESCRIPTION OF TASK

The first step was to overcome information processing 'bottlenecks'. The problems included an unacceptable average length of transaction times at counter positions, a lack of information for counter customers and the absence of an An Post system that could be integrated with those of agency customers. An Post also recognised that outmoded methods of transaction handling, rising costs and increased competition was eroding its counter business.

After in-depth evaluation of the major operating systems, An Post chose a PC-based solution built around Microsoft's Windows for Workgroups 3.11 and Microsoft Windows NT. It was designed to overcome the bottlenecks, remove the complexity associated with traditional computing applications by ensuring the system was easy to use for staff and provided enough counter and central processing power.

From a total of 2,000 post offices, An Post selected its top 600 for a phased implementation of the automation programme, known as CounterAction. The post offices are both large and small and are geographically spread, and they will be automated over a four-year period. The basic building block of the CounterAction front-office system is Windows for Workgroups 3.11. Above it sit modular product application sub-systems which can be added or changed over time. It offers superior performance to comparable platforms by supporting full 32-bit file access to information and 32-bit networking.

Every post office counter position has a networked Intel 80486-based PC. One PC in each post office acts as a communications workstation, sending and receiving data via X.25-based star topology leased circuits, feeding into regional nodes linked to An Post's headquarters.

An Post also standardised on Microsoft Visual Basic as the programming tool for applications in CounterAction. An Post developers can easily create and enhance each front-office application according to the specific design criteria and set of functions needed using Visual Basic's own built-in database engine. It supports data sharing and messaging in programming workgroup applications, plus its capacity for re-using software components gives An Post a highly productive development platform.

BUSINESS BENEFITS

Joe Cosgrave, Head of Development, Financial Services, says : "An Post's Counters Business fulfils a key strategic role nationally. For example, today we act as the processing agents for many of the country's social welfare payments. CounterAction is the vehicle by which we can improve the level of job satisfaction internally. An expanded range of agency, customer and An Post products can also be added without major re-engineering. This means greater synergy between our future plans for 'across the counter' products and the counter business."

6.13 VICTORIA WINE

CONTRACT AWARD : 1993
CLIENT : VICTORIA WINES
TOTAL VALUE : N/A

MAIN FEATURES OF CONTRACT

- Cost effectiveness
- Electronic point of sale (EPOS)
- Voice telephony
- Electronic Mail

CONTRACT TERMS

Until December 1993 Victoria Wine had a modem-based system connected to approximately 1000 outlets via the analogue public switched telephone network. The system was slow, prone to operational difficulty and was not realistically capable of expansion to the remaining outlets.

DESCRIPTION OF TASK

To improve cost-effectiveness Victoria Wine decided to replace the existing analogue network with one based on ISDN delivered by BT. This change offered Victoria Wine the advantage of delivering all its telecommunications requirements (EPOS, voice telephony and electronic mail) via a single service platform. EPOS transactions involving bank and credit cards are now completed significantly faster.

With ISDN, information retrieval that had previously taken over three hours per 1000 lines now takes 1.5 hours for 1600 lines. ISDN also permits the continual monitoring of shops connected to the network so that potential problems can be detected and quickly rectified.

BUSINESS BENEFITS

Victoria Wine has a total of 1600 shops, including the Augustus Barnett chain, and a number of other licensed trade outlets.

Victoria Wine now plans the complete integration of telephony-based requirements to all its outlets; a total of 3000 ISDN lines delivered from BT, by September 1995. It is also considering future applications such as slow-scan TV and integration of alarms.

6.14 J SAINSBURY - TOTAL MANAGED SERVICE

CONTRACT AWARD : 1994
CLIENT : J SAINSBURY PLC
TOTAL VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Support and help desk facilities
- Wide geographic distribution
- Collaboration with other suppliers
- Partnership with our client to implement change

CONTRACT TERMS

Sainsburys is one of the United Kingdom's largest and most successful supermarket chains, with approximately 350 branches spread throughout the country. In 1994 ICL was awarded a contract to provide a Total Managed Service for their IT.

BUSINESS OBJECTIVES

Sainsburys recognised the business benefit of placing a single contract for the support of all IT within its retail outlets thus simplifying the interface for service issues and reducing management time and responsibility identification.

Secondly, through implementing a preventative maintenance policy Sainsburys achieved improved utilisation and ICL benefited from less re-active maintenance calls.

DESCRIPTION OF TASK

ICL provides a Total Managed Service to help ensure that Sainsburys' IT infrastructure continues to provide the levels of service required to support their business.

This service covers the following systems :

- Point of sale terminals
- Petrol pumps
- Weigh scales
- In-store systems including UNIX servers
- In-store, high-speed Local Area Networks

The service provides Sainsburys with a single point of contact for notifying and monitoring all incidents that require support.

The central point of contact is provided by the ICL Call Reception Centre in Wakefield which operates 24 hours a day 7 days per week. Sainsburys is therefore able to raise and monitor incidents by phone or via a customer-useable terminal at any time to ensure continued operation of its business.

ICL currently uses and manages six service partners to ensure that Sainsburys receives the best possible service available on each item of equipment.

ICL provides preventative maintenance for point of sale terminals, calculating the life span of individual parts by monitoring their usage, and replacing the part before it fails. Systems maintenance can therefore be planned and carried out at times to minimise disruption to the store. ICL also provides additional services, such as valeting and electrical-safety testing to help increase the life of individual parts.

In total ICL is responsible for the serviceability and maintenance of more than 9000 point of sale terminals and 1500 petrol pumps spread across over 350 branches nationwide.

BUSINESS BENEFITS

- Sainsburys has fewer suppliers to deal with, reducing the effort required to manage the contracts and resolve problems
- Provides a single point of contact, easing the support effort required to raise and monitor problem incidents
- Sainsburys receives fewer invoices, reducing the effort required for their management
- Standardised service level information which allows easy management of the service delivered
- Preventative maintenance resulted in improved service from the in-store equipment
- Choice of service levels, reducing unnecessary costs

6.15 CARDLINK (IRELAND)

CONTRACT AWARD : 1994
CLIENT : EASTERN HEALTH BOARD - THE IRISH TRIAL AWARDED TO DELPHIC
TOTAL VALUE : N/A

CONTRACT ATTRIBUTES RELEVANT TO THE RESPONSE

- Provision of smart card technology to a government department
- Provision of smart card manufacture and personalisation services
- Provision of a migration path for smart card technology
- Provision of ongoing technical consultancy in smart card technology
- Provision of card print design and origination facilities
- Provision of card system development and design
- Conformance to international standards
- Demonstration of the inter-operability of the card with other systems
- Co-ordination with other project partners

CONTRACT TERMS

The project is fully funded by the Directorate General XIII of the European Commission and forms part of a co-ordinated activity to research and extend the use of patient data cards in Europe. The Irish trial of this EU-funded project is being run in co-operation with the Eastern Health Board who issue smart cards to patients. DelPhic, the joint venture between De La Rue and Philips, developed a card-based solution that could be used by general practitioners, hospitals, pharmacists and patients, and provided smart card products and services to support it.

BUSINESS OBJECTIVES

The CardLink project is a high-profile smart card project aimed at creating greater inter-operability between Europe's Healthcare systems. The project has the aim of using smart card technology to improve the communication of medical information between general practitioners, hospitals, and pharmacists no matter which member state they are in or language they speak.

DESCRIPTION OF TASK

DelPhic is the prime contractor for the trial taking place in Ireland. It is required to work with the Eastern Health Authority to provide the following services:

- System specification and design
- Technical consultancy and support

- Supply of smart cards and corresponding software

The smart card solution developed by DelPhic had to provide a link between patients, doctors, hospitals and pharmacists. It also had to carry vital patient information in a code format which could be understood by any member nation's medical team, irrespective of their nationality or linguistic ability.

It was essential that the card solution was highly reliable as it would be used in many life and death situations by medical teams and there was no room for error or system failure. DelPhic's solution had therefore to meet the highest professional standards from a smart card supplier.

To meet these demanding requirements, DelPhic's card solution included the Philips TB100 3K byte EEPROM smart card incorporating a Motorola SC21 chip. DelPhic will also be supplying the Irish trial with the necessary terminals, software, personalisation services and the essential technical support to make the project components function collectively.

DelPhic's sophisticated product solution and the flexible approach to developing the system was made possible by its ability to supply an upgradable flow of high-tech products, services and technical skills from its parent companies, De La Rue and Philips.

BUSINESS BENEFITS

- Use of a recognised market leader for the provision of smart card technology
- Access to the latest smart card and plastic card technology developments to enhance the system
- A one-stop shop for all card system requirements; system design to card delivery and ongoing technical consultancy
- Use of technical skills to design and implement a cost-effective and user-friendly solution
- Minimise the risk by using a high-security and stable supplier who is internationally approved
- Investment in standardised technology

6.16 DE LA RUE CARD TECHNOLOGY

MAGNETIC CARD PRODUCTION

De La Rue's card making business is at the forefront of plastic card technology in the UK with a market share in excess of 60%. The plastic card production site is one of the most advanced and secure in Europe. It is an internationally approved supplier for Visa, MasterCard, Europay, APACS, Groupement des Cartes Bancaires and conforms to the industry's highest security and audit procedures.

The services offered by De La Rue include :

- Card design - digital origination and various proofing options including plastic
- Hologram design and orientation
- Card manufacture - printing, lamination, application of signature panel and hologram
- Card personalisation - embossing, laser engraving, indent printing, thermal printing
- Card matching to a personalised carrier and insertion in an envelope
- Preparation of finished card for despatch via a secure transporter
- Production of PUN and secure despatch
- Production of PIN and secure despatch

De La Rue has the most extensive production facilities in Europe. Its existing production capacities are approximately 70 million manufactured cards and 25 million personalised cards per annum. The personalisation capacity is soon to be increased to 40 million per annum.

The following references demonstrate the range of De La Rue's experience and expertise in managing large-volume and complicated card production contracts whilst providing guaranteed levels of service on a daily basis.

REFERENCE 1 : MIDLAND BANK

The flexibility of De La Rue's card production is exemplified by the Midland Bank contract. This is the sole supply of 6 million cards and 3 million PUNs per annum.

In 1992, Midland Bank evaluated the opportunity for sourcing of all their card volume from one supplier (previously it used three). The objectives were to achieve significant long-term cost savings and improved service levels to their cardholders. De La Rue Card Technology was awarded the contract which involved the production of a complex range of 40 card types, 24 carriers, 6 envelopes and many inserts.

Midland Bank agreed stringent performance and quality levels with De La Rue covering the range of parallel production activities:

- Manufacturing and printing the base card to the highest industry standards
- Personalising the base cards and ensuring despatch within 24 hours of receipt of data
- Printing the PUNs for those cards going to branch
- Dealing with the complexities of multiple types of card, carrier, insert and envelope

- Despatching the cards to branches and customers by any one of 4 different despatch methods
- At all times maintaining a 100% audit trail of production and despatch

REFERENCE 2 : THE AA

In 1994 the AA issued a tender for a 3-year contract for 18 million plastic cards to be manufactured and personalised. This involved the issue of multiple types of card, carrier, envelope and insert, resulting in a complicated mix of daily personalisation requirements.

De La Rue was successful in winning this contract because it could demonstrate its capabilities in :

- Providing a complete and reliable end to end service
- Meeting the AA's future requirements for new product development
- Extending the production capacity within the contract life
- Providing smart card technology

SMART CARD PRODUCTION

Through its partnership with Philips in smart card technology, De La Rue has the capability to develop and deliver card-based payment products and turnkey payment solutions to a range of applications which include; Banking, Healthcare, Pay TV, Telecoms, Mobile Communications, Transport, National ID, Utilities, Electronic Purse.

The joint venture company DelPhic has been formed specifically to address the supply of smart card technology to the UK and Irish markets, and has been involved in a number of ground-breaking contracts and projects.

The DelPhic product and service portfolio spans three inter-related sectors which are fundamental in providing a complete end-to-end service for smart card technology and services.

1) Card Systems

- Smart card manufacture - microprocessor, memory and token memory card
- Smart card personalisation - pre-personalisation and customisation

2) Hardware and Software

- Stand alone readers
- PC-based readers
- Transaction terminals
- Introduction Kits
- Development Tools
- Personalisation tools

3) Systems and Support

- Strategic planning
- Consultancy
- System Design
- Business Case Analysis
- Project Management
- Training

DelPhic has also been selected by APACS (Association for the Payment and Clearing Services) to define the functional requirement specification for the forthcoming smart card to be issued by the UK's Banks and Building Societies.

REFERENCE 3 : MONDEX PILOT IN SWINDON 1995

In July 1995 NatWest and Midland will pilot the Mondex smart card project in Swindon. The project represents a global milestone in the use of smart card technology for person-to-person transfer of electronic cash. It is unique in that it allows cardholders to :

1. Carry electronic cash on a card in the same way as it would carry real money in their wallets.
2. Transfer electronic cash from their card to another cardholder's card as if they were actually giving them real money.

A key factor in winning this contract was DelPhic's ability to satisfy all the development requirements and meet a demanding production schedule, for example, for a dedicated electrical and physical smart card personalisation service.

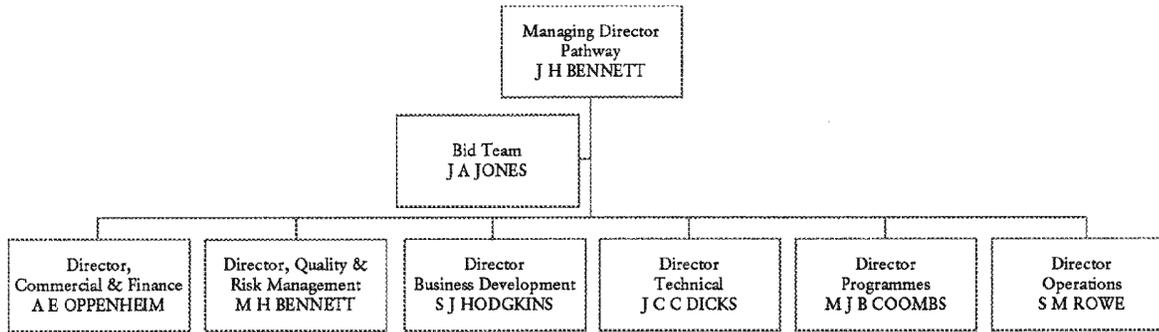
The Mondex Pilot also involves De La Rue Fortronic who has won the contract for the development and supply of the dedicated Mondex terminal for the pilot.



ANNEX 7 - CURRICULUM VITAE AND ROLE DESCRIPTIONS

7. CURRICULUM VITAE AND ROLE DESCRIPTIONS

This Annex contains the curriculum vitae and role descriptions for the Pathway Management executive.



CURRICULUM VITAE

Name : John H. Bennett
Role : Managing Director, Pathway
Age : 50

Key Experience

1994-present **Managing Director, Pathway**

1993-1994 **Director Marketing Support and Communications, ICL** 65 staff and £8m promotion budget. Responsible for corporate communication, brand development, marketing services and international account development.

1989-1992 **Sales and Marketing Director, ICL (UK) Ltd**
150 marketing staff, 500 sales, £1 billion business. Responsible for all sales and marketing policies.

1985- 1988 **Regional Director, Central Sales Region, ICL (UK)Ltd**
550 staff, £165m revenue.

Career Summary

1994-1995 **Managing Director, Pathway**
1993-1994 **Director Marketing Support and Communications, ICL**
1989-1992 **Sales and Marketing Director, ICL (UK) Ltd**
1985-1988 **Regional Director, Central Sales Region, ICL (UK) Ltd**
1983-1985 **Account Manager DHSS, Central Sales Region, ICL (UK) Ltd**
1981-1983 **Customer Service Regional Manager, ICL**
1980-1981 **Project Director Inland Revenue, ICL**

Previous Career History

1977-1980 **Regional Sales Manager, Civil Government, ICL**
1975-1977 **Regional Sales Manager, Transport, ICL**
1973-1975 **Area Sales Manager, Local Government**

John H. Bennett, Managing Director, Pathway**Role**

Direct Pathway's business supported by the functions of Commerce and Finance, Business Development, Risk Management, Technical, Programmes and Operations.

Responsibilities

- Grow Pathway's relationship with BA/POCL
- Ensure the fulfilment of the main contract
- Establish strategic direction and vision supported by appropriate policy
- Identify and promote the culture and values of Pathway
- Provide leadership for Pathway and promote communication
- Ensure success of Pathway's business plan
- Ensure and report the integrity of the business
- Ensure the provisions of the SQM are observed
- Own and manage SQM elements : Leadership, Policy and Strategy

CURRICULUM VITAE

Name : Anthony E. Oppenheim
Role : Director Commerce and Finance, Pathway
Age : 43

Key Experience

- 1991-1994 **Manager, Strategic Business Initiatives, ICL**
Focus on Mergers and Acquisitions, new business start-ups and disposals. Role involved full project management from concept to live operation.
- 1988-1991 **VP of Finance, ICL Retail Systems**
Period of 100% growth, focus on the acquisition and integration, and the development of the UK and US operations. Turnover increased from £150m per annum to £300m per annum.
- 1986-1988 **VP of Finance, ICL Inc., USA**
Predominantly retail business in early phase of expansion. Turnover of £40m per annum, now £150 million per annum.
- 1984-1986 **Controller of Mainframes Systems**
Mature business at a critical point of product transition for one generation to another. Focus on commercial 'smoothing' and product introduction. Turnover at transfer prices £250 million per annum.

Career Summary

- 1991-1994 **Manager, Strategic Business Initiatives, ICL**
1988-1991 **VP of Finance, ICL Retail Systems**
1986-1988 **VP of Finance, ICL Inc., USA**
1984-1986 **Controller of Mainframes Systems**
1981-1984 **Controller of Scotland and North East Division, ICL**
1981 **Controller of Local Government and Public Corporations Division, ICL**
1978-1981 **Manager, Profit Planning, ICL**

Previous Career History

- 1976-1978 **Manager, Product and Price analysis, Rank Xerox**

Anthony E. Oppenheim, Director Commerce and Finance, Pathway**Role**

Manage all Commercial, Legal and Financial aspects of Pathway business in support of the Managing Director and all Pathway functions.

Responsibilities

- Manage all commercial, financial and legal activities and the function's resources
- Own and manage the BA/POCL contract and all associated subcontracts
- Ensure BA/POCL settle all accounts in accordance with contractual terms and conditions
- Ensure shareholders, subcontractors and staff are paid in accordance with agreements
- Ensure compliance with all applicable legislation
- Produce Pathway statutory accounts
- Produce Pathway's five-year and one-year business plans and monitor performance against these and the business case
- Analyse internal and external socio-economic trends of relevance to Pathway
- Own and manage functional subcontracts which are not related to BA/POCL
- Own and manage SQM elements : Resources, Business Results
- Manage Risk with regard to the Commerce and Finance function

CURRICULUM VITAE

Name : Martyn H. Bennett
Role : Director, Quality and Risk Management, Pathway
Age : 43

Key Experience

- 1993-1995 Research and Development Manager, De La Rue PLC**
20 staff and budget of £1 million. Establishment and management of a balance of short-term, low-risk and longer-term, high-risk projects resulting in new products and features, and the adoption of new manufacturing technologies. Responsible for ISO9001 new product development and introduction processes.
- 1990-1992 Senior Associate, Coopers & Lybrand Deloitte**
Responsibility for generating business and managing and participating in consultancy assignments. Involved in the development of technical strategy and improvement of organisational effectiveness of major multinationals.
- 1988-1990 Division Technical Manager, 3M United Kingdom PLC**
Technical responsibility for multi-million pound business, including resource management, strategic planning, identifying business opportunities and liaison with corporate product development organisations and key account senior management.
- 1986-1988 Business Development Manager, Europe, 3M**
Responsibility for establishing a new business in Europe, identifying and developing market opportunities and distributing, communicating and co-operating with US managers, developing joint development projects with systems integrators and OEMs, and devolving European subsidiary involvement.

Career Summary

- 1993-1995 Research and Development Manager, De La Rue PLC**
1990-1992 Senior Associate, Coopers & Lybrand Deloitte
1988-1990 Division Technical Manager, 3M United Kingdom PLC
1986-1988 Business Development Manager, Europe, 3M

Previous Career History

1981-1986 Research Manager, Mars Confectionery, Mars UK Ltd
1979-1980 Senior Design Engineer, Transducers (CEL) Ltd
1977-1978 Senior Research Scientist, GEC Ltd

Martyn H. Bennett, Director, Quality & Risk Management, Pathway

Role

Manage Quality policy, assurance and processes which enable Pathway to exceed its service expectations. To manage all risks that are a threat to the survival and well-being of Pathway.

Responsibilities

Quality

- Own Quality policy and manual
- Manage the development of Quality processes and procedures with the aim of gaining ISO9001 accreditation
- Lead the development and maintenance of a culture of continuous Quality improvement
- Liaise with BA/POCL on Quality issues and performance standards. To liaise with all other directors on Quality processes, procedures and performance that are in their areas of responsibility
- Provide input to contract negotiations, agree Quality procedures and standards with subcontractors
- Monitor, audit, input changes to Quality policy, processes and procedures; report regularly on Pathway performance and status

Risk

- Own Risk Register
- Manage, control and gain resolution for all items on the risk register
- Liaise with BA/POCL on risks in their risk register. To liaise with all other directors on risks that are in their areas of responsibility
- Provide input to contract negotiations for those risks which cannot be taken by Pathway
- Report regularly on the status of all risks
- Monitor and regularly audit and input change to the security policy of Pathway
- Ensure that adequate controls are included in the system, both computerised and procedural, to ensure that all fraud is identified, reduced and ultimately eliminated
- Define the cardholder verification and card authentication methods to be used in the system
- Provide input to the system design for the processing of exceptions to ensure that Pathway is not exposed to fraud in this area

CURRICULUM VITAE

Name : Stephen J. Hodgkins
Role : Director, Business Development, Pathway
Age : 39

Key Experience

1993-present Managing Director's Assistant, Girobank PLC, London

1991-1993 Head of Corporate Bank IT Developments and Projects, Girobank PLC, London
Responsible for the interface between the Bank's Information Technology division and the Corporate Bank. Direct management of senior staff controlling IT-related projects and developments, Corporate Bank projects and product development strategy.

1990-1991 Key Accounts Manager, Girobank PLC, London
Responsible for managing and developing key bank customer relationships.

Career Summary

1993-present Managing Director's Personal Assistant, Girobank PLC, London
1991-1993 Head of Corporate Bank IT Developments and Projects, Girobank PLC, London
1990-1991 Key Accounts Manager, Girobank PLC, London
1988-1990 Managing Director, The Taylor Group of Companies
1987-1988 Area Commercial Services Manager, Lloyds Bank PLC
1984-1986 Manager Leadenhall Street Branch, Lloyds Bank PLC

Previous Career History

1982-1984 Manager's Deputy, Corporate Banking Division, Lloyds Bank PLC, Lombard Street, London
1980-1982 Regional Personnel Manager's Assistant
1975-1980 Various roles in branches of Lloyds Bank



Stephen J. Hodgkins, Director, Business Development, Pathway

Role

Generate new business for POCL and Pathway by working with and through POCL.

Responsibilities

- Own and manage the Business Development function and its resources including the development of Pathway's own business development strategy
- Manage relationships with BA/POCL on behalf of the Business Development function
- Build and sustain understanding of BA/POCL's marketplace
- Identify and orchestrate evaluation, impact assessment and prioritisation of new business opportunities, to POCL's and Pathway's joint commercial benefit, comprising :
 - New services to existing clients
 - Existing services to new clients
 - New services to new clients
- Develop joint and prioritised business plans for exploiting opportunities
- Through joint marketing and selling, implement the business plan
- In collaboration with the Director Commerce and Finance define service provision and negotiate and win contracts, or hand over to a Bid Director designated by the Managing Director
- Manage performance of subcontracts to the Business Development function, for example promotion campaigns, market research and collateral development
- Own and manage SQM elements : Customer Satisfaction, Impact on Society
- Manage Risk with regard to the Business Development function

CURRICULUM VITAE

Name : John C.C. Dicks
Role : Director Technical, Pathway
Age : 53

Key Experience

1993-present General Manager Enterprise Engineering

Responsible for the technology backbone of advanced or demanding products and technologies which act as a differentiator for ICL in the systems integration arena.

1988-1993 Director, Applications Product Group

Responsible for principal generic software applications. Built up ICL's office automation product from small beginnings to 3rd worldwide, by producing both European and Asian versions. Produced the successful secure military version for the Ministry of Defence (CHOTS) and was responsible for the cross-company programme for the total military product during the period up to award of contract.

Career Summary

1993-present General Manager Enterprise Engineering, ICL Enterprises
1988-1993 Director, Applications Product Group, ICL Midrange Systems Division
1988 General Manager Communications and Integration Business, ICL Office Systems
1985-1988 General Manager Open Systems Business Centre, ICL Network Systems Division
1983-1985 Manager, Mainframes and Wide Area Networking, ICL Network and Communications Division
1982-1983 Manager Networked Product Line Introduction, ICL Network and Communications Division

Previous Career History

1975-1983 Project Management Roles, ICL
Including 5 years as project manager at the DHSS Newcastle/Washington

**John C.C.Dicks, Director Technical, Pathway****Role**

Design, develop (or procure) and test solution architecture and its components, and hand over to Programmes and Operations.

Responsibilities

- Own and manage the Technical function and its resources
- Manage relationships with BA/POCL on behalf of the Technical function
- Manage performance of contract and subcontract, let on behalf of the Technical function and escalate as appropriate
- Authorise changes to technical architecture and resultant design
- Manage change control for changes to technical architecture and associated design
- Ensure technology refreshment is considered and its impact optimised in line with business benefit
- Track and exploit new technology to the commercial advantage of Pathway and BA/POCL
- Undertake technical impact assessments on behalf of the Technical function and other functions
- Undertake impact assessment, option evaluation, contract scheduling and other relevant work in respect of proposed new business including activities in the 1995 Bid Process as agreed
- Identify and implement best practice methodologies and tools in support of the Technical function
- Secure and protect appropriate Quality accreditation, for example 'Tickit'
- Manage Risk with regard to the Technical function

CURRICULUM VITAE

Name : Michael J.B. Coombs
Role : Director Programmes, Pathway
Age : 47

Key Experience

- 1994-present Bid Director, major procurements**
 Part of small team, establishing ICL's strategy for responding to DSS's ITSA outsourcing procurement, CA's NIRS2 replacement under PFI and the BA/POCL PFI procurement.
- 1994 Director Business Applications, ICL**
 Responsible for establishing a business providing industry-specific software to the Utilities and Logistics market place, as a result of a major reorganisation.
- 1992-1994 Manager, ICL Business Development Unit**
 Responsible for the change programme within ICL's largest business division that re-defined the medium-term business strategy and designed and set in place a new organisation and core business processes to implement these strategies.
- 1992 Consultant - ITSA**
 Defining the position of ICL's future products in ITSA's technical architectures.

Career Summary

- 1994-present Bid Director, major procurements**
1994 Manager, New Business Unit, ICL
1992-1994 Manager, ICL Business Development Unit
1992 Consultant - ITSA
1991-1992 Project Manager/Consultant British Gas Account, ICL

Previous Career History

- 1987-1991 Various Managerial Roles**
1983-1987 Project Manager, Inland Revenue Computerisation Projects.
 Cabling and computerisation of all Inland Revenue Offices.
 Establishment of support mechanism for equipment and software.
 Analysis of Inland Revenue business requirements, followed by software development and management of joint applications development team.
 Establishment of mechanism and strategy to allow technology refresh.
- 1969-1983 Various support and project management roles**

Michael J.B. Coombs, Director Programmes, Pathway



Role

Orchestrate the initial end-to-end programme delivery. Subsequently, on an as-needed basis, orchestrate increments on that initial base.

Responsibilities

- Own and manage the initial build implementation
- Own and manage the Programmes function and its resources
- Define the Programme and its baseline
- Manage contract and subcontract performance with regard to the demonstration, pilot and build phases of the initial implementation
- Prepare and maintain the programme plan
- Direct programme implementation through :
 - Project and technical managers nominated from other functions in Pathway
 - BA/POCL nominees
 - Subcontractors owned by the Programmes function
- Monitor and control the sub-activities of the Programme to reflect its priorities
- Identify and implement best practice programme standards, methodologies and tools, and associated project management counterparts
- Manage relationships with BA/POCL on behalf of the Programmes function
- Manage Risk with regard to the Programmes function

CURRICULUM VITAE

Name : Stephen M. Rowe
Role : Director Operations, Pathway
Age : 45

Key Experience

- 1989-1994 **POCL Improvement Programme Manager**
Responsibility for managing a programme of service delivery improvement initiatives 1993/1995. Leadership of action planning group (Girobank POCL) to agree Service Delivery improvement project as part of partnership with POCL.
- 1993-1994 **Benefit Agency Reconciliation Project Manager**
Delivery of improvements to BA system to achieve full reconciliation between the DSS books and their bank statements.
- 1991-1993 **Benefit Agency Project Manager**
Delivery of reconciliation and enquiry service for green girocheques.
Transferring the DSS system from Newcastle to Bootle and managing transition for 100 million payments per annum.

Career Summary

- 1993-1994 Benefit Agency Reconciliation Project Manager
1989-1994 POCL Improvement Programme Manager
1991-1993 Benefit Agency Project Manager
1993 Head of Transmission Services
1991 Operational Control Manager
1989 Head of Reconciliation and Banking Services
1988 Postmasters Reconciliation Manager
1986 Clearing Operations Manager

Previous Career History

Various Managerial Roles :
Accounts Management
Personnel Policy
Management Accounts
Budgetary Control
Reconciliation and Settlement

Stephen M. Rowe, Director Operations, Pathway**Role**

Operate services in accordance with service level agreements (SLAs). The role includes :

On behalf of BA/POCL :

- Payment Management Service (PMS)
- Card Management Service (CMS)
- POCL Operational Support Services
- Help desks
- Counter support services
- Site services
- Training (ongoing)
- Management information (MIS)

On behalf of Pathway :

- Help desks
- Site services
- Training
- MIS

Responsibilities

- Own and manage the Operations function
- On behalf of Pathway take responsibility for Configuration and Asset Management
- Manage relationships with BA/POCL on behalf of the Operations function
- Manage contract and subcontract performance with regard to Pathway Operations
- Maintain the designated BA/POCL IT infrastructure in accordance with the technical architecture and associated design authority
- Manage change control in respect of the Operations function
- Undertake work in respect of proposed new business including activities in the 1995 Bid Process as agreed
- Identify and implement best-practice methodologies and tools in support of the Operations function
- Secure and protect ISO9001 accreditation for Pathway provided services
- Own and manage SQM element : Processes
- Manage Risk with regard to the Operations function



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8. RESEARCH PROGRAMMES

8.1 INTRODUCTION

Acceptance of the benefit payment card and the new benefit payment system by the customers is essential to the success of the overall service.

Pathway has undertaken two programs of research. Firstly to understand customer views on the automation proposed and the general acceptability of the card (see 8.3), and secondly to identify through representative bodies, the concerns of special needs groups within the customer community (see 8.2). These concerns raise some issues that can be addressed wholly by Pathway and others that will need to be considered by us in conjunction with the Contracting Authorities to ensure that what is asked for by the interested organisations, although technically possible, is allowable or affordable within the current payment rules.

8.2 DISCUSSIONS WITH VOLUNTARY ORGANISATIONS REPRESENTING LARGE SECTIONS OF THE BENEFIT-RECIPIENT COMMUNITY

8.2.1 INTRODUCTION

As mentioned at several points in this response, Pathway recognised at an early state the importance of understanding the requirements of the new benefit payment system from the point of view of the customers. If the new system is to be implemented quickly and easily there must be a very high degree of user acceptance right from the beginning. This means that the Service Provider must first understand what happens in general on the customer side of the post office counter and second, the exception conditions that have to be catered for to meet the requirements of particular groups.

This is reinforced by the duty placed on the Service Provider to manage the customer education campaign that will accompany the launch of the new system, and the public relations aspects of the changeover throughout the roll-out period.

Pathway does not assume that customers will simply accept the new system because the Government says they must. Any scheme that is insensitive to customers' personal concerns can be expected to run into user resistance, which could be very difficult to overcome.

Pathway therefore believes that it is essential, in its own interests as well as those of the Contracting Authorities and customers, to have a benefit card scheme that is as sensitive as possible to the underlying concerns of potential users of the card and satisfies their requirements.

To gain insight into the sensitivities and concerns of customers, Pathway has requested, and received, briefings from a number of organisations which represent major groups within the customer community. These are :

ACRE - Action with Communities in Rural England

Age Concern

Carers National Association

MENCAP - The Royal Society for Mentally Handicapped Children and Adults

NACAB - The National Association of Citizens Advice Bureaux

RNIB - Royal National Institute for the Blind

SENSE - The National Deafblind and Rubella Association

All of these organisations have been helpful and have presented to us their views of the requirements of their particular constituency concerning the payment of benefits.

ACRE and NACAB focused on the requirements of customers living away from the main towns and depending mainly on a probably rural sub-post office for the collection of their benefit. The other organisations provided us with insight into the requirements of particular groups within the customer community.

8.2.2 THE USE OF AGENTS TO COLLECT BENEFITS

All of the above organisations have concerns in the area of customers who are unable to go to the post office in person to collect their benefit. We believe that Pathway's proposals for the authorisation of agents on either a temporary or permanent basis goes a long way to addressing and satisfying these concerns. However, there is a strong requirement for the continuing use of casual agents, for example, where an old person has a sudden bout of illness which requires the use of a casual agent for just a week or two. This matter will need to be resolved in conjunction with the representative organisations and perhaps could be met by an insistence that people nominate an agent at the same time they complete the other arrangements for the receipt of their pension. An additional approach would be to ensure that all local authority home helps are automatically issued with a benefit card which would identify them if they are suddenly called upon to collect benefit for one of their clients.

8.2.3 PART PAYMENTS

A requirement has been expressed to allow a customer to collect only part of the money which is due to them. An example would be a pensioner who has been on holiday and on returning home does not wish to leave the post office with several weeks' entitlement on their person. This is considered a personal safety risk.

Within the current proposals, it will be possible for individuals in receipt of more than one benefit payment, to collect a particular payment and leave the balance on the system. However, the whole of a single benefit payment must be taken in its entirety and there is no provision for part payment of a single benefit payment.

8.2.4 IDENTIFICATION AND AUTHENTICATION ISSUES

As a result of our discussions we believe that Pathway's proposals to initiate the benefit card system using a magnetic stripe card with signature identification is the approach that will command the most widespread acceptance in the shortest time.

We have found real opposition to the use of photocards for very understandable reasons (although research among a group of individual customers gave photocards their support - *see Section 4.4.6.4*). People who are in some way disabled or disfigured feel extremely uncomfortable and uneasy about the use of their photo on any publicly available or frequently used document, while understanding that it may be necessary to have photographic records on securely held, confidential files. MENCAP made the additional point that many sufferers of Downs Syndrome tend to look alike so photographs are not very useful as unique identifiers.

Older people, also, do not wish to be reminded of their declining appearance and their attitudes seem to correspond, in many respects, to those of the disabled.

Although we have not yet had an opportunity to speak to any of the organisations concerned with the homeless we image that their concerns would be very similar.

On balance, therefore, Pathway has concluded that identification through signature is the approach most acceptable to customers and one which they will willing accept from the outset.

The RNIB have advised us that this need not constitute an obstacle for blind or partially sighted people. Many visually handicapped persons are now provided with signature templates which allow them to sign their signature for official purposes. The banks provide them as part of their support to their customers suffering from visual impairment and the RNIB itself can produce them in its own facilities. On the advice currently available therefore the signature approach should be satisfactory.

There are still issues to be resolved regarding the authentication of customers who are illiterate and Pathway will have proposals for this in due course.

8.2.5 USE OF ORDER BOOKS AS PROOF OF ENTITLEMENT TO CONCESSIONS

Among the elderly and disabled, whose benefit is paid through the supply of an order book, there is real concern as to how the new system will continue to provide them with evidence of their status.

Currently the order book states the nature of the benefit they are receiving and this constitutes satisfactory proof of entitlement to the providers of a wider range of concessions.

The approach currently envisaged of issuing all benefit cards in a single livery, which does not indicate the type of benefit to which the holder is entitled, will no longer indicate to the provider of the concession that the cardholder is, in fact, entitled to that concession.

The option of using the letter of confirmation of benefit which is issued at the time a customer comes onto a particular benefit is not considered feasible because of the length of time a person may remain on benefit without another letter being issued. The potential problems cited range from letters getting easily lost or misplaced through to getting dog-eared by constant use or being always carried in a handbag.

There was a further concern about using the notification of benefit letter regarding confidentiality. Because the letter shows the amount of money the person has been awarded as well as the reason the person is obtaining benefit, there will be a great deal of sensitivity in showing this letter to third parties as proof of entitlement. This information is regarded as both confidential and sensitive and, in our view, rules out the notification letter as an acceptable solution to this issue.

Pathway will continue to work on this issue and, in particular, give consideration to making cards available in different liveries for different benefits.

8.2.6 RECOGNITION OF THE BENEFIT CARD BY CUSTOMERS WHO SUFFER VISUAL IMPAIRMENT

Blind and partially sighted people may need some additional feature on the card to help them recognise that this card is their benefit card. It has been suggested to use that this could be done by, for example, embossing the words 'Benefit Card' or a suitable logo onto the card in either braille or ordinary roman characters. There may be other approaches to enable easy tactile identification of the benefit card and Pathway will examine these in due course.

8.2.7 NEED FOR DETAILED ADVICE NOTE OF MONEY RECEIVED

Several organisations mentioned the need for benefit recipients to be provided with some form of printed statement confirming how much money they had just been paid and, if this comprised more than one benefit, how the total payment was made up.

This is part of a wider debate about how people are going to be able to keep track of whether they are up-to-date with their benefits collection or not. People who are becoming forgetful value their order book because they have a physical object that tells them exactly where they are up to and the date when the next payment is due. The post office stamp on the counterfoil also serves as a visible reassurance that they have collected everything to which they are entitled. With the withdrawal of order books this visible reassurance will disappear and with it, it is suggested, much of the peace of mind that it has delivered, particularly to older people.

These needs have been partly addressed in the Pathway response, which proposes that every counter position will be equipped with a printer that will produce a detailed Advice Note. This will state the name of each benefit being paid, the amount of money paid out against it, and the total amount paid.

However, this does not fulfil the other functions of the order book referred to above and Pathway will wish to continue discussions about this with the Contracting Authorities and the relevant voluntary organisations during the demonstration phase.

8.2.8 CONCLUSIONS

The above list of concerns is not exhaustive. However, it serves to indicate the range of issues that will need to be resolved, in conjunction with the main representative organisations, to ensure that the changeover achieves maximum acceptability within the customer community.

We have found the representative organisations to be well-informed about the proposed changes and anxious to help Pathway understand the requirements of the people they represent. They have volunteered to continue to support Pathway through the demonstration phase and to take part in any trials that may be run to test the feasibility of the solutions being proposed. They will also be willing, when the time comes, to use their publications to help explain the changeover and what it means to their particular customer group and to do so in language which their group will understand.

We will be continuing this program of consultation over the next few weeks and will report any further significant findings to the Contracting Authorities.

8.3 BENEFIT CARD

Qualitative Research - Summary of Findings

Please see the attached report which has been prepared by McCann-Erickson on behalf of Pathway.



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9. TECHNOLOGY TRENDS

This annex covers :

- Fraud Reduction
- Card Technology (Magnetic Stripe vs Smart)
- Card Migration Path
- Pathway's Proposed Migration Strategy

9.1 FRAUD REDUCTION

9.1.1 INTRODUCTION

This section begins by putting plastic-card fraud into perspective, and then moves on to discuss the issues that will be relevant in Pathway's delivery of a fraud-reduction programme to BA/POCL.

9.1.2 PLASTIC CARD FRAUD

With the advantage of hindsight it is clear that plastic card fraud peaked in 1991-92. The political and commercial concerns that resulted from the record card fraud levels of those years led to a series of initiatives among issuers which have proved successful. Figures released by APACS (Association of Payment Clearing Services) show that since those peak years there has been a reduction of fraud of nearly 40% and the number of instances are forecast to decline further. This demonstrates the success of the initiatives being driven by APACS in co-ordination with the UK Banks and Building Societies.

Pathway, via Girobank's Fraud Risk Management department is at the forefront of all industry developments for fraud control and is a key member of all senior fraud bodies, where it has a major influence in developing fraud policy and strategy.

The main factors in combating fraud are the increasing levels of authorisation together with the lower (or zero) limits being imposed on many merchants. The number of authorisations in 1994 was less than 30% . This is set to rise to approximately 50% by 1996. Increasing on-line authorisation to combat fraud has been possible only because the UK acquirers were able to reach more favourable agreements on the telecommunication costs of providing on-line authorisations.

Other initiatives to help reduce fraud levels have been endorsed by Pathway's shareholder De La Rue, who are the UK's only card maker to put laser-engraved photographs and signatures onto financial payment cards such as those used by the Royal Bank of Scotland and the National & Provincial Building Society.

Although this highly secure anti-fraud technology was recommended by Home Office White Paper 26 on Cheque and Card Fraud, it is generally not considered to be a complete solution because it fails to address the issue of ATM fraud.

The trend that is proving most alarming for the UK's card issuers is the rise in plastic card counterfeiting. In 1987 counterfeit fraud was negligible but by 1993 it had increased almost ten times, despite fraud-prevention initiatives. It is clear therefore that existing technology will not combat counterfeiting.

Such belief is already evident among the UK Banks who, along in the rest of Europe, are now preparing to embrace smart card technology. This technology is viewed as a means of defeating the fraudsters and counterfeiters and at the same time delivering new value-added services to customers.

If the French card industry is any guide to the anti-fraud effectiveness of smart card technology, it will eliminate presently known forms of fraud almost entirely. In 1986 the rate of domestic fraud was 0.27%. Today with 100% of the French 22 million cards converted to smart cards, the rate of domestic fraud has reduced to 0.04%.

Pathway recognises that two classes of fraud will exist within the benefit payments system : customer fraud and encashment fraud. The Procurement Service Boundary requires that Pathway take on responsibility for reducing encashment fraud. Pathway's fraud-reduction strategy is committed to placing as many obstacles as possible in the way of fraudsters attempting to carry out unauthorised payments.

Pathway also acknowledges that no security strategy can be absolute and that it is always possible to conceive new ways of circumventing protection. However, as explained in Pathway's Proposed Migration Strategy (*see sub-section 3 in Annex 9*), our approach to combating fraud is enhanced by the ability to introduce evermore sophisticated techniques in order to stay ahead of the fraudster. With each card issue and re-issue, new and improved security features can be implemented seamlessly. In this way we will significantly increase the time, effort, and level of sophistication required for potential compromise of card system security and, as the cost to the fraudster increases, opportunities for fraud are greatly reduced.

Pathway's fraud reduction strategy addresses two main areas of exposure within encashment fraud : cardholder verification, and counterfeit or forged IOPs. Pathway's strategy for reducing encashment fraud has two principle thrusts :

- (a) To provide BA/POCL with more sophisticated means of verifying the identity of the cardholders at the point of encashment.
- (b) To provide BA/POCL with options for a long-term, secure, machine-readable technology that protects the integrity of the machine-readable data on the IOP.

9.1.3 CARDHOLDER VERIFICATION

Cardholder verification refers to the process of identifying the cardholder as the genuine owner of the card. Verification can be achieved in a number of ways. The Cardholder Verification Methods (CVMs) available will depend on the type of card used, the environment in which the card is to be used, reliability factors of the verification process and public acceptance.

In this section we assess each possible CVM together with its availability and applicability to the Benefit Agency.

9.1.3.1 PERSONAL IDENTIFICATION NUMBER (PIN)

The use of PINs is widespread and has proved a relatively effective way to verify the identity of a cardholders. Two environments exist for using PINs : firstly, at unattended terminals such as Automated Teller Machines (ATMs) that are commonly found outside high-street banks; secondly, at attended devices such as the point of sale (POS) in a supermarket. Using the PIN to verify the cardholder's identify is particularly common outside of the UK, particularly in France.

The use of the PIN at the point of encashment would require additional equipment and the use of encryption and authentication algorithms to keep the PIN secure. In the UK, PINs are generally considered acceptable for ATM usage, however their use at the point of encashment could meet with considerable resistance. Another cause for concern is that, if benefit payment relies on the use of a PIN and this use is ever compromised, it is possible that the entire service network could also become compromised.

With respect to special user groups, results published by Market Opinion Research Group (MORI) in 1992 suggested that the 55+ age group were least likely to have their PIN number compromised as they were less likely to write it down or store it with their card. MORI's conclusions suggested that the tendency for cardholders to write down a PIN number increases with age up to middle age, but that the 55+ age group appear to be the most cautious of all. The 55+ age group were also less likely to store their PIN with their card than cardholders from the 15-24 age group.

Pathway recognises that the use of a PIN to verify the identity of the cardholder at the point of encashment would be unsuitable for a high proportion of the user groups within the 25 million customer population. Also the use of PINs to verify the cardholder's identity has its own shortcomings as it can act as a 'transferable ID'.



9.1.3.2 BIOMETRICS

Probably the only true way to identify an individual is via a biometric. In the past the reliability of systems for reading biometric features proved to be commercially unacceptable. Likewise, retinal and vein geometry scanning have also proved socially unacceptable cardholder verification techniques.

The great advantage to BA/POCL of biometric cardholder verification techniques is their reliance on the non-transferable aspects of a customer's identity. They would also remove the discretionary element of verifying identity by checking a visible signature.

The disadvantage comes from the difficulties associated with the enrolment process (in other words, obtaining the customer's biometric feature). There will inevitably be customer resistance to whatever biometric is selected.

The unanimous view of the industry is that the only viable platform for the introduction of a biometric is to store data on a smart card. The smart card would allow storage of a customer's biometric feature (fingerprint, photo or signature) in a machine-readable form. The data could be compressed and stored in a secure area on the smart card chip.

This would mean some additional equipment at the point of encashment, however the ability to verify cardholder identity off-line as well as on-line offers a distinct security advantage to benefit encashment.

Pathway is confident that biometric data stored securely on a smart card provides a more sophisticated means of cardholder verification, however, that the technology should be aimed at users who will not be resistant to using (or enrolling for) the technology.

9.1.3.3 PHOTOCARDS

In recent years a small number of banks and building societies have used laser-engraved photographs on cards as a means of cardholder verification. These cards have successfully lowered fraud at the point of sale where the identity of the cardholder can be easily checked against the supporting photograph. The Home Office White Paper 26 on Cheque and Card Fraud recommended that :

- Financial payment cards be laser-engraved with photographs
- Laser-engraving technology be used, because it is the only photocard technology that is sufficiently secure

Despite this recommendation, the banks and the police think that using a photograph as a cardholder verification technique would simply cause the fraudsters to adjust their current practices and that levels would soon return to current levels.

9.1.3.4 SIGNATURES

Signatures are the most common CVM in use today. They are socially acceptable but also carry the most exposure to counterfeit. There are, however, many different ways that signatures can be captured, stored and used.

The most common method of storing signatures is on the signature panel on the back of a magnetic stripe card. This method has the benefit of being easy to use and visible to check, but is prone to fraud because there can be no control to ensure that the signature is checked by the cashier.

The next most common method is to laser-engage the signature into the card. This provides a durable signature and prevents the signature from being tampered with without showing evidence of tampering. Laser-engraving equipment is not available to the market and is only sold to selected security print firms. De La Rue is the only laser engraver in the UK. For this reason banks and other users of laser-engraved cards feel confident that De La Rue's products are protected from fraud (by individuals and by organised crime).

Pathway has ranked the signature types in order of their increasing resistance to fraud. (Please also refer to the card samples displayed at the end of *Annex 9*.)

- Magnetic stripe card with hot stamp panel (*See Specimen 1*)
- Magnetic stripe card with paper signature panel (*See Specimen 2*)
- Magnetic stripe card with paper signature panel plus indent printing (*See Specimen 3*)
- Magnetic stripe card with laser-engraved signature (*See Specimen 4*)

(Resistance to fraud : *Specimen 1* < *Specimen 2* < *Specimen 3* < *Specimen 4*)

Another method is to store the signature as a two-dimensional bar code on the card. The benefit of this is that only the reader displays the signature, making it harder to forge but leaving the final check with the cashier. There are, however, no accepted standards in this area yet.

A signature can be stored more securely on a smart card. In this case the signature is displayed or printed when the smart card is read but again, to make this technology effective the cashier must have controls in place for checking that the signature offered matches the one displayed. The smart card option would also offer the benefit of allowing BA/POCL to verify the cardholder identity in off-line mode.

Please refer to the Smart Specimen 1 : DS card sample at the end of Annex 9. It is equally possible to check the signature (without it being on the card) by sending the signature from a central database. There still remains the element of human fallibility of the cashier checking/not checking the signature.

Digitised signature techniques are also available. These techniques rely on use of a smart card and on the fact that each person's signature is unique in that the pressure on the paper, the time taken and the gaps between initial or names are unique to each individual. Whilst this technique has the advantage that it is a piece of equipment and not a person who checks the signature, we all vary our signatures slightly over time, making it impossible to reject every false signature and accept every correct signature. The problems of false acceptance and false rejection have never been completely solved and therefore this technique is used only in access-control systems.

9.1.3.5 CONCLUSION

Pathway confirms that the signature strip on a magnetic card with a visible signature will be used for the majority of cardholder verifications. Additional verification procedures will be provided for the benefit payment system to cater for suspicious circumstances. These will be based on information already held by BA and known by the valid customer, such as date of birth, amount cashed last week, post office where benefit was last cashed, and so on.

Pathway recognises that these processes, together with the overall counter operation, represent a significant change to current counter procedures. Pathway confirms that we will develop and jointly agree the new counter procedures through consultation. From these new procedures we will jointly develop an operational framework which clearly defines the responsibilities and associated risks that Pathway and BA/POCL must accept.

Pathway stresses that an important contribution to cardholder verification is the correct issue of cards. The card management system must recognise that the overall card issue process includes card production, card distribution, card collection and card activation. Each of these is a separate step and there must be a clear separation between, in particular, card distribution to the post office and card collection by the customer. CMS will ensure that card activation only occurs after the card has been collected by the customer.

9.1.4 COUNTERFEIT AND FORGERY

The current paper-based order books and girocheques provide a major opportunity for fraud through counterfeit (reproduction of the whole document) and forgery (alteration of parts of the document to enable fraudulent gain).

Traditional security features to counter these threats include :

- Specialist paper and watermarks
- Inks that are difficult to copy or that react to bright light or solvents
- Printing techniques such as latent image
- Chequer-board pattern
- Asymmetrical numbering

- Optically variable inks
- Holograms

All of these techniques are in use in many sections of the financial community and could be used to produce a secure form of the current order book.

A magnetic stripe card IOP will be subject to similar risks of counterfeit and forgery as financial payment cards because of the way in which cards can be reproduced by criminals. Pathway will use its holographic capabilities to reduce such instances of card-based IOP counterfeit.

Our holographic capabilities will be provided by the De La Rue company, De La Rue Holographics. A more detailed description of De La Rue Holographics and the proposed holographic feature of our proposal is given in *The Migration Path at the end of this Annex*. Pathway view the hologram as a valuable security feature on the card for the following reasons :

- (a) The hologram's diffractive structures produce optically variable colour shifts, image switches, and depth and movement effects that are highly recognisable and characteristic. These effects are generated by the mechanism of optical diffraction, which cannot be simulated by any print technique.
- (b) The hologram's structure is a transparent micro-structure overlaid on a metal reflector of scale size. It cannot be copied by colour copier, laser scanner or any other print or reprographic technique.
- (c) The origination and production of embossed holograms is technically complex and requires considerable specialist knowledge and investment.
- (d) The use of an attractive hologram on a card produces an eye-catching and attractive image with definite optical changes and colour switches. This encourages a high level of public awareness and recognition of the card.

Holograms were initially introduced to payment cards to prevent changes to the embossed characteristics on genuine cards (in particular the last four digits of the account number). The device has proved to be successful because alterations (usually carried out using a heat process) damage the foil and distort the hologram.

Pathway recognises the following four types of counterfeit threat to the holographic security of their proposed card types :

- (a) Simulation by the use of diffraction foils. This is the lowest level of imitation and is often an obvious counterfeit.
- (b) Holographic contact by copying or re-mastering. This is still an inferior form of production and is easily noticeable.
- (c) Mechanical copying of the relief surface pattern. This is possible but the resultant hologram is usually significantly degraded.

- (d) True holographic re-origination. This is the most severe potential threat to holographic security. With the growth in the holographic industry across the globe, the necessary skills to create holograms are more widely available. There is a growing number of originating factories that emboss with relatively low capabilities.

In the past counterfeiters did not use holographic technology because they could use only available materials and inks. These included plain foils, in time migrating to diffraction grating foils. More recently holographically produced holograms have been used which have been manufactured by technically competent professionals from the holographic industry.

9.1.4.1 CONCLUSION

The evolution of counterfeiting has been mainly directed at plastic card counterfeiting and Pathway recognises the fact that serious counterfeiters will be receiving expert advice and technical assistance. To minimise this threat, Pathway's holographic capabilities will be able to provide BA/POCL with a migration path of secure holographic features. This migration path is explained at the end of this Annex. The only reliable way to defeat counterfeiters is to migrate IOPs to smart card products. To date there are no recorded cases of a functional smart card being successfully counterfeited.

In order to minimise the risk of fraud on the card, Pathway agree with BA's view that the card should have no intrinsic value. Pathway anticipates that the card will hold only the card number or NINO number, a card issue number and the customer name. Altering or reproducing these details would serve no purpose because there would be a discrepancy between the card details and card information associated with payment details.

If a duplicate card is presented, the post office clerk has additional information (date of birth, nominated post office, and so on) to verify identity. The design of the Benefit Payment Service will ensure that a payment can only be collected once, and that all other attempts will be considered potentially fraudulent.

9.2 CARD TECHNOLOGY (MAGNETIC STRIPE VS SMART)

9.2.1 INTRODUCTION

This section starts by looking at magnetic strip card technology and then describes smart card technology in detail. The section explains some of the issues surrounding these technologies (such as the standards) before concluding with an explanation of the card technology for Pathway's strategy.

9.2.2 MAGNETIC STRIPE TECHNOLOGY

9.2.2.1 INTRODUCTION

Magnetic stripe technology has matured to an extent where most people now use it in one form or another. It is a simple, reliable, and widely understood technology which was never intended to provide a secure system.

The technology is so well understood that the criminal fraternity are only too aware of the components and the magnetic media used in banking systems and infrastructures.

Pathway acknowledges that the main catalysts in the search for alternative solutions are the technological limitations of the magnetic stripe, the increase in fraud and counterfeit levels, and the need for enhanced card-authentication mechanisms.

However, it would be foolish to dismiss magnetic stripe technology as redundant and outdated. Its reliability as a robust, dependable technology has been proven over the last twenty five years, although it is only in the last five years that the magnetic stripe on plastic cards has been used to its full extent. Increased use of electronic POS terminals means that the magnetic stripe is used for its data capture (rather than its embossing) features.

9.2.2.2 ADVANTAGES FOR THE BA/POCL

Magnetic stripe card technology is a proven technology which has the benefit of having been used extensively over 25 years in many different applications and in many different environments.

The reliability, durability and flexibility of the technology has been endorsed by all major card issuers in the world, who have recognised its usefulness by fully integrating it into their card payment infrastructures.

In addition to its use as a standardised payment media for global payment systems, there is also the benefit of it being a well-understood technology with the experience and knowledge of an industry behind it to support, enhance and deliver technical development. Materials as well as expertise are readily available from manufacturers and suppliers at prices that are inexpensive in comparison to smart cards.

9.2.2.3 DISADVANTAGES FOR THE BA /POCL

Magnetic stripes were never designed to be a secure media. As a result, traditional payment cards have always had a low resistance to counterfeit and fraudulent attack. The nature of the magnetic media means that it does not provide a secure means of data storage. A fraudster can easily copy the data from a genuine payment card onto another blank card quite easily; this is known as 'skimming the magnetics'.

In addition, the data on magnetic stripe cards can often become corrupted or erased by exposure to household objects that are surrounded by magnetic fields, such as fridge magnets, television sets or even the magnet on a lady's handbag fastener. Many cardholders will inadvertently damage their cards by exposing them to strong magnetic fields from household items.

The magnetic stripe has also the disadvantage of having a limited data storage capacity which cannot be increased. The storage space will become the limiting factor in the delivery of new services using magnetic stripe cards.

Finally, unlike smart cards, the magnetic stripe on a payment card can be read only and cannot be written to once it is issued to the cardholder. Issuing new payment parameters for a cardholders can only be achieved by re-issuing a new card, rather than letting the system's software write directly to the card the next time it is used.

9.2.3 SMART CARD TECHNOLOGY

9.2.3.1 INTRODUCTION

The smart card is basically the result of combining a plastic card with a silicon chip microcircuit. The silicon chip microcircuit is embedded into a cavity on the plastic card which is then covered by a gold contact plate known as the 'stamp'. The silicon and the microcircuit are fixed in the base of the cavity by a resin and are connected by electrical wires to the stamp. The stamp provides electrical connection to the microcircuit and also seals the entire diameter of the card's cavity so that there is a smooth and seamless join with the plastic card.

The smart card is not a new technology. The first patents were filed (in Japan only) in 1970 by Kunitaka Arimura, however it was the French journalist Roland Moreno who is more widely accredited with inventing the smart card. He filed the first worldwide patents in 1974, covering the concept of embedding a microcontroller into a regular bank-style plastic card. Moreno's concepts promoted discussion within the French Government, Finance, Public Transportation, Medical and Telecommunications sectors to an extent where a series of technology trials soon followed.

9.2.3.2 THE SMART CARD MARKET

Since those early pioneering days, a vast industry has grown up across the world representing significant investment. The smart card market in Europe is still developing and is reckoned to be growing at a rate of 45% per annum. It is recognised that the major period of growth is still to come.

Europe's smart card market is far more mature and technically advanced, compared with the other world regions. Europe is also setting the pace in smart applications development and smart card expertise. Today's smart card technology in Europe is being used successfully in numerous applications, including banking, medicine, transport, health, pay TV, Payphone, Utilities and mobile communications.

In spite of the wide international appeal and consumer acceptance of the smart card technology, it is fair to say that the smart card industry, from a global perspective, has barely begun to realise its full potential. Many experts use the analogy that the smart card is in the same stage of evolution today as the personal computer was back in 1983.

9.2.3.3 CLARIFYING PATHWAY'S DEFINITION OF A SMART CARD

Before going further, it is worth clarifying Pathway's use of the term 'smart card' in this proposal. Pathway uses this term to refer to a card that has on-board intelligence and the processing capability to interpret the data it receives (in other words, a card with a microprocessor).

The following smart card products proposed by Pathway conform to the above definition :

- DS smart card (*See Specimen 1*)
- TB100 Multi-Application card (*See Specimen 2*)

A more complete description of these smart cards is given in the following section entitled The Migration Path. Please note that Pathway's definition of a smart card does not apply to memory cards. Memory cards have the capability to respond to different inputs but cannot manipulate data because there is no microprocessor present. The media often wrongly label these cards as being smart, but in fact they are more suited to being called 'dumb cards'.

9.2.3.4 EXPLAINING SMART CARD FUNCTIONALITY

The basic components of a smart card are the following four element connected together :

- Data Memory
- Program Memory
- Microprocessor

The Data Memory allows important data storage while the Program Memory and the Microprocessor allow the data processing facilities. These components make the smart card a more sophisticated IOP, capable of secure data storage and data processing facilities.

At the time of encashment the advanced functionality of this IOP will provide greater security to the entire encashment processes. The smart card is capable of the following functions :

- Authentication of the card as being a genuine IOP
- Verification of the cardholder's identity
- Certification that the transaction has actually taken place.
- Codification of the transaction data on the transmission lines

The various possible security enhancements and the increased functionality give smart card technology-based IOPs a distinct advantage over the more passive, insecure magnetic stripe IOPs. The measure of this advantage can be viewed against the three following criteria, identified within the text of the SSR :

- Fraud and risk management
- New applications
- The provision of value added services

Pathway's card technology proposals will be capable of providing the BA/POCL with a common, upgradable and flexible solution to meet these and future criteria.

9.2.3.5 ADVANTAGES FOR BA/POCL

The use of smart cards for benefit encashment would significantly reduce the opportunities for fraud/counterfeit activities. With each re-issue of a smart card, Pathway will be able to introduce new features to enhance smart card security, to stay one step ahead of the fraudster. To date, no recorded cases of counterfeit of a functional smart card have been registered with Interpol.

Apart from providing a Card Authentication Method (CAM) which is vastly more secure and reliable than that of a magnetic stripe card, the smart card CAM can also be configured to work in on-line as well as off-line mode. The smart card also provides the ideal technology platform to introduce a biometric for the Cardholder Verification Method (CVM). The biometric stored in a secret area of the smart card could be a unique cardholder identifier such as a photograph, fingerprint or signature. The secure storage of this feature would provide the smart card with the distinct advantage of being able to carry out a CVM check in off-line mode.

The cost effectiveness of using smart cards cannot, however, be justified by the reduction of fraud and lower network costs. The migration to a more dynamic IOP such as a smart card will provide a flexible, and adaptable technology solution to introduce and deliver new services and applications. This is due to the sophisticated functionality and data storage and processing capabilities of the card.

Finally there is also the additional benefit of knowing that smart card technology is future-safe and that Pathway can provide a common, flexible and upgradable solution in compliance with the latest international smart card standards. Providing common upgradable and flexible solutions to benefit encashment in compliance with international standards is core to Pathway's migration strategy.

Standards exist for smart cards in payment systems due to the 1994 Eurocard, MasterCard and Visa (EMV) Joint Specification. Details of this and the background to the question of standards is provided in *Section 9.2.3.7*.

9.2.3.6 DISADVANTAGES FOR BA/POCL

To move directly to a smart card format for day one would require a higher initial investment from BA/POCL and this would be difficult to justify. The cost of a smart card is still significantly higher than a magnetic stripe card. However, the smart card is infinitely more adaptable than the magnetic stripe card so the cost-effectiveness of service delivery must be considered against that of unit cost.

Likewise the use of smart cards will only be appropriate for certain user groups as there is the issue of customer acceptance of the IOP. The issuing of a smart card that relies on a biometric CVM to work in off-line mode would require the customer to be firstly, capable of submitting their biometric for card issue purposes and secondly, be ready to accept the procedure for carrying out the CVM.

9.2.3.7 THE KEY ISSUE OF STANDARDS

Today it is assumed that magnetic stripe cards from the different payment systems and card associations can be accepted at the same terminal. This compatibility did not happen by coincidence. It is the result of close co-operation amongst the major network providers to establish global standards and specifications for magnetic stripe card technology

The last few years has seen unavailability of global standards as a barrier to the further development of the smart card industry (and the inter-operability of smart cards in global payment systems).

In 1994, recognising the importance of smart card technology to the future of the plastic card payment systems, Europay, MasterCard and Visa joined forces to issue a joint specification for smart cards in payment systems. The result of this co-operation was the development of a common standard that provides a uniform platform to support global inter-operability.

This EMV Joint Specification exists and paves the way for the universal use of smart cards in payment systems. This will not only provide a major catalyst for the smart card industry in general, but will allow Pathway to offer BA/POCL, with confidence, a flexible and upgradable migration pathway to smart card technology.

9.2.4 CONCLUSION

Pathway's solution will provide the best balance between the following four factors that impact the decision on proposing card technologies :

- Economic : what is the best ratio for card cost versus security
- Effectiveness : the requirement to deliver benefit payments effectively
- Availability : the same IOP procedure must be available to all post office locations
- Reliability : the service must be reliable and upgradable

Pathway believes that magnetic stripe technology has an important role to play in the migration of IOPs from paper to plastic card format. We also believe that magnetic stripe technology will co-exist successfully alongside smart technology for benefit encashments for the foreseeable future. However it is only the inherent security, flexibility and adaptability of smart card technology that will provide BA/POCL with the necessary technological platform to combat long-term fraud, reduce costs and support the introduction of new products and services.

Pathway recognises the problems of collecting accurate signatures and/or photographs of reference and also that without these procedures the introduction of plastic smart cards would be delayed by up to a year.

Pathway do not believe that there is significant and lasting cost/benefit advantage from day one which would justify using smart cards for all customers. Pathway's strategy for day one proposes magnetic stripe cards together with the necessary cardholder verification and card authentication processes.

Pathway also recognises that the use of smart card technology will be BA/POCL's best long-term product delivery solution.

9.3 THE MIGRATION PATH

9.3.1 INTRODUCTION

This section looks first at the various magnetic stripe and smart card products that Pathway can deliver in the migration path. Second, it explains the Pathway card migration strategy for day one and post day one. Finally, it describes how Pathway's overall migration strategy is enhanced by the use of its holographic capability and details some of the holographic options available.

9.3.2 PATHWAY'S MIGRATION OPTIONS

The card migration options available to Pathway are summarised as follows :

a) Magnetic Stripe Card Options

- Magnetic stripe card with hot stamp panel (*See Specimen 1*)
- Magnetic stripe card with paper signature panel (*See Specimen 2*)
- Magnetic stripe card with paper signature panel plus indent printing (*See Specimen 3*)
- Magnetic stripe card with laser-engraved signature (*See Specimen 4*)

b) Smart Card Options

- DS smart card (*See Specimen 1*)
- TB100 Multi-Application card (*See Specimen 2*)

Note : All the migration options listed above are card types that are already being produced on an industrial scale for European card markets. All the card types are available through De La Rue, who is a principal shareholder in Pathway.

The card types listed above come with a security hologram designed and manufactured by De La Rue. A description of Pathway's holographic capability is also provided in this section.

9.3.3 DESCRIPTION OF THE CARD MIGRATION OPTIONS

This section provides a description of the card migration options and refers to the card samples displayed at the end of this Annex. It also highlights the additional card features, security and functionality that position the card on Pathway's proposed migration path.

Pathway recognises that a card's functionality and security can only be significantly increased once there is a migration to smart card technology.

Pathway would also like to emphasise that the extent of the smart card migration is not limited to the smart card options described in this response. BA/POCL will benefit from Pathway's extensive smart card development skills and technical resources throughout the life of this contract. BA/POCL should not underestimate Pathway's capability to provide new smart card solutions and products during this contract. However for this first response Pathway has proposed two smart card options which are suitable as logical extensions to the card migration path.

9.3.3.1 MAGNETIC STRIPE CARD OPTIONS

Specimen 1 : Magnetic stripe card with hot-stamp panel

This card has a hot-stamp signature panel for the customer's signature. The hot-stamp panel provides the first of three signature panel options that will support the CVM method of visibly checking the customer's signature. This white panel is easily applied at manufacture but is the class of panel most likely to be compromised by a fraudster (changing the existing signature; overlaying the panel with a new one; removing the panel and replacing it with a new panel). This panel does not offer a significant security barrier against counterfeiters who will be able to reproduce it.

Pathway foresees no significant production problems in supplying card Specimen 1 with this hot stamp panel feature for mass issue on day one. Pathway's strategy does not recommend that card Specimen 1 be used in the migration from paper IOPs to magnetic stripe card IOPs

Specimen 2 : Magnetic stripe card with paper signature panel

This card uses a more secure signature panel for the customer's signature. This tamper-evident paper panel provides the card with a more effective barrier for countering most attempts by fraudsters to remove an existing signature on the panel. The security inks used in the design of the panel discolour if there are any attempts to remove it using a solvent or water. This type of tamper-evident paper panel is a sensitive security material which is designed and manufactured by De La Rue.

Pathway foresees no significant production problems in supplying card Specimen 2 with this paper panel feature for mass issue on day one. Pathway's strategy does not recommend that card Specimen 2 be used in the migration from paper IOPs to magnetic stripe card IOPs.

Specimen 3 : Magnetic stripe card with paper signature panel plus indent printing

This card uses the same tamper-evident security paper panel described in card Specimen 2. The only difference is that the security of the card is further enhanced by the inclusion of indent printing along the top of the panel. Indent printing on the panel offers a more sophisticated security barrier against counterfeit and fraudulent attack than is possible with Specimen 2. The indent printing feature is applied at the personalisation stage of the production process.

Pathway foresees no significant production problems in supplying card Specimen 3 with indent printing on the paper panel for mass issue on day one. Pathway believe that card Specimen 3 contains the best card cost/security ratio for magnetic stripe cards, and that it is the most appropriate card for issue on day one.

Specimen 4 : Magnetic stripe card with a Laser-engraved Signature

This card type represents the most significant barrier to counterfeit and fraudulent attack. The signature in this example ('Jennifer Auden') has been laser-engraved into the core of the card below the surface laminate. To be more precise, the laser-engraved signature has been formed by burning a series of dots into the card's core. The dots on the core are protected by the surface laminate layer, which means that the signature is securely isolated within the card and cannot be scratched or touched without irrevocably damaging the card.

The signature is applied at the personalisation stage. Customers would receive their card with their signature already laser-engraved securely on the card. This method would counter fraud on intercepted cards such as card Specs 1, 2, and 3, which are distributed with virgin signature panels which are open to fraudulent attack. Likewise any efforts to remove or alter the signature would easily show that the card has been tampered with.

Despite the fact that laser engraving is recommended by the Home Office and that De La Rue already uses this technology as part of its personalisation process for UK banks and building societies, Pathway do not believe it is an appropriate card type for mass issue on day one. The reason is that the laser engraving of signatures requires customer signatures to be collected, batched under a suitable enrolment scheme, and then transmitted in digitised form to De La Rue for laser engraving. Pathway believes that there would be logistical problems in the collection of 25 million signatures over the roll-out period, and despite the high-security benefit card Specimen 4 being a migration option, it would be better suited to post day one

Pathway's migration strategy recommends that card Specimen 4 could be :

- Directed at paper IOPs for high risk customer groups
- Phased in for magnetic stripe card renewals of card *Specimen 3*

- Directed at customer groups who are fraud risks but do not justify the cost or functionality of a smart card

9.3.3.2 SMART CARD OPTIONS

The migration to a smart card based IOP would bring distinct advantages over magnetic stripe or paper IOPs. These advantages have been identified in *Section 4* of this response and throughout the previous two sections of *Annex 9*.

Before examining the two proposed smart card options of Specimens 1 and 2 in more detail, it is worth clarifying Pathway's migration strategy for smart cards.

Pathway's strategy does not recommend smart cards for day one

Pathway does not believe it is an appropriate card type for mass issue on day one, and that the migration from paper IOPs for day one should be limited to magnetic stripe cards.

Pathway believes that smart cards have a major role to play in the migration from paper or magnetic stripe card IOPs, but that they are not appropriate for day-one issue. Pathway's migration strategy has smart cards positioned as a post-day-one card type which will be introduced to more defined customer groups where there is sufficient justification for its use instead of a magnetic stripe card.

Pathway believes that : the relatively higher cost/security ratio of this card; the anticipated levels of 'techno-fear' from customers; and the logistics of collecting and supplying customer data/biometrics in a suitable format will prevent the issue of this card type on day one. Pathway consider smart card Specimen 1 and 2 to be equally inappropriate.

Specimen 1 : DS smart card : Microprocessor card

The DS card has been positioned on the Pathway migration path because of its flexibility, security and relative inexpense. The DS card is the same smart card type used by the French banks for its 22 million cardholders.

The DS card is designed around a simple operating system together with a sophisticated memory architecture. Both these features make the DS card a perfect card type when the BA/POCL require IOPs with a more powerful and secure storage capability.

This card type can be easily adapted to implement a range of new applications because the file structure of its memory is based on 1 K byte of EEPROM architecture that allows for easy information updating and single-voltage supply. In terms of security, certificate generation is based on the DES algorithm which provides dynamic card authentication and certifying file contents after memory writing or updating.

The DS card can be described as a general-purpose, multi-service microprocessor card whose compatibility with international standards permits Pathway to provide BA/POCL with the benefits of a guaranteed smart card migration capability. It also provides the compatibility to interchange with other smart applications that become integrated with POCL's services.

Specimen 2 : TB100 ;Multi-application card.

The TB100 card has been positioned on the Pathway migration path because of its more advanced and sophisticated functionality. This card has the capability to cater for a wide range of new services and applications that require the inherent security of multi-application smart cards.

The card's hierarchical organisation of data files will allow BA/POCL to introduce various independent applications onto the card without compromising the security of each application.

The card's security architecture ensures the independence of each application on the card and that they are protected against tampering. This feature would therefore allow BA/POCL to share the card's memory resource with other third-party issuers without compromising the respective security levels and functionality of the individual applications on the card.

The advanced functionality and sophistication of the TB100 will permit Pathway to provide BA/POCL with the benefits of a guaranteed smart card migration capability that is future-safe. Compliant with international standards, it is a smart card that can accommodate new and existing applications from BA/POCL as well as those from a third parties.

9.3.4

SUMMARY OF THE MIGRATION OPTIONS FOR ALL CARD SPECS

CARD TECHNOLOGY AVAILABLE FOR DAY ONE

Magnetic Stripe Cards

- Magnetic stripe card with hot stamp panel (*See Specimen 1*)
- Magnetic stripe card with paper signature panel (*See Specimen 2*)
- Magnetic stripe card with paper signature panel plus indent printing (*See Specimen 3*)

CARD TECHNOLOGY AVAILABLE POST DAY ONE

Magnetic Stripe Card

- Magnetic stripe card with laser-engraved signature (*See Specimen 4*)

Smart Card

- DS smart card (*See Specimen 1*)
- TB100 Multi-application card (*See Specimen 2*)

Note : All card Specs are available with hologram migration options.
Pathway's description of these holographic options are described
at the end of the Annex.

9.4 PATHWAY'S PROPOSED MIGRATION STRATEGY

9.4.1 INTRODUCTION

Pathway's strategy is committed to the continued introduction of evermore sophisticated techniques to stay one step of the fraudster.

At each stage of the migration path, Pathway will provide BA/POCL with a fully flexible, upgradable card-based payment system that incorporates a range of technology options.

Pathway's migration path to new fraud-resistant technologies will ensure that the best and most cost-effective methods of delivery of benefit encashment and the delivery of new services, will always be available, at the right time and at the right price.

Pathway recognises that the move from a paper and/or magnetic stripe IOP to a smart card IOP will provide a means to upgrade the entire security of the benefit encashment systems. The cost of this migration cannot be justified on fraud alone but on the added functionality that smart cards can provide. Despite the initial investment cost for BA/POCL, this added functionality can be delivered more cost-effectively than any other proposed IOP format.

Pathway also recognises that if BA/POCL are to realise the business opportunities and service benefits arising from the migration path then they will have to align themselves with a service provider capable of delivering a seamless and managed migration path within desired time constraints.

9.4.1.1 DAY ONE APPROACH

From the three options available on day one, Pathway recommends that BA/POCL choose card Specimen 3 as the first plastic card format to be used as an IOP.

Magnetic stripe card with paper signature panel and indent printing (*See Specimen 3*)

9.4.1.2 POST DAY ONE APPROACH

For post-day-one Pathway recommends using the following card Specimens :

Magnetic Stripe Card

Magnetic stripe card with laser-engraved signature (*See Specimen 4*)

AND/OR

Smart Card

- DS smart card (*See Specimen 1*)
- TB100 Multi-application card (*See Specimen 2*)

9.4.2 THE REASONS BEHIND THIS APPROACH

9.4.2.1 INTRODUCTION

Despite the limitations of magnetic card technology, Pathway is proposing its use for day one as the best and most cost-effective method to deliver benefit encashments, as well as the best and most cost-effective method for both CVM and CAM processes.

a) Resistance to Fraud and Counterfeit

In terms of fraud and counterfeit resistance, Pathway's migration strategy is based on the resistance of the card to fraud and counterfeit attack. The rankings of the various Specs are given below :

Low Resistance to Fraud and Counterfeit

MS Specimen 1 < MS Specimen 2 < MS Specimen 3 < MS Specimen 4 <
Smart Specimen 1 < Smart Specimen 2

b) Functionality to Deliver New Services and Applications

Pathway believes that smart card technology is not applicable for mass issue on day one. Pathway's smart card options will comprise the sophisticated functionality and security architecture of the latest smart card technology. The card options proposed by Pathway for post day one are ranked below :

Card Functionality and Security Architecture :

Smart Specimen 2 > Smart Specimen 1 > MS Specimen 1, 2, 3 and 4

c) Card Per Unit Cost versus Cost Effectiveness

In terms of per-unit-cost of a card, it is clear that a magnetic stripe card will be less expensive than a smart card for the foreseeable future. As described above, Pathway's migration strategy is committed to providing BA/POCL with the best and most cost-effective methods for delivering benefit encashment and new services. Pathway has stated in this proposal that the introduction of a card-based IOP cannot be justified only on the basis of the IOP's ability to reduce fraud and network costs, but on its ability to support the delivery of new services and applications.

Pathway recognises that the per-unit-cost of a card is not the major criteria in the selection of a card type, but rather the cost-effectiveness of the card in the context of a service delivery mechanism. Below are two sets of rankings which indicate the relative per-unit-costs of the card options and secondly, the relative cost-effectiveness of cards to deliver new services and applications.

Low Per Unit Cost :

MS Specimen 1 < MS Specimen 2 < MS Specimen 3 < MS Specimen 4 <
Smart Specimen 1 < Smart Specimen 2

Magnetic card Specimen 3 is magnetic stripe card with a paper-signature panel and indent printing was chosen to maximise the benefits of using a high-security paper-signature panel which is further enhanced (during the personalisation process) with indent printing. Specimen 3 is considered by Pathway the best and most cost-effective method for day one, given the constraints identified of laser-engraved or smart card technology on day one for mass issue.

Cost Effectiveness for Delivery of New Services and Applications
Smart Specimen 2 > Smart Specimen 1 > MS Specimen 1,2,3,4

Pathway recognises that their strategy focuses on magnetic stripe cards for day one, but are aware that the use of smart cards will provide BA/POCL's best long-term product delivery solution.

Note : Examples of all the card specimens referenced are given at the end of *Annex 9*.

9.4.3 PATHWAY'S MIGRATION OPTIONS FOR HOLOGRAMS

9.4.3.1 INTRODUCTION

Pathway is able to provide additional migration options for its proposed hologram features during the migration path. These features and references to card samples are explained below, after a short explanation of our holographic capability.

The holograms will be designed, manufactured and supplied by De La Rue Holographics (DLRH), which is a wholly owned subsidiary of the De La Rue plc.

DLRH is a leading producer of holograms for credit, debit, charge and identification cards in Europe, the Far East and South America, and is the sole supplier of holograms for the Irish social welfare card. DLRH conforms to all the security regulations and procedures laid down by the UK's inspection body for the UK Banks (APACS). DLRH is also ISO9001-approved and is a founder member of the International Hologram Manufacturers Association (IHMA).

9.4.3.2 HOLOGRAPHIC OPTIONS

Each hologram generated by DLRH for Pathway's cards can incorporate an original and exclusive design created as a unique stamp of quality and authentication. The technology combines state-of-the-art laser optics with conventional printing and converting methods to provide three distinct levels of holographic security.

9.4.3.2.1 First Level Security

This comprises classical holographic features, incorporating image switches and parallax. These effects are typified by holograms of simple 3D models and 2D/3D rainbow-embossed holograms using planes of art positioned at various depths. The active element is a transparent microstructure overlaid on an ultra-thin metal reflector, which cannot be simulated by colour copier, laser scanner or a reprographic technique.

9.4.3.2.2 Second Level of Security

A second level of security is incorporated using more specialist visual features. DLRH have created an extensive portfolio of these security features, which require complex optical equipment and knowledge even for a well-equipped laboratory to re-originate combinations of these features and provide a considerable increase in security whilst maintaining a brightness and clarity essential to public recognition.

These combinations features include :

- Progressive Colour Features
- Exact Register Features
- Dual Channel Features
- Multiplex Images
- Stereograms
- Kinetic Diffractive Features (*see hologram Specimen A*)
- Computer Generated Artwork
- 3D Models
- Moire Pattern Features (*see hologram Specimen A*)



9.4.3.3 PATHWAY'S APPROACH

Pathway has submitted two hologram samples with this response. These can be found alongside the card samples given at the end of this Annex. Pathway has included two types of hologram samples for this response :

- Hologram Specimen A : 'Lion' (Metallic)
- Hologram Specimen B : 'Ships and Anchors' (Hot Foil HRI)

This is only a suggestion and new development and origination of suitable designs can be produced to meet the BA/POCL's approval.

Pathway's approach is to use Hologram Specimen A : Lion

The metallised 'Lion' image includes two high security features :

9.4.3.3.1 Moire Pattern Features :

This technique has been developed to record onto a holographic image patterns of light and dark Moire fringes. This enables a virtually unique pattern to be formed which would be very difficult to copy.

9.4.3.3.2 Kinetic Diffractive Features

This feature uses sets of surface diffraction gratings designed to produce particular movement features such as rotations and oscillations on tilting. This technology can be combined with conventional 2D/3D holography.

Hologram Specimen B : 'Ships and Anchors'

This hologram when foil blocked onto a suitable substrate produces a hologram with image replay and colour shift similar to the fully metallised material yet allowing data below the hologram image to be clearly visible. It also includes a kinetic diffractive colour shift previously described.

Hologram Specimen B uses a High Refractive Index (HRI) which refers to the physical nature of the layer covering the hologram profile. The microstructure is coated with an ultra-thin film of a glassy inorganic compound which has a high refractive index. The overall effect offers subtle security with obvious advantages for the integration over printed photographs or data.



GLOSSARY OF TERMS

ANNEX 10 - GLOSSARY OF TERMS

This term :	Has this meaning in this document :
ACC	A DSS Area Computer Centre. There are four of these around the UK
ACD	Automatic Call Distribution
ACT	Automated Credit Transfer. This refers to an automated method of paying benefits directly into bank accounts. It is used particularly in the case of disabled claimants
Agency	An abbreviation for Executive Agency, which is a semi-independent public body reporting to a Government minister, such as the Benefit Agency
Agent	<u>BA usage</u> : person appointed by the customer to act on his or her behalf, and to receive and deal on his or her behalf with any sums payable to him or her <u>POCL usage</u> : person in charge of any post office except a directly managed office (post offices owned and staffed by POCL)
ALPS	Automated London Post office System : hardware and PC-based ESNS software (an existing ICL-POCL contract currently rolling out within the M25 motorway)
APACS	Association of Payment Clearing Services
API	Application Program Interface
APT	Automated Payments Terminal. It is used to facilitate bill payments in post offices and it uses smart cards
ATM	Automated Teller Machine
Attribute grammar	Riposte's technique for storing data. Riposte stores the description of the data item and its associated value in a data file
Authentication	This is part three of the payment authorisation process that allows the post office clerk to make a benefit payment The process is : Identification/Verification/Authentication/Authorisation Authentication is the process that determines whether the card or foil is valid (in other words, not forged). This is done partly by inspection and partly by checking the validity of data held on the card, such as the issue number

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This term :	Has this meaning in this document :
Authorisation	<p>This is the final part of the payment authorisation process that allows the post office clerk to make a benefit payment</p> <p>The process is : Identification/Verification/Authentication/Authorisation</p> <p>Authorisation is largely an automatic process, assuming all other parts of the process have been passed. It consists of checking that the payment is being made at the right place and the right time. For example, whether the allowed number of foreign encashments has been exceeded</p>
Beneficiary	The person awarded a benefit payment by the DSS (in other words, a DSS customer)
Benefit system	Refers to both the computerised and the clerical benefit systems
Best-of-breed	Best industry practice or best product of its type currently available
BPS	Benefit Payment Service
CAD	Computer Aided Design
CAM	Card Authentication Method. The method by which the card is judged to be valid - either a chip or the card number on the card
CAN	Card Activation Number. This refers to a 4-digit code allocated during card production. It is printed on the pick up notice and also held on the system and it is used only once, to activate the card
CBT	Computer Based Training
CEN	Comité Européen pour Normalisation
Change Management	Refers to a process of managing changes that are related to specifications, baselines or contracts <u>during</u> the provision of the Pathway service
CIN	Card Issue Number
Claimant	A person who has claimed a benefit payment from the DSS (in other words, a DSS customer)
Client	An organisation that uses POCL as their shop window/counter/service point (such as Girobank, DNS, BBC, DVLA, BT)
CML	A division within BT
CMOS	Complementary Metal Oxide Semiconductor
Commercial Management	Contract Management
Communications workstation	A workstation (normally one per LAN) that manages communications with a particular correspondence server
Contracting Authorities	The DSS and POCL
Correspondence server	A component of Riposte which links to post offices through a wide area network to distribute payment information and capture transaction details

ANNEX 10 - GLOSSARY OF TERMS

This term :	Has this meaning in this document :
CounterAction	An Post counter automation project
Counter environment	Encompasses the room and the ergonomics of the room where the counter staff sit
Counter infrastructure	Encompasses the H/W, S/W and peripherals used by the counter staff
Counter interface	Encompasses the visible face of the software, the data capture, the general human-factor engineering of the countertop and the interaction of the counter staff with customers
Counter Interface Service	The service provided by the Service Provider that supports counter clerks in providing counter services. The service boundary for this is expected to be between the service provided by the Service Provider and counter clerks
CRC	Cyclic Redundancy Check
CRISP	A stand-alone EPOS system used in Post Shops
CRU	Counters Remitting Unit. In other words, a very big post office
Cryptography	Technique for scrambling data (derived from the Greek for 'hidden writing')
CSF	Critical Success Factor
Customer	<u>BA usage</u> : person who has applied for or claims benefit, or his agent or appointee <u>POCL usage</u> : person coming into a post office to transact business
CVM	Cardholder Verification Method. Method by which the cardholder is judged to be valid. Methods include PIN, biometrics, photocard and signature
D2D	Design to Distribution - an ICL system-build facility located in Ashton
DBFO	Design, Build, Finance and Operate
DDE	Dynamic Data Exchange
Demonstrator phase	Initial proving activity of the pilot programme which occurs during Stage 3 Contract Negotiation/Pilot Commencement
DES	Data Encryption Standard. A US-defined algorithm
Desktop	A component of Riposte which supports the transaction development environment that gives access to interface controls and provides for rapid application prototyping
Digital signature	The electronic equivalent of a written signature
DLRH	De La Rue Holographics, part of the De La Rue Group
DSK	Digital Signature Key
DVLA	Dept of Transport Driver and Vehicle Licensing Agency
EBT	Electronic Benefit Transfer
ECCO+	A POCL back-office accounting system that produces cash accounting and client summaries
EEPROM	Electronically Erasable Programmable Read Only Memory
EFQM	European Foundation for Quality Management
EFT	Electronic Fund Transfer

ANNEX 10 - GLOSSARY OF TERMS

This term :	Has this meaning in this document :
EMV alliance	Europay/MasterCard/Visa alliance. This alliance has jointly specified standards for smart cards
Encashment	Receipt of cash by a customer for an authorised payment, using the desired instrument of payment
End-to-end	Stretching from the instruction to pay to the completion of the counter transaction, it includes payment, other POCL services provided and also the delivery of reconciliation and management information to both the DSS & POCL
Enquiry	Request for information about transaction records, from a client to POCL. Also requests from the DSS to paper storage sites for sight of a foil/cheque (later a receipt) to verify possible fraudulent encashment
EPOS	Electronic Point of Sale
ESNS	Electronic Stop Notice System. This is software (rolled out on the ALPS platform) that provides electronic notification to post offices of lost, stolen or recalled IOPs
Fall-back arrangements	Plan B, for when plan A does not work. Recommended actions to be taken to overcome circumstances of failure
FDDI	Fibre Distributed Digital Interface. This refers to a physical network
FM	Facilities Management
Foreign encashment	Encashment made at a post office in the UK other than the 'nominated post office'
FTE	Full-Time Equivalent
HCI	Human Computer Interface
HRI	High Refractive Index
Identification	<p>This is the first part of the payment authorisation process that allows the post office clerk to make a benefit payment</p> <p>The process is : Identification/Verification/Authentication/Authorisation</p> <p>This term is applied to the identification of the cardholder to the system. It will identify the benefit entitlement and personal details of the cardholder by using the card number to retrieve the information from various Pathway systems</p>
IHMA	International Hologram Manufacturers' Association
IIN	Industry Identification Number. This refers to the first 4 digits of the card number of a credit card. It identifies the type of credit card (for example, VISA or MasterCard)

ANNEX 10 - GLOSSARY OF TERMS

This term :	Has this meaning in this document :
Indent printing	Refers to plastic card personalisation. It is the indenting of characters into the body of the card with a transfer foil to colour the characters (e.g. black). Unlike embossing, it does not indent through to the other side of the card to produce a raised feature. The primary account number will be indent printed into the paper signature panel
Instrument of payment (IOP)	Examples are a girocheque, a family allowance book (foil) and a card
Investing in People	ICL's Investing in People process was used as the role model for the DTI-sponsored Investors in People scheme
Investors in People	A Government-backed scheme for setting training standards
IPR	Intellectual Property Rights
ISDN	Integrated Services Digital Network
Journal message	A Riposte transaction formatted as a single text string which Riposte replicates to a journal message store
Journal server	A component of Riposte which manages the journaling, data distribution and replication functions at a local post office
Journal server workgroup	Riposte workstations on the same LAN
Journaling	The recording of transaction details and system events, such as logon, logoff, add/modify/delete user and password management
LAN	Local Area Network
Live trial	A limited trial in a live environment which occurs during the Operational trial phase
Magnetic swipe card	A plastic card with embedded magnetic stripe containing tracks of data. Widely used with PINs in personal financial applications
Mails	A set of applications used in Ireland by An Post for postal services
Management of Change	Management of Change manages the process of cultural change from an enterprise view. In the context of the current BA/POCL procurement, it refers to the cultural effects on BA, POCL, the customers (general public) and Pathway
MICR	Magnetic Ink Character Recognition
MNS	A division within British Telecom
MOP	Method of Payment. For example either an IOP or ACT
MORI	Market Opinion Research Group
MSR	Magnetic Swipe Reader
NAO	National Audit Office
NFSP	National Federation of Sub-Postmasters
Nominated post office	A post office selected by the customer to be the one at which he/she will normally encash payments
OCR	Optical Character Recognition

ANNEX 10 - GLOSSARY OF TERMS

This term :	Has this meaning in this document :
OPEN <i>framework</i>	This is the method created by ICL for undertaking systems integration in an open systems world. OPEN <i>framework</i> is equipped to engineer solutions for business and is a practical way of exploiting open systems to the advantage of an enterprise's business
Operational trial phase	Final proving activity of the pilot programme which occurs during Stage 5 Operational Trials
PAN	Primary Account Number. This refers to the entire card number of a credit card. It can be up to 19 digits in length, as specified by ISO7813
PAT	Project Assurance Team
Pathway Group Ltd.	The company is made up of : <ul style="list-style-type: none"> • Shareholders (ICL, De La Rue, Girobank) • Principal subcontractors (An Post, Escher, A&L, BT) • Financial advisor (Hambros Bank)
Payee	The person who encashes/collects the benefit payment
PCRC	Pathway Call Reception Centre. This is where all calls are received for Pathway's help desk service
PDR	Postmaster's Daily Record. This is the basis of the Postmaster's remuneration for Girobank transactions
PFI	Private Finance Initiative. This is a procurement method by which the Government pays suppliers to adopt a project's risks
PFS	Personal Financial Services
Pilot programme	This covers the proving of the solution through to acceptance of it prior to roll-out. It starts after shortlisting and ends with agreement to roll-out The pilot has 2 phases : <ul style="list-style-type: none"> • Demonstrator phase where each shortlisted Service Provider is given the opportunity to demonstrate their solutions and options • Operational trial where the selected Service Provider further develops the solutions and selected options, and develops the SCOP
PIN	Personal Identification Number. This refers to a secret number used to prove ownership of a magnetic stripe or smart card
PMS	Payment Management System. This refers to the central functions within the payment authorisation process which is used for bulk processing tasks
POCL	Post Office Counters Ltd. Part of the Post Office Group. One of the two Contracting Authorities for the services described in the SSR

ANNEX 10 - GLOSSARY OF TERMS

This term :	Has this meaning in this document :
POCL Strategic Infrastructure	This refers to the areas within the Procurement Service Boundary entitled : Transaction Management Service (TMS), Operational Support Services (OSS) and Counter Interface Service
Postmaster	This terms is used to denote Postmasters and also subpostmasters/POCL agents/post office managers
Postmaster's pouch	Daily mail bag from post offices to the Girobank
PRINCE	PRojects IN a Controlled Environment. This is a CCTA methodology for use in large projects
Private key	A secret value used in public key cryptography for deciphering a message enciphered by a public key, or for enciphering a message to be deciphered by a public key
PSTN	Public Switch Telephone Network
Public key	A publicly known value used in public key cryptography for deciphering a message enciphered by a private key or for enciphering a message to be deciphered by a private key
PUMA	Prevent Unscheduled Maintenance Activity
PUN	Pick up notice. This refers to the advice to benefit customers that the post office is in receipt of something for them to collect
Quantum	The British Gas Quantum cards are smart cards used by British Gas customers who have especially designed meters installed. The cards are recharged at selected post offices using APT equipment
RAD	Rapid Application Development. This is a system engineering tool
RAID	Redundant Array of Independent Disks
Real time	On-line and immediate
RIC	Retail Integration Centre. This is located at ICL Stevenage
Riposte	A product supplied by An Post and Escher. Riposte comprises : the Desktop, the Journal Server and the Correspondence Server. It provides the operating environment used in the CounterAction project
RISC	Reduced Instruction Set Computing
Roll-out service	The service that implements the operational services in a planned and progressive manner
RPI	Retail Price Index
RSA	A commercially available public key algorithm named after its inventors Rivest, Shamir and Adleman. It is a standard means of encryption used by the US Dept of Defence and developed at MIT
Security server	A component of Riposte which deals with the application of digital signatures, CRC and encryption

ANNEX 10 - GLOSSARY OF TERMS

This term :	Has this meaning in this document :
Service Code of Practice (SCOP)	The procedures written by the Service Provider, and agreed by the Contracting Authorities, which will be used by the Service Provider and the Contracting Authorities for the duration of the contracts
Service level	An 'absolute' metric used to measure service quality. For example, the maximum length of time allowed to make an urgent payment available for collection
Service quality	Minimum standards of how the service level is achieved
Settlement	Movement of money
Sherman	A 10-digit unique card ID number generated during card production. It is held on the system and also in the magnetic stripe on the card. Every time the card is used the two are compared
SIT	Systems Implementation Team
SLA	Service Level Agreement. This refers to the agreement between Service Provider and Contracting Authorities as to the service level to be provided
Smart card	Plastic card with embedded microprocessor capable of communicating with a computer system
SMDS	Switched Multi-megabit Data Service. This is a high-speed service offered by BT
SME	Small and Medium-sized Enterprises
Software agent	A component of Pathway's strategic infrastructure which captures and collates transactions for passing to client systems. One variation of a software agent captures an on-line request and passes it to a client system and then returns the response to the local system
SOHO	Small Office Home Office
SPC	Statistical Process Control
SQM	Strategic Quality Model. This uses the European Foundation for Quality Management model. It has been adopted company-wide at ICL as the overall total quality management approach and tool
STAP	Single Terminal Access Project
State message	A Riposte journal message which indicates a workstation's current state. State messages are based upon Riposte's journal message sequence numbers
Steady state services	Those services that the Service Provider will provide in the 'business as usual' situation following roll-out
TNA	Training Needs Analysis
Trickle-feed transaction	Intermittent transfer of transaction details that relies on a prior electronic connection being made for another purpose
TUPE	Transfer of Undertaking (Protection of Employment) regulations
Value stock	Post office sales items that have a monetary value, such as postage stamps, postal orders and cash

This term :	Has this meaning in this document :
Value token	A paper item sold by the post office that has value when it has been completed and authorised. For example, the vehicle road tax disk
Verification	<p>This is part two of the payment authorisation process that allows the post office clerk to make a benefit payment</p> <p>The process is : Identification/Verification/Authentication/Authorisation</p> <p>This term describes the process of ensuring that the cardholder (the person presenting the card) is who he says he is. Methods include signature, PIN, biometrics and photocards</p>
VFM	Value for Money
VIC	Validation and Integration Centre
VSAT	Very Small Aperture Terminal. This is a small satellite dish