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Document Title: Test Report for Functional and Non-Functional Integration Testing of BI3 S80

Document Type: Test Report

Release: S80

Abstract: This is the test report for the functional and non-functional integration testing, of BI3 S80, performed by the SV&I team.

Document Status: DRAFT

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0.0 Document Control

0.1 Document History

Version No.	Date	Reason for Issue	Associated CP/PEAK/PPRR Reference
0.1	03/08/2005	Initial version for review	

0.2 Review Details

Review Comments by :	12/08/2005
Review Comments to :	Originator & Document Management

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0.3 Associated Documents

Reference	Version	Date	Title	Source
[1] PA/TEM/001			Fujitsu Services Document Template	PVCS
[2] VI/STR/062	1.0	13/12/2004	Fujitsu Services Testing Strategy for Horizon System	PVCS
[3] VI/STR/064	1.0	15/08/2003	Testing Approach For The Horizon System	PVCS
[4] VI/STR/080	1.0	21/01/2005	Fujitsu Services Test Strategy for S80.	PVCS
[5] VI/TSC./472	1.1	26/05/2005	SV&I High Level Test Plan for S80	PVCS
[6] VI/TSC/474	0.3	22/03/2005	SV&I Non-Functional High Level Test Plan for S80	PVCS
[7] VI/TSC/475	1.0	20/04/2005	High Level Test Plan for Direct Interface Testing of Horizon to POL FS Interface at S80	PVCS
[8] VI/TSC/476	1.0	20/04/2005	High Level Test Plan for Direct Interface Testing of Horizon to POL Client Transmission Summaries Interface at S80	PVCS
[9] VI/TSC/477	1.0	20/04/2005	High Level Test Plan for Direct Interface Testing of Horizon to HR SAP Interface at S80	PVCS
[10] VI/TSC/478	1.0	20/04/2005	High Level Test Plan for Direct Interface Testing of Horizon to POL MIS Interface at S80	PVCS
[11] VI/TSC/479	1.0	20/04/2005	High Level Test Plan for Direct Interface Testing of Horizon to EDG Track and Trace Interface at S80	PVCS
[12] VI/TSC/480	1.0	20/04/2005	High Level Test Plan for Direct Interface Testing of Horizon to FRTS Interface at S80	PVCS

[13] VI/TSC/481	1.0	20/04/2005	High Level Test Plan for Direct Interface Testing of RDS to Horizon Interface at S80	PVCS

Unless a specific version is referred to above, reference should be made to the current approved versions of the documents.

N.B. Printed versions of this document are not under change control.

0.4 Abbreviations/Definitions

Abbreviation	Definition
AIS	Application Interface Specification; standard document type required for each external interface to the Horizon system
APS	Automated Payment System
DCS	Debit Card System
DeLT	Development Link Testing
DIT	Direct Interface Test
DRS	Data Reconciliation Service
DWH	Data Warehouse
E2E	End to End
EDG	External Data Gateway
EPOSS	Electronic Point of Sale Service; Horizon service that supports Retail functions in Branches
FTMS	File Transfer Management Service; Horizon process that provides configurable file transfer services between Horizon and Post Office Ltd. Clients. Services available include data compression and encryption
GP	General Purpose
HLTP	High Level Test Plan
Horizon	Horizon is the end-to-end solution that provides Post Office with a range of counter services
HR SAP	The SAP System used by Royal Mail Group's Human Resources to pay sub-postmasters
ITU	Integration and Test Unit
LFS	Logistic Feeder Service

MIS	Management Information System; Horizon application set that provides access to and analysis of the information held in the Data Warehouse
NWB	Network Banking
POA	Post Office Account
POL	Post Office Limited
POL FS	Post Office Limited Financial System, name given to the new SAP service
POL MIS	Post Office Limited Management Information System; from S80 Point 40 this is fed transaction data previously sent to TIP.
RDDS	Reference Data Distribution System.
RDMC	Reference Data Management Centre.
RDS	Reference Data System; Post Office Ltd. system that provides a Reference Data feed to Horizon and other systems
SAP ADS	SAP Automated Distribution Service, for managing Cash Distribution
SCO	Single Counter Outlet
SV&I	System Validation and Integration. A unit within ITU
TIP	Post Office Ltd. Transaction Information Processing system
TIS	Technical Interface Specification
TPS	Transaction Processing Service; Horizon service that formats data for transmission to a number of external systems.
V&I	Volume and Integrity

0.5 Changes in this Version

Version	Changes
0.1	Initial Version for internal review

0.6 Changes Expected

Changes
Review comments

0.7 Table of Contents

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1.0 Introduction

This is the final test report for the S80 integration testing performed by SV&I.

The testing comprised:

- Direct Interface testing of each of the interfaces introduced or modified as part of the S80 release;
- three 3-week cycles of functional and non-functional testing;
- an extended Peak clearance cycle.

2.0 Scope and Objectives

The objective of this document is to summarise the results of the testing.

The scope of the testing is defined in the functional [5], non-functional [6] and DIT [7-13] High Level Test Plans.

For ease of reference the change proposals delivered and tested at S80 follow:

CP	Description
3716	IMPACT: Rel 3 - Solution Build, Test and Implementation Stages
3717	SAP: Hosting Impact Programme Release 3 - Solution Specification and Solution Build, Test and Implementation
3731	'Plus One Prompts' project – Solution Build, Test and Implementation
3739	AKB - Solution & Test and Implementation
3747	Remove Support for Short Term Closure OBC Operations on OCMS Client and SYSMAN
3770	Smart Post: Track and Trace (T&T) Integration
3778	Sales Prompt Support for Money Laundering regulations
3781	VPN server Key expiry alert
3787	Split The Suspense Account Report
3842	IMPACT: Rel 3 - Counter Changes
3843	IMPACT: Rel 3 - Host Changes
3844	IMPACT: Rel 3 - Further Host Changes
3888	Impact Release 3: Week numbers printed on forms and reports

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3951	Changes to the A&L Banking receipt
3980	Impact Release 3: Remove the Variance report
3998	Impact Release 3: CAP/TP Ambiguity
4002	Impact release 3: Change the layout of Branch Trading Statement

3.0 Management Summary

Three 3-week cycles of Integration testing have been completed followed by an extended period of Peak re-tests.

The results of the tests can be summarised as follows:

	Cycle 1	Cycle 2	Cycle 3
Test Coverage	88%	89%	99.8%
Pass Rate	88%	95%	97.8%

A total of 1267 S80 peaks were raised by SV&I. This includes 223 Peaks relating to incidents raised during E2E up to and including E2E Cycle 3. It also includes 45 Peaks which are to be fixed at a future release.

Priority	Raised	Closed	Open	Future
A	13	13	0	0
B	824	809	15	0
C	375	329	7	38
D	55	48	0	7
Total	**1267**	**1199**	**22**	**45**

All Direct Interface Tests (DITs) have been completed successfully and, with the exception of the POL FS DIT, all have been 'signed off'. Sign-off of the POL FS DIT is expected shortly.

Recommendations from S80 are detailed in section 8.3.

4.0 System Under Test

4.1 Environment

The majority of functional testing was performed on the main integration rig BTC1. Security, Performance and System Management testing was performed on the BTC3 rig - as was some counter end-of-year testing. The DITs were performed on the E2E test rig, BTC7.

The main integration environment is made up of the following platforms:

- Solaris Host running DWH, DRS, APS, TPS, OBCS, RDMC, RDDS, LFS, NPS & TES (with EMC Disk array)
- 16 Correspondence Servers supporting Riposte messaging software in a dual locale, four cluster configuration.
- Web Servers - PAF & DVLA
- ACDB Client. (residing on the SSC Workstation)
- ACDB Server.
- 8 Generic Agent Servers.
- 1 NBX Routing Agent/Reversal Agent
- 4 Network Banking Agents.
- DCSM Server.
- DCSA Server.
- Post Offices, which include varying configurations such as Single counter (fixed SCO and mobile SCO), Double counter, Triple, and five counter position outlet. English, Welsh, Scottish and Northern Ireland offices are included.
- All Post Offices supporting Riposte messaging software.
- FTMS gateways supporting file transfers to/from TIP, POCL RDMC, Horizon Help Desk, sub-set of AP Clients, NS&I, DVLA & EDG.
- Workstations to support the reference data and message broadcast applications.
- APS workstation.
- DRS Workstation
- EPAY Emulator
- DVLA Emulator
- KMS Server

- KMS Workstation
- VPN Servers
- Certification Authority Workstations (Shared across test rigs)
- OCMS Servers
- Centera box
- EMC
- Full Maestro
- Bootloader Server
- Range of SYSMAN boxes.
- Audit Server and Audit Workstation.
- QA server to allow use of automated scripts for Performance testing purposes.
- Test Director Workstations to allow the test scripts to be executed.

4.2 Software

The software under test is defined in the system baseline documents lodged in PVCS.

As is standard practice, each test cycle was begun with the software available at that point and the test rig was regularly 'topped-up' with updates/fixes as they became available.

4.3 Test Tools

Two new test tools were introduced at S80:

A track and trace emulator which emulated the Track and Trace Web Server on the Post Office Enterprise Data Gateway (EDG). This allowed the T&T XML messages to be parsed and automatically checked for conformance to the AIS.

A counter transaction bulking and loading tool which was developed to support the testing in relation to requirement BT001 (SU rollover timing). This tool made it possible to load the five weeks of transactions needed to record the time taken to rollover a stock unit at the end of a five week Trading Period.

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5.0 Test Conduct

5.1 Tests Performed

In the three execution cycles all of the key areas of S80 functionality were tested.

The following table shows the individual areas and their inclusion in the S80 test cycles:

Area	Cycle 1	Cycle 2	Cycle 3
Impact - Migration	✓	✓	✓
Impact - Balancing/Rollover	✓	✓	✓
Impact - Other Reports	✓	✓	✓
Impact - Counter Transactions	✓	✓	✓
Impact - Variances	✓	✓	✓
Impact - Transaction Corrections	✓	✓	✓
Impact - POL MIS/FTRS/CTS	✓	✓	✓
Impact - POL FS	✓	✓	✓
Impact - HR SAP	✓	✓	✓
Impact - DRS	✓	✓	✓
Impact - DWH	✓	✓	✓
RDMC-RDDS	✓	✓	✓
Sales Prompts	✓	✓	✓
Track and Trace	✓	✓	✓
Security	✓	✓	✓
New/Modified FTMS Interfaces	✓	✓	✓
AKB	✓	✓	✓
VPN server key expiry alert	✓	✓	✓
Estate Management	✓	✓	✓
Counter Performance	✓	✓	✗

After the end of cycle 3 the BTC1 test rig was reset and a Peak clearance cycle was begun. This had a number of objectives:

- to test fixes for all peaks outstanding at the end of cycle 3;
- to test fixes for peaks raised during end-to-end (E2E) testing;
- to test CP's delivered after the end of cycle 3 (3951, 3980, 3998 and 4002);
- to perform comprehensive regression testing of all areas for which peak fixes had been taken or changes made as a result of the CP's;
- to perform the SU rollover timing test in support of Impact requirement BT001.

The peak clearance cycle continued up until the cut-off for counter fixes at S80.

5.2 Test Results

5.2.1 Overview by area

5.2.1.1 Impact - Migration

Given the complexity of the counter migration (with functional changes triggered at three points: 20, 30 and 50) Migration testing went well from the very first cycle and, by the third cycle, there were very few new problems found in this area. The ability to migrate successfully - specifically to Branch Trading at Point 50 - was a fundamental pre-requisite to the counter testing which could only take place after migration had occurred (e.g. Transaction Corrections, Branch Trading Statement, the handling of volume stock).

Host migration - specifically points 25, 30 and 40 - also was largely problem free from an early point in our testing.

5.2.1.2 Impact - Balancing/Rollover

This was the area that caused most concern from the first cycle. In that first cycle in particular, many problems were identified, e.g. cash and stock disappearing, volume stock treated as value stock, incorrect figures on the balance reports after stock adjustment and declaration, problems with local suspense and the Trading Statement. The situation improved in Cycle 2 but it

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was only in Cycle 3 that the code began to stabilise and testers were consistently able to balance and rollover without error.

5.2.1.3 Impact - Other Reports/Counter Transactions

There were Impact related changes to a number of counter reports and, of course, these were specifically tested. In addition, however, all counter reports were tested in the course of a widespread and in depth regression test of the counter as a whole. This included the testing of all transaction types (NB/DCS/ETU/APS/Bureau/EPOSS) in all modes. There were very few problems found in respect of either reports or transactions.

5.2.1.4 Impact - Variances

There were a number of problems with the Variance Report in the first cycle but these were superseded by the removal of that report in response to CP 3990. Otherwise, the changes in this area - Add/Remove Cash, Variance check and changes to the Cash declaration process - were largely problem free.

5.2.1.5 Impact - Transaction Corrections

This was a major new area of functionality at S80, with host and counter components. There were few problems with the host (file loading and processing) component but the counter component (the selection, processing and reporting of Transaction Corrections) threw up a number of problems. Amongst these were issues in relation to the rules for the use of Transaction Corrections, specifically for currency and travellers cheques. By Cycle 3, the issues had been resolved and the counter functionality stabilised.

5.2.1.6 Impact - POL MIS/CTS/FRTS

At S80 the feed of transactions to TIP is replaced by a feed to POL MIS with additional data provided for bureau and on-line transactions. In the course of testing a number of problems, with that additional data, were found. But the problems were not serious (at least in terms of their impact on testing) and were quickly fixed. The changes at S80 to the FRTS and CTS feeds were error-free.

5.2.1.7 Impact - POL FS

POL FS testing was performed using reference data (product to article mappings) prepared by the test team. There were some problems with this data in early testing but these were quickly resolved. The testing itself went well - there were no 'show-stoppers' but a substantial number of Peaks were raised in the early cycles in particular.

5.2.1.8 Impact - HR SAP

There were very few problems with HR SAP.

5.2.1.9 Impact - DRS / DW

The changes in these areas were relatively minor and the few problems found were resolved by the start of Cycle 3.

5.2.1.10 RDMC/RDDS

RDMC/RDDS testing was initially delayed by resourcing issues: time had to be spent on reference data preparation and management at the expense of specific testing. The testing was completed successfully but only after a small number of Peaks had been raised, fixed and retested.

5.2.1.11 Sales Prompts

The introduction of Sales Prompts was one of the major changes at S80 (along with Impact and Track and Trace). In terms of the testing, however, it was the least problematic, with only a small number of Peaks raised.

5.2.1.12 Track and Trace

There were a steady stream of Peaks raised during all three cycles of Track and Trace testing. In the first two cycles of testing, Mails reference data prepared by Development (in Crewe) was used. In the third Cycle (and subsequent Peak clearance) Mails reference data provided by PO Ltd was used and this led to the identification of problems not previously seen.

5.2.1.13 Non-functional - Performance

The Performance testing performed on the 20-counter office went well, with no major problems reported. The SU rollover performance testing performed subsequently, in relation to Impact requirement BT001, was also completed successfully - it being demonstrated that the time taken to rollover a stock unit post-Point 50 (i.e. with five weeks of data) was no more than five times the time taken to roll over a stock unit at S75 (i.e. with one weeks data).

5.2.1.14 Non-functional - Other

The AKB, VPN and Estate Management changes were all virtually problem-free. A number of problems, none of them very serious, were found during Security testing. Similarly the testing of the new and modified FTMS interfaces generated a relatively small number of Peaks.

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5.2.2 DIT results

The following DITs have all been signed off:

Horizon-CTS

Horizon-FRTS

Horizon-POL MIS

Horizon-HR SAP

Horizon-EDG Track and Trace

RDS-Horizon

The Horizon-POL FS DIT has now been completed - the last remaining test (Error file handling) failed on the first two attempts but was finally completed successfully in E2E Cycle 4. Sign-off is expected shortly.

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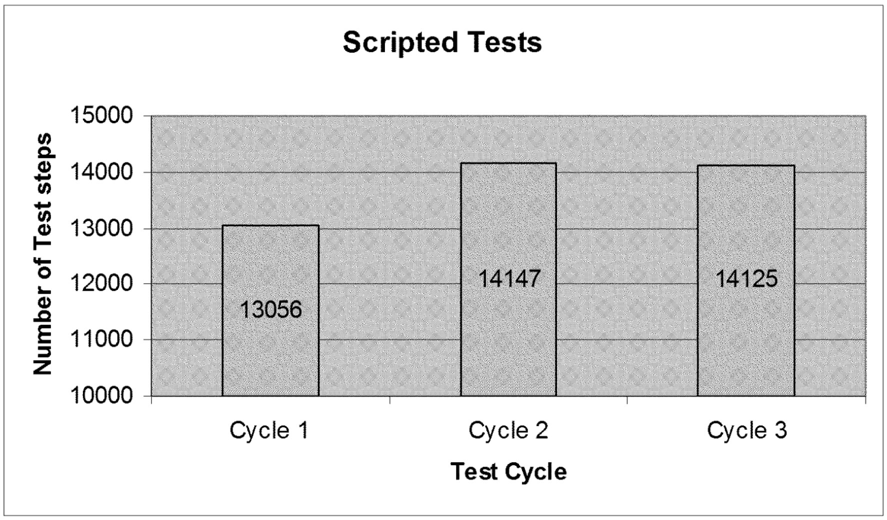
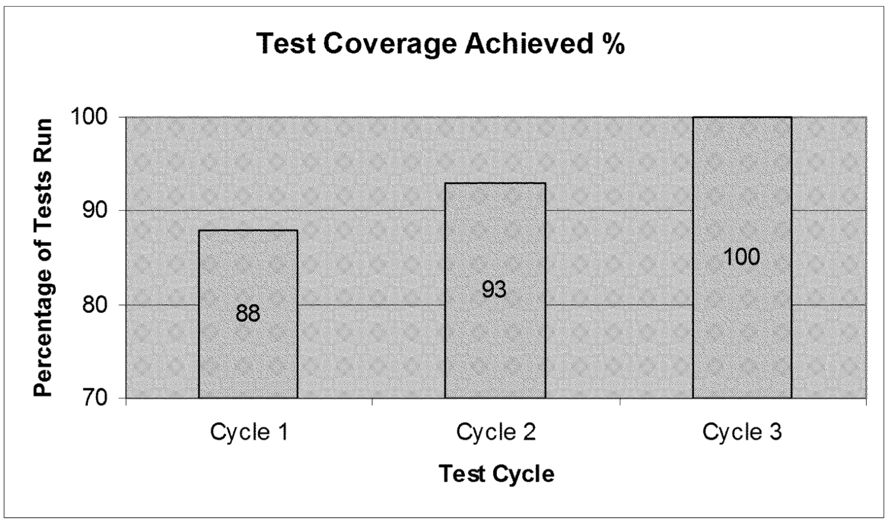
6.0 Test Statistics

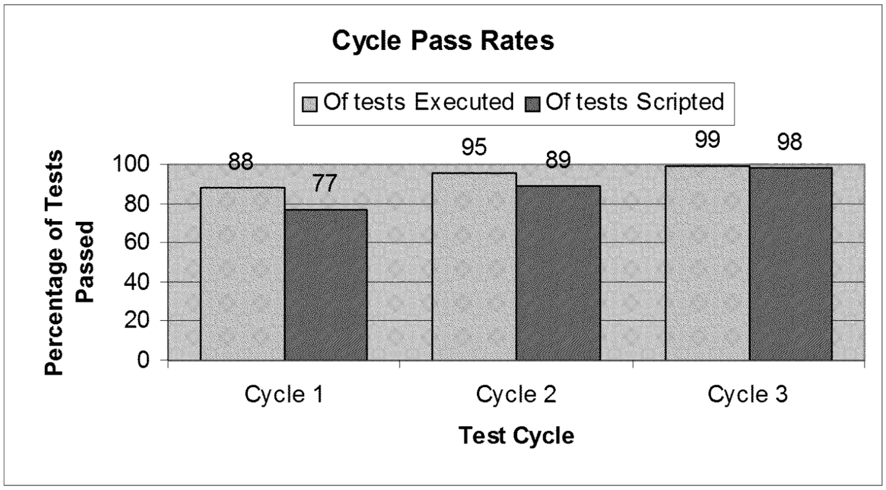
6.1 Scripted Tests



6.2 Test Coverage



6.3 Pass rate


Cycle Pass Rates
Of tests Executed
Of tests Scripted
Percentage of Tests Passed
100
80
60
40
20
0
88
77
95
89
99
98
Cycle 1
Cycle 2
Cycle 3
Test Cycle

7.0 Peaks

7.1 Peaks by cycle

There follows a breakdown of Peaks raised by SV&I during S80 testing for resolution at S80. Note the figures include Peaks raised as a result of incidents identified during E2E testing up to and including E2E Cycle 3.

	S80 Cycle 01		
Priority	Raised	Closed	Current Open
A	2	2	0
B	237	237	0
C	164	163	1
D	27	27	0
Total	**430**	**429**	**1**

	S80 Cycle 02		
Priority	Raised	Closed	Current Open
A	3	3	0
B	187	187	0
C	66	66	0
D	3	3	0
Total	**259**	**259**	**0**

	S80 Cycle 03		
Priority	Raised	Closed	Current Open
A	2	2	0
B	154	153	1
C	58	57	1
D	6	6	0
Total	**220**	**218**	**2**

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	Peak Clearance Cycle		
Priority	Raised	Closed	Current Open
A	6	6	0
B	246	236	10
C	49	45	4
D	12	12	0
Total	**313**	**299**	**14**

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7.2 Deferred Peaks

This is the list of peaks raised by SV&I during S80 testing (either as a result of SV&I functional testing or E2E testing) which are to be fixed at a future release.

Peak	Description	Analysis and Proposal	Severity	Proposed Target Release
PC0113449 'C'	S80A CTR : Layout of SU Trial balance Stock Unit Trial Balance Report differs from the layout specified in the UI (EA/IFS/011) in that it is missing a blank line before the line "VALUE STOCK & MOP".	This is considered a low priority fix as the required information is displayed correctly.	Low	Future Release
PC0113835 'C'	S80A - further logon checks after TC logon prompt The Declaration/Correction and Revaluation UI (EA/IFS/012) states that the Transaction Correction Check should be the LAST logon check to be performed. On the first logon on of the day at a counter it is NOT the last - the APS Disaster Recovery/Fallback checks are the last.	The preferred option is for Transaction Corrections to be the last check, however it is not essential, as the Corrections are not being made to APS transactions. If we were to go ahead with the changes at this stage it would involve changes to three components which could result in further problems, amounting to instability.	Low	Future Release

PC0113851 'C'	S80A - Format of Branch TP displayed Having rolled an Office out of TP07 into TP08, selection of the 'Select Branch TP' icon displayed the message "The branch is currently in Trading Period 8." This should be '08' for consistency with other screens/reports	This is considered a low priority fix and although introduces an inconsistency, the impact is negligible.	Low	Future Release
PC0113979 'C'	S80A CTR : Reval warning marks SU as dirty Prior to S80, a product price change causes each stock unit to marked as 'dirty', preventing the stock unit from being rolled over as 'Inactive' (in case it holds any of the stock which would need to be revalued). From Point 50 this is no longer necessary (since stock can no longer be revalued) but stock units are still marked as 'dirty' on receipt of a price change and therefore still cannot be rolled over as inactive.	This is a design issue rather than a coding bug. The system could and should allow stock units to be rolled over as inactive after a price change but it is just operating as it did prior to S80 (i.e. counter staff wont have to do anything more than they currently have to do).	Low	Future Release
PC0114197 'C'	S80A MIG : Screens displayed at logon The desktop menu is displayed before the APS recovery prompts. At S70/75 this was not the case, all prompts were displayed before the first display of the desktop menu	This is a screen flicker and would require the introduction of an intermediate screen. As there is no opportunity for any action to be taken on the screen, i.e. button presses the impact is considered low and a fix not recommended.	Low	Future Release
PC0114419 'D'	S80A-CTN-No space in pop-up screen of B-Snapshot	No impact, cosmetic change.	Low	Future Release

	The screen displayed while the Balance snapshot is printing has the text 'Printing Report Balance Snapshot(By volume)'. There is no space after the word 'Snapshot'			
PC0115028 'C'	S80B-MIG-In MIGR01 user CAP still shows as 01 When logging in as MIGR01 user and performing a migration. The System displayed CAP 30 automatically and migration was completed successfully. However, the information on the bottom right hand corner of the desktop appeared as below. Stock: DEF User: MIGR01 (Share) CAP 01/BP 01 This was corrected once the MIGR01 user is logged out and logged back in.	This has not changed at S80, it has always been like this when you log in to a new counter in the DEF SU. This is therefore recommended for closure	Low	For closure.
PC0115319 'C'	S80A-CTR-Stock Adjust should report adjust failure This problem only occurs if volume stock	This is not considered to be an essential fix because it will only occur if the data is not specified correctly. To protect against this possibility a fix should be considered in a Future	Low	Future Release

	products have an adjustment price and that adjustment price is outside of the product's min/max values, i.e. it will only occur where the reference data is invalid. In such a case, if an attempt is made to adjust the volume of the product, the system will not make the adjustment (as expected) but it will also not display an error message. The Peak relates to the fact that no error message is displayed.	Release.		
PC0115852 'C'	S80 - CTR - SAN gives -ve Cash volume adjustment Stock adjustment transactions (positive and negative) were successfully completed and a Transaction Log was then printed. This showed the cash settlement transaction for the Stock Adjust Negative transaction as having a negative volume and a positive value. The volume should have been shown as positive. Note that adjustment transaction was correctly reflected in the stock unit and office balance reports (i.e. the impact of this problem is limited to the Transaction Log).	This is a code error but the problem has been in the system since before S80 and doesn't appear to be causing any significant confusion.	Low	Future Release
PC0116211 'C'	S80 B - ETU icon missing after session tfr When transferring a session from one counter, which is on the Mobile Phone E Products Services screen, to another counter for the first	Historically the menus formed a disconnected hierarchy in that each submenu has a single parent menu, and thus the branches of the menu tree always move outwards from the root and never join back onto other branches. To avoid large-scale reference data duplication, at S60 release	Medium	Future Release

	time the Vodafone icon disappears. If the user prevs out of this screen and goes back into the Mobile Phone E Products Services screen, the icon reappears.	some submenus that are shared by 2 of more branches have been introduced. For example, the 'Mobile E prods' menu is specified just once in reference data but it appears on both the following menus :- Transactions/Serve Customer/Other Products Transactions/Serve Customer/Other Products/Travel This sharing of menu data appears to be confusing the Desktop when it restores the customer session on a destination counter during a session transfer. The Desktop fails to display the icon on the first (top left) button on the shared menu, if that icon has never been displayed on that counter since the Desktop was last cycled. It is only menus shared in this way that experience the problem. The list of menus affected in this way is given below. Transactions/Serve Customer/Other Products/Mobile E prods Transactions/Serve Customer/Other Products/Travel/Mobile E prods Transactions/Serve Customer/Functions/smartpost Admin Transactions/Non Acc Data/Functions/smartpost Admin Transactions/Non Acc Data/Other Non Acc/Functions/smartpost Admin Transaction/Remittances/Out ADC Transaction/Remittances/Out ADC/Stock/Out ADC		

		On the basis that this will be a rare occurrence and the fact that Reference Data to deliver approximately 100 additional buttons would be required, we do not suggest this is fixed at S80. Recommend for Future Release.		
PC0116293 'C'	S80B CTR : SU imbalance warning clears automatically If there is an imbalance in a SU then a warning is displayed at rollover. This warning has a "Continue" button and should not be cleared until the clerk presses the button, but it actually clears by itself. So if you're not looking at the screen you may miss seeing this message.	This is not a new problem at S80 and the problem of SU imbalance is not a regular occurrence. Also, the message tablet is displayed for the duration of the time it takes to print the report.	Low	Future Release
PC0116581 'C'	S80B CTR Trans Corrections OnLine Err message If a Transaction Correction fails to process at the counter the correct message appears on screen and on the print out, however the top of the receipt print out also includes the text 'On-line services unavailable'. This is obviously misleading and would probably be reported to NBSC by the Post Master when he called with the reference number for the failed TC.	A new report definition would be required for this printed slip. The suggestion is as it is only visible to the PM and since it is only used for when he is going to call NBSC as long as the text is regarded as irrelevant this would not cause an issue.	Low	Future Release
PC0116972 'C'	S80C - Session transfer with mails items on stack In the course of testing it has been found that session transfer with Track and Trace items on	Development have analysed the problem and concluded the following: i) All session transfers are thought to be slower within 2 migration windows:	Low	Future Release

	the stack is taking longer than does session transfer with non-Track and Trace items on the stack. The length of time it takes has varied - on some occasions it has been almost as quick (a few seconds) as a session transfer with non-track and trace items but on other occasions it has taken as much as 3 and a half minutes.	(1) From Counter Roll-out (Point 20) until the end of the CAP when the CBDB is switched off (2) The last CAP until the first TP inclusive (ii) However transfers with mails transactions appear to be taking significantly longer at S80 compared with S75. As T&T is only in pilot until post S90, it is likely that this problem will not be an issue for the bulk of the estate. Part (i) we can't do anything about - it is believed to be only a problem during S80 CAP to TP migration. So the recommendation is that we publish a KEL. Part(ii) is under investigation with Escher. Component showing problem is Escher desktop, so a fix at S80 is unrealistic. If an Escher fix is identified and can be supplied within the necessary timescales this could potentially be included at S90.		
PC0117023 'C'	S80 E2E : Pouch dispatch msg wrong for nil pouch When an ACC card is scanned when there are no pouches to collect, the system displays a message 'Pouch Despatch Successful', however this is immediately followed by another message 'No Pouches to Despatch'.	This problem has existed since before S80 and does not appear to be causing any problem in Live. A KEL will be raised and the call closed.	Low	Future Release

PC0117096 'C'	S80C-T&T- Error on speed bulk receipt. There is an inconsistency between the Mails/Bulk Mails receipts and the Speed Bulk receipt. The Mails/Bulk Mails receipt states:- Posted after Last Collection? The Speed Bulk receipt states:- Posted After Last Collection? The 'A' in "After" is in uppercase on the Speed Bulk receipt and in lower case on the Mails/Bulk Mails receipts. For consistency the 'a' should be in lower case on all receipts.	Low risk cosmetic change.	Low	Future Release
PC0117173 'C'	S80C CTR : Format of SU Snapshot Format of new-style SU snapshot report does not conform to the design - it should not contain lines for Discrepancy Shortages Transferred or Discrepancy Excess Transferred	The problem here is consistency as the SU Snapshot should be identical to the SU Final Balance Report. The missing lines will always be zero. This would be a medium change in the code and is therefore not recommended at this stage.	Low	Future Release
PC0117310 'C'	S80 E2E : First logon displays malformed screen On the first logon of the day, the DESKTOP screen is displayed for a few seconds with a number of empty 'white boxes'.	Raised as an incident during end-to-end testing but subsequently agreed to be of a low priority and deferrable to a future release.	Low	Future Release

PC0117852 'C'	S80C-TCO-Print error results in Option list again If an error occurs while processing a Transaction Correction (TC) and the Print option is selected, after the Error has printed the user will not be returned immediately to the TC list screen. They will briefly see either the TC settlement options or the Housekeeping Menu before being returned to the list of TCs. The user will briefly see one of the following screens: (a) The settlement options list again i.e. 'Make Good: Cash', 'Settle Centrally', etc, if the TC just attempted had 'Accept Now' then 'Make Good' or 'Settle Centrally' selected before the error. (b) The Housekeeping Menu if the TC just attempted had 'Assign to HO', 'Send to P&L' or 'Stock WO' selected before the error.	The only reasons a failure would occur at the counter is if the TC was for a Non Core product not available at that office or if the end date of the product or mode has passed (after the TC products and modes were validated by TPS). These situations are unlikely to arise in live and this peak has therefore been moved to Future Unspecified.	Low	Future Release
PC0118048 'C'	S80D-CTR-Isolated node warning * 2 on some reports When a report is produced at an 'isolated node'	Coding error results in two different components issuing warning message (so a fix would require changes to both components). As the problem does not affect functionality a KEL has been raised,	Low	Future Release

	(i.e. node which is not connected to at least one other) the system displays an 'isolated node' warning message. For a small number - 4 - of reports that warning is being displayed twice. The reports affected are: Reprint Stock Unit Balance report Processed Transaction Corrections report Reprint Branch Trading Statement Sales Report.	Mscardifield1738R and a fix proposed for a Future Release		
PC0119894 'C'	S80D-TCO-text appears bottom right - Detail/Options A Transaction Correction was selected for processing. 'Accept Now' was selected and then 'Make Good' from the settlement options screen. 'OK' was then selected on the same screen. At this point there is a brief flicker of the text 'Accept Now' at the bottom right-hand corner of the screen, just below the 'OK' button. Similar behaviour occurs for the other Transaction Correction processing options, e.g. when 'Settle Centrally' is selected there is a brief flicker of the text ' Settle Centrally'.	The current mode is being flashed up at the bottom right-hand of the screen. The (Escher) Desktop component is doing this automatically whenever the mode is changed. This happens elsewhere in the existing product but is particularly noticeable in the new Transaction Correction functions KEL Mscardifield4232P has been raised, suggested that call is closed.	Low	Future Release

PC0119913 'C'	S80D - CTR - SU Trial balance layout The example layout for the (post Point 50) Trial Balance layout shown in EA/IFS/011 (Impact Release 3 - Report production) differs from the actual report in the following respects: - The example has a blank line at line 56 (just after 'Discrepancy Short Resolved'. There is no blank line on the current report. - The example has just one blank line before the 'STOCK VOLUMES' line. There are currently 3 blank lines.	See also PC0113449. This is an error in the coding of the report but does not affect functionality. Propose fixing at a Future release	Low	Future Release
PC0119991 'C'	S80D Dev : MiMan into TP mode - report problem An office is Mimaned into TP Mode and a report produced which includes selection of a TP (e.g. Transaction Log). The TP selection picklist for the report shows the current TP as 'CAP' - e.g. instead of showing TP7 it shows CAP7.	The scenario where an office is MiManed, will only impact a small number of offices. The report can still be produced and its content is correct (it is only the selection picklist which is wrong) and the problem disappears after the first Trading Statement is produced.	Low	Future Release
PC0120060 'D'	S80D CTR : Reprint error message overlaps tablet Select Reprints/SU Balance and select a stock unit. Select Continue without selecting a CAP/TP At S75 the message displayed is split across 2 lines No CAP/BP Criteria specified At S80 the	Cosmetic fix, considered to be of no Business Impact.	Low	Future Release

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	message is displayed on a single line No TP/BP Criteria specified. This makes the message too long to fit into the error tab The final latter (d) overlaps the RH edge of the tab			
PC0120245 'C'	S80D DCS : Can settle cheque by debit card The Settlement menu was selected with nothing on the stack (i.e. via the Functions menu). 'Cheque' was the selected and a value of £30 entered. This correctly showed on the stack as 'Pay £30.00'. A Debit Card was inserted in the Pin Pad and Chip and Pin selected. Since there was no money owed by the customer the system should not have allowed a debit card payment to be made. Instead the amount display showed session total -30.00, max amount 30.00, default amount 0.00 and a DC transaction for £30.00 was completed. The stack now showed that the customer was to be paid £60.	This is an unlikely scenario and not a new problem at S80. It is only a problem if the Settlement menu is on display with nothing on the stack – under normal circumstances where a cheque is used in part payment against, say, a TV licence, then the max and default amounts for the Debit card payment are calculated correctly.	Medium	Future Release
PC0120467 'D'	S80D-CRE-Printing report APS trans list (S80) When the APS transaction report is printing, at an S80 counter, the Printing report tablet has the message: 'Printing Report APS Transaction List (S80)'. The text '(S80)' is superfluous.	Only this report is affected and, while the text '(S80)' is unnecessary, it has no impact on the production or content of the report.	Low	Future Release
PC0120468 'C'	S80D-CRE-Misc Trans report shown as o/s The 'Summaries' button was selected from the Balancing menu and the picklist of outstanding	This is not a new problem at S80 and is highly unlikely to occur in Live. For the problem to occur it is necessary NOT to have performed any of the transactions normally included on this report, e.g. Parcel Traffic and	Low	Future Release

	reports displayed. That picklist included the Miscellaneous Transactions report. The report was selected and printed. It was empty.	BdC, and to have performed non DVLA APS transactions (which are not included on the report). The part of the system which determines what appears on the outstanding summaries pick list does not recognise that all other APS transactions are excluded from the report.		
PC0120471 'C'	S80D-CBL-adj stock: no error on invalid po fee In Adjust stock, if an attempt is made to adjust a product and that product has an 'adjustment price' which is not within the product min/max value then the adjustment is not made and an error event is written to the event log. If an attempt is made to adjust a Postal Order product and the associated PO fee product has an adjustment price which fails the min/max value validation then, again, the system does not make the adjustment but this time it DOES NOT write an error to the event log.	The problem only arises if adjustment price is set on PO fee products (don't believe this will be the case in Live) AND the reference data is incorrectly specified (e.g. the min/max values are wrong). The system will behave as it should - no adjustment is made - but the lack of diagnostic information will make it a bit more difficult to diagnose the problem. No Business Impact - proposed for fixing at a future release.	Low	Future Release
PC0120509 'C'	S80D-CBL-Discrepancies after attempted inact ro In this test the office had two stock units, S1 and I1. I1 is inactive but holds a product, which has been re-valued and as such, the SU cannot be rolled over as inactive. In S1 all declarations were made without discrepancy. An attempt was then made to roll I1 over as inactive. The appropriate error was displayed. Still in S1, the 'Discrepancies' button was then selected and	This problem dates from before S80 - i.e. is present in the S75 counter. The scenario is an unusual one and one which does not appear to have ever happened in Live. A fix at this stage would be considered high risk and it is therefore proposed to raise a KEL and propose a fix for a Future Release.	Medium	Future Release

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	discrepancies were displayed for cash and stamps. The value of the discrepancy in each case was the value calculated for I1.			
PC0120545 'D'	S80D-CRE-bal reports: blank lines after tfr in/out On Balance reports there are two blank lines after the 'Transfers In' line (and before the first Rem in line) and only one blank line after the 'Transfers Out' line (and before the first Rem Out line).	While this DOES comply with the layout given in the IFS (EA/IFS/011), it is inconsistent. Cosmetic fix, with no Business Impact, suggests the document is amended to reflect.	Low	Future Release
PC0120670 'D'	S80 Frequency of CMService Msgs if ADSL Disconnec If, at an ADSL office, the ADSL connection is lost the CMService constantly outputs a warning message (ID 125) approx every 60 seconds and an error message (ID 132) after every five ID 125 messages.	This problem is not new at S80 and has no Business Impact, the impact is to the support teams in diagnosis of the problem.	Low	Future Release
PC0120783 'C'	S80D-CTN-Mob E-prods button not locked when offline The 'Mobile E prods' button (Transactions/Serve Customer/Other Products/Mobile E prods) is disabled when the off-line indicator is on display. However, this button also occurs on the Other Products/Travel submenu and that second instance of the 'Mobile E prods' button does not get disabled when the off-line indicator is on.	Though this is inconsistent behaviour of the buttons and both should be displayed as locked in this scenario, any button driven ETU transaction attempted could not be completed if there is no on-line connection.	Low	Future Release

PC0120812 'D'	S80D-CTR-Incorrect message header & No space The message displayed when a stock unit is rolled over with a discrepancy (post Point 50) has the header 'Discrepancy Transferred'. The screen shot for this message in the IFS (EA/IFS/013, section 4.2.10) has the header as 'Discrepancy Transfer'. Also, in the text of the message there is no space between the sign of the discrepancy figure and text '(Loss)' or '(Gain)' (e.g. £50 loss appears as '£50.00-(Loss)'.	No Business impact, cosmetic fix only.	Low	Future Release
PC0120873 'C'	S80D-MIG-Event log has CAP in heading after P50 The Event Log reports continue to show 'CAP' in the column headings after Point 50: SU USER CAP BP NODE DATE AND TIME EVENT TITLE EVENT DESCRIPTION	We believe this to be a low Business Impact and as such recommend fixing in a Future Release.	Low	Future Release

PC0121001 'C'	S80 E2E 1b : Parcel Traffic pick list re-displayed When £0.00 Value, 0 quantity Parcel Traffic entries are made for each 'product' in the PT pick list, a message tablet is output alerting the user to the zero entries. When the message is confirmed that the zero entries are correct, the pick list screen is re-displayed for a second or two before the receipt is printed. The pick list is not re-displayed when quantities other than zero are used, nor is it re-displayed for this scenario on an S75 counter.	Raised as an incident during end-to-end testing but subsequently agreed to be of a low priority and deferrable to a future release.	Low	Future Release
PC0121136 'C'	S80D-CTN-Rem/Tfr reversal receipts show vol 0.00 On Rem and transfer in and out receipts, volume stock items are shown with value blank. If a Tfr out is reversed or a Rem In/Out volume stock transaction is reversed then the receipt produced is a 'normal' session receipt which has unit price/value zero ('0.00') for the volume stock products.	This has been looked at by Phil Hemmingway (Design). He notes that the content of reversal receipts is not specified in the Report Production User Interface document (EA/IFS/011). However he believes that 'stating an item has been reversed at zero item value, giving a total reversal value of zero is correct and representative of what has happened.' He therefore believes there is 'no fault' but suggests that the IFS is updated to record the fact that volume stock products appear on reversal receipts with value 0.00. PO Ltd have requested that this be fixed at S80. The peak has been further discussed by design and development and both are strongly of the opinion that to make such a change at this point would carry considerable risk. Currently, the reversal receipt is a generic session receipt (i.e. it is already different from the Rem and Transfer receipts). This is because 'reversal' is also a generic function (used for all modes). To accommodate the change, reversal functions and receipts which are	Low	Documentation update

		specific to Rems and Transfers would have to be developed. If a change is required then the details need to be agreed between FS and POL.		
PC0121249 'C'	S80D-CBL-Office snapshot has Reval up/down Post Point 50, the office snapshot still contains 'Reval Up' and 'Reval Down' lines. These should not be present (and are not present on SU Balance snapshot and Trial and Final balance reports).	We believe this to be a low Business Impact and as such recommend fixing in a Future Release.	Low	Future Release
PC0121314 'C'	S80 E2E 1b : CD Giro slip Despatch Date in yr 1-9 The peak was raised during E2E testing (Incident 2659). Girobank pre-printed stationery reports were produced at Office D (506 880), cycle 1b, day 10. The space to the right of the datestamp box has a space for printing of the Stock Unit, Week Number and Balance Period, shown in the format of AA:09:01. This is being printed as AA: 9:01."	This has already been accepted by PO Ltd as deferrable and the related incident updated accordingly.	Low	Future Release
PC0121925 'C'	S80 E2E 2 : Shared SU Cash dec Gain after mig > TP E2E Cycle 2 Incident 2783 A cash declaration was made in "Stock Balancing" for the amount displayed on the Snapshot. When the Cash Variance was checked	Development believe that this incident (and a second similar incident in Cycle 3) was caused by a problem in Riposte and that that problem is an existing and very intermittent 'live' problem. The concern has been that the E2E incidents suggested that the problem - a Riposte procedure does not return details of all transactions when called to build the 'balance tree' - is occurring more frequently at S80.	Medium	Future Release

	afterwards a Gain of £45.05 was displayed. The discrepancy was the cash value of the transactions performed on the stock unit after rolling into Branch Trading."	However, in automated testing in which the test scenario was repeated more than 10,000 times, the problem did not occur once. It is suspected that the rig set up on E2E has contributed to the problem occurring and there is no reason to believe that live will see any more instances once at S80. As stated above the underlying cause would require an Esher delivery. This would not be available for S80 or S80R. Development will continue to investigate to identify whether a 'work round' change could be made in our code.		
PC0121959 'C'	S80D EMV : Retail card with invalid LUHN When a card fails the LUHN check, the customer is still asked to enter a PIN, before the error is reported to the clerk . This is different behaviour to pre-S80.	560 (S75) This change in behaviour is thought to have occurred between the 557 (S70) and the versions of the PINPad. It is an unlikely occurrence (corrupt card or hardware problem) and the error is handled cleanly if it ever should occur. The PEAK will be treated as a low priority Hypercom problem for further investigation at S90. We recommend that this PEAK should be deferred until a later release.	Low	Future Release
PC0122000 'D'	S80 E2E 2 : 'Date produced' for B,Trading reprint E2E Incident 1937 For a reprint of a Branch Trading statement all screens now show correct captions but 'Date Produced' line is still missing from the Produce Report screen.	This is felt to be of low Business Impact.	Low	Future Release
PC0122003	S80 E2E 2 : Vol stock sort order Office/SU snaps	On investigation Development have found that this problem, which affects all products which do not have a Level 1 Primary Mapping, has	Medium	Future Release

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'C'	E2E Incident 2795 Stock Unit and Office Snapshots were produced at Office B (501 680) today (Cycle 2, Day 8). On referral to the "Stock Volumes" section, the £1 Littlewoods Lotto Scratchcards appeared before the £2 ones on the Office Snapshot, but the other way around on the Stock Unit Snapshot.	existed in Live since 2001. On that basis, Po Ltd have already signalled there willingness to accept deferral until a future release.		
PC0122856 'C'	S80 E2E 3 : Reprint for blank OW Redeem Stp report E2E Cycle 3 incident 3032 When re-printing a "Redeemed Savings Stamps" report, there is an option to print a report that is blank. This particular report seems to be produced by the implied cut-off being set at the roll over of the Trading Period. The report was printed at Office E (004 038) and had the date range of 04/07/2005 - 04/07/2005. There was a Trading Statement produced on this date at this office."	This problem is felt to have a low business impact and a change for S80 would, at this late stage, be risky. It is therefore proposed that it should be fixed at a Future Release.	Low	Future Release
PC0122911 'C'	S80 E2E 3 : T&T Mails Dsptch Report Page 2 header E2E Cycle 3 Incident 3019 Mails Despatch" report for "All Carriers" was produced at Office E (004038) which included transactions for both Royal Mail and	The problem only occurs where EPSON printers are used and has minimal business impact. PO Ltd have already agreed that the associated incident should be deferred.	Low	Future Release

	ParcelForce. The header from page 2 was printed on the bottom of page 1of the report. This office uses the "Epson" back office printer. When the same scenario was completed at Office F (505 038) the header was printed correctly. Office F uses the "OKI" back office printer."			
PC0122916 'C'	S80D : T&T Mails Dsptch Report shows details n/a If a Mails Despatch Report is reprinted for a period for which the original transactions have been archived then, as per design, the report includes for each archived transaction the message "T & T details not available. The data has been archived. NaN' followed by the bar-code. The text 'NaN' should not be included.	The problem is not a serious one - the report includes all of the data that is available - and only arises for transactions which are more than 42 days old.	Low	Future Release
PC0122950 'C'	S80 E2E 3 : Txn Corr report for A&L shows A&&L E2E Cycle 3 Incident 3019 "4 Transactions Corrections were received at Office E (004 038) for items 6790, 6791, 6792 and 6793. The names for these products are "A&L Deposit TC", "A&L Withdrawal TC", "NS&I Deposit TC" and "NS&I Withdrawal TC". The names are displayed correctly on the counter screen, although when the outstanding transaction corrections report is printed, they are	Various Products (e.g. 108, 111, 135, 166, 173, 177-179, 181-186) contain a double ampersand in one or more of the Short, Medium and Long name attributes. This is necessary to allow the single ampersand to be displayed on the screen. Existing reports which include these products suppress the second ampersand. The Transaction Correction reports (new at S80) do not. Given that only a relatively small number of TCs are likely to be affected and the problem is cosmetic with low business impact, it is proposed that it is fixed at a future release.	Low	Future Release

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	shown as "A&&L Deposit TC", "A&&L Withdrawal TC", "NS&&I Deposit TC" and "NS&&I Withdrawal TC" respectively."			

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8.0 Conclusion

8.1 Summary

S80 has been one of the most complex Horizon releases to date. The changes at the counter - for Track and Trace and Sales Prompts but most particularly for Impact - have been fundamental and wide reaching. The Data Centre also has seen significant change, specifically to the TPS host system (again, Impact related). The complexity of the release has been further increased by the fact that the S80 changes are triggered at various migration points.

It has not been an easy release to test. But the SV&I team have worked extremely well and helped deliver a working, robust system which meets the requirements.

We have needed and received considerable support from the Design and Development teams and they deserve much credit and our thanks for that. Development consistently provided us with a quick turnaround on Peak fixes and the PIT and SPTS teams were kept busy processing and applying those fixes. They typically did this without any delay and they, also, deserve credit and thanks for their support.

Finally, we must also thank our colleagues in the Post Office End-to-End test team. They always make a very valuable contribution and this has been particularly true of this release.

8.2 Issues

8.2.1 Changing requirements/design

As happens with all releases, requirements changed/were added during the testing. For S80, however, the level of change certainly appeared that much greater than in previous releases - and occurred later (the last S80 CP - 4002 - was not authorised until after the end of cycle 3).

The design also evolved and changed during the course of testing, partly as a result of changed requirements and partly in response to problems identified during testing.

This was particularly true of critical areas like the handling of local suspense, the derivation of fields on the Branch Trading statement and the reporting of Travellers Cheques.

8.2.2 Some areas not tested before SV&I.

For some areas of change - notably Transaction Corrections and those introduced by the late CP's - there was no DeLT testing in advance of SV&I testing. Not surprisingly, there were instances in which the untested code did not perform even its most basic function(s) when applied to the SV&I environment. In those instances, the time spent by PIT/SPTS in packaging and applying the code was effectively wasted.

8.2.3 Steep learning curve for many of the test team.

Most of the S80 test team only joined the team after the HLTP had been produced (because they were working on S75). They missed out on the main S80 analysis and, as a result, had a steep learning curve. They were then required to write the low level test script from a high level test plan (functions and conditions) prepared by another tester. This was necessary in the circumstances and did not compromise the testing but the low level scripts took longer to prepare and were not as detailed as would typically have been the case had the same person been responsible for both.

8.2.4 Complex low-level changes.

Typically, in order to test a system, we need to know what it is supposed to do, not how it does it. However, the nature and complexity of some of the changes at S80 (for example those in relation to Data Server and soft launch) were such that they could only be fully tested if the different processing paths and the conditions under which they were followed, were understood. While it made testing more difficult, there was a positive aspect in that we probably worked closer with Design on this release than ever before.

8.2.5 Reference Data

At S80 there was a very considerable amount of test reference data to be prepared, including:

- an update to every stock item

- POL FS mappings

- HR SAP mappings and schedules.

- Sales Prompts

- Mails reference data

Technically it should not matter who prepares the reference data: providing the data is defined in accordance with the AIS (in all its permutations) then the system should support it and behave accordingly.

But it is desirable if we can use the test reference data prepared by the Post Office (providing that data reflects the conditions which our analysis has shown need to be tested). The advantages are obvious:

- Test reference data preparation can be time-consuming and requires considerable experience - limited in our team - and attention to detail.
- The data prepared by PO Ltd to support their E2E testing can be expected to be more 'live-like' than data we prepare ourselves - important since there is always a risk that we miss a permutation which, when used, results in the system behaving invalidly.
- There is an advantage for the Post Office in that if we use their data before they do then errors in the data can be identified and fixed before E2E testing begins.
- It is easier to manage test rigs if, in the main, only one set of test reference data is used across all of the rigs.

The problem, of course, is that typically our testing begins before the PO Ltd data is ready. This was certainly the case at S80 - with the exception of Mails reference data, PO Ltd test reference data was not available until after Cycle 3 had started. Also, if we use PO Ltd reference data we don't have control of it and risk being affected by problems/delays in preparing the data. Finally, there are always some specific reference data variations which we need which will not be reflected in PO Ltd data.

So, the SV&I team had a lot of test reference data to prepare and manage at S80 and, although the team now has two people experienced in reference data preparation, the workload was such that they were stretched. One consequence was that specific RDMC/RDDS testing planned for S80 (and performed by one of the two) was delayed and was not fully completed until the Peak Clearance cycle.

I would note that although we used test reference data prepared by SV&I in cycles 1 to 3, we used at least some of the data - the item updates for Impact - prepared by PO Ltd for the Peak Clearance cycle. This brought its own problems: there were errors in the data (although these were quickly cleared) and it was necessary to separate the PO Ltd data we were using from the data we were not (i.e. the POL FS and HR SAP mappings).

Mails reference data deserves special mention. Mails reference data is **not** prepared by SV&I (we do not have the know-how/tools). Nor do we define tests which cover all permutations. We expect the Mails reference data to be defined to support the stated requirements/design and write our tests accordingly. If the data is not available from PO Ltd then it must be prepared by the Mails Development team in Crewe. This was the case at S80. For cycles 1 and 2 we used Mails reference data prepared by Crewe and in Cycle 3 we used Mails reference data prepared by PO Ltd. The Cycle 1 and 2 testing was still valid (the Crewe reference data supported most of the tests) but it would have been better to have had the PO Ltd reference data from the start.

8.2.6 Stock Unit Rollover testing

The testing in relation to Impact requirement BT001 was only begun towards the end of the Peak clearance cycle. BT001 states:

Production of a balance report for a stock unit must be possible to be produced within 5 times the current production time for a stock unit with a busy transaction profile, long trading statement period

There were various reasons for the delay in starting this testing, not least the fact that a new bulk loading tool had to be developed to inject five weeks worth of transactions into a counter message store. It must be accepted however that the issue did not receive attention as early in S80 testing as it should have done. As it happens, the testing was completed successfully and the requirement was met.

8.3 Test procedure improvements for future releases.

The desired improvements are self-evident from the issues listed above and they go beyond improvements in test procedures:

- Clear unambiguous requirements, covering all aspects of the changes and available as early in the testing process as possible. Change is inevitable as the design evolves but the test team need to be better kept informed of the planned changes (rather than having to await the reissue of Conceptual Designs / Design Proposals).
- As has already been noted, there was particularly good working relationship between the test team and design at S80. This was important because it has not been - will not be - possible for the test team to do their job without understanding the design at a low level. The relationship between SV&I and Design needs to be maintained and formalised, with the test team actively involved in design reviews and, again, kept informed of planned changes to design.
- The decision to have some low-level S80 scripts written by someone other than the analyst who wrote the HLTP was made from practical necessity - it is not SV&I standard practice so no change to procedure is required to address the issue. At S90 those responsible for test analysis are also responsible for the production of the low-level tests scripts, thus avoiding the 'steep learning curve' issue at S80.
- It is recommended that no major change is accepted by SV&I until that change has passed basic, at least, link testing (Delt).
- With the exception of Mails reference data, SV&I testing must not be dependent on the availability of Post Office test reference data. The SV&I test reference data requirements should be identified at the earliest possible moment in the test analysis phase and

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preparation (and test loading) of that data begun as far in advance as possible of its first usage. The extent of the work involved in reference data preparation/management must be better understood and properly resourced. One additional person should be trained in, and subsequently involved in, reference data preparation. If PO Ltd test reference data **is** available and can be used seamlessly then it should be used. It is most desirable that Mails reference data, in particular, is made available by the PO Ltd before Mails related testing is begun. However, SV&I team members responsible for Mails related testing must develop an understanding of Mails reference data (for which they will probably require some training) to the extent that they can, at least, specify data for preparation by Crewe.

- S80 demonstrated our weakness in respect of performance testing (especially after our main performance tester left the company). The required performance testing was completed but we clearly need someone to take responsibility for future performance related testing and that person (or persons) needs the appropriate guidance, from Test Design, on the requirements (what performance is being measured against what benchmark) and needs the technical skills to run the tests.