Prepared in contemplation of litigation

Notes from reading the Bird & Bird/Project Mentors Report

We have no evidence to disagree with the underlying message in this report. Our experience supports the view that Pathway have failed to follow "best practice" in a number of areas in their development of the service

Therefore we are not in a position to refute the statements made, however due to the lack of visibility of Pathway's process and documentation, we are also not able to fully substantiate them. However, our experience and contact with Pathway, together with the significant problems which we know they have had (as indicated by results of testing, of major delays and slippages), would point to similar conclusions.

The paper makes a number of very valid points regarding the development lifecycle, including:

- *"effective business requirements analysis is required to achieve a satisfactory, comprehensive business design.   This can then be used as the basis for the technical design of the high resilience, high volume system….."*
  We know that Pathway have paralleled up much of ther development lifecycle, including designing & building much of the infrastructure in advance of performing analysis and design at an application level.

- that it unlikely that a formal requirements analysis has been performed
  "continuing problems experienced in the development of the system"
  I would extend this to saying "formal top down system design process"

- *"without having complete an aalysis of the buisness requirement… Pathway can never have been in a position to understand the detail of these requirements. Without this level of detail, it is not possible to develop a system level specification….."*
  Certainly we know that they were "caught out" by the complexity - this is supported by statements from Pathway staff, the massive slip, etc.

Our view over the past 2+ years of experiencing Pathway development has been::

- Horizon denied visibility, especially of application design (oddly, we have managed to get some visibility of the 'risk areas' such as the Riposte middleware).

  => no opportunity for Horizon to perform independent V&V

  => no evidence that Pathway have performed a V&V

- Pathway use the "IPR" card, however it appears that this is used to cover a deficiency in their documentation (and therefore their methodology)..   When we do get exposure, documentation is patchy and to variable standards.   Absence of "high level" design - eg for BPS, aware of some detailed design documents for Oracle, Agent and Counter parts of BPS, but not of overall BPS sysystem (nor, for

instance, the messaging etc).

[See problems at R1c with duplicates, with Recall and Reissue, etc]

[eg when trying to determine operation of BES, Pathway's designers did not appear to have access to formal design documentation, and appeared to have difficulty in providing answers to questions]

- Pathway adopting an "end of pipe" approach to quality and performance - a "fix on fail" in testing approach, rather than putting in the effort to get it right first time.

- BPS was fairly well specified in SSR terms (overspecified) - likely that other products, esp EPOSS, where considerably more requirements analysis needed, will be worse.

- SADD, as the only officially visible "specification" - is a high level document - does not cover how the service operates in detail. Patchy in detail, PAS/CMS detailed, BES fairly weak, EPOSS very weak, hence need for "fill in" documents such as the EPOSS FS.

- We have had to resort to documenting OUR understanding of the design, based on discussions with Pathway and of using prototypes of the counter software, and play these back to Pathway for confirmation.

- Little evidence of thorough consideration of exception conditions or failure [qv issues on EPOSS in LAN failure, etc]. The behaviour of the system in various exception conditions is not documented and does not appear to be known to Pathway.

  [eg Incomplete Transactions at R1c, some ~18 failure conditions have been identified, a number of which have required urgent fixes - why were these not "designed out" from the start?]

- Pathway have tried to apply RAD - or claim to apply RAD - for totally inappropriate stages of design. Even major supporters of the RAD method[ology] freely admit that it is best suited to front end, user interface development, rather than system design.

- Pathway have generally shown an inability or unwillingness to understand or recognise the complete requirements set - qv failure to follow the (contracted) security standards, some whole requirements missed (eg timeout back at R1c) etc. Have tended to think they can develop a system without being bothered by the detailed requirements or their meaning. Failure to use the "clarification" mechanisms.

We would certainly agree that, from our perspective, we have no evidence to support a view that Pathway have followed "best practice" in the development of the Horizon system, and in particular the Horizon business applications.

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Comments on the paper:

- little confused between "Payment Card System" - this appears to refer to the entire programme - and BPS, which is "predominantly a BA system element".

- concentrates on Requirements Analysis, however this is only one part of the lifecycle.   I see the weakness as going throughout, into Design etc.

- Circumstantial evidence mostly - due to the lack of access, Pathway can and are likely to claim they do have all of this, it's just that in a PFI it is inappropriate for them to share this with the programme.

- Project Mentors have been restricted to the "input" (SSR and Requirements *however they don't seem to mention the Requirements Catalogue particuarly*) and the only "output" they can find, the SADD, of what they consider to be the Analysis process.   This is a valid comparison, although given that the Authorities have "signed off" the SADD in some way (ok, grudgingly at times), have we not in some way underwritten it?   *Need to think on this one*