

**Report to**

**Queensland Health Payroll System Commission  
of Inquiry**

30 April 2013

**Dr David Manfield**



**vPerformance Pty Ltd**  
ABN 97 105 166 961

Document No 9-001-34-002



## Table of Contents

<b>1</b>	<b>INTRODUCTION</b> .....	<b>1</b>
<b>2</b>	<b>QUALIFICATIONS</b> .....	<b>1</b>
<b>3</b>	<b>REFERENCED MATERIAL</b> .....	<b>2</b>
<b>4</b>	<b>RESPONSES TO QUESTIONS</b> .....	<b>2</b>
4.1	QUESTION 1 .....	2
4.2	QUESTION 2 .....	5
4.3	QUESTION 3 .....	8
4.4	QUESTION 4 .....	11
<b>5</b>	<b>SUMMARY OF CONCLUSIONS</b> .....	<b>12</b>
<b>6</b>	<b>CONFIRMATION</b> .....	<b>13</b>
<b>7</b>	<b>ATTACHMENTS</b> .....	<b>13</b>



## 1 Introduction

---

I have been engaged by the Queensland Health Payroll System Commission of Inquiry (“QHPCI” or the “Commission”) to assess the Queensland Health payroll system as proposed and delivered by IBM. The letter of Engagement is appended as Attachment 1.

My opinion has been sought in respect of:

1. the solution proposed by IBM in its response to the State’s Invitation to Offer;
- 10 2. how well, with respect to the Health Payroll System component of it, that solution was implemented and delivered; and
3. the extent to which IBM’s conduct of the implementation contributed to the problems which were experienced with the system.

I have been asked to express my opinion through responses to a set of four questions.

20 I have long experience with systems integration and complex IT solution projects, with specific accountability for their delivery.

I have a high-level appreciation, but no specific technical knowledge or solution delivery experience, of Workbrain or SAP.

My approach to responding to the questions was to review the program and project documentation with which I have been provided, and to offer my informed opinion based on this documentation and my experience of solution delivery.

## 2 Qualifications

---

30 My relevant qualifications are:

BE (1<sup>st</sup> Class Honours) in Electrical Engineering from The University of Queensland  
PhD in Electrical Engineering from The University of Queensland  
Postdoctoral Fellow with the Alexander von Humboldt Foundation, Siegen University, Germany

40 I have worked in the software industry for over thirty years in various leadership roles. As part of this, I have spent over twenty years working in software companies involved in solution delivery and systems integration for Tier 1 customers. I have particular experience with bid formation and account management. I worked recently for four years on the national e-health program setting up the national compliance framework for software systems now operating in the national e-health network.

My CV is appended as Attachment 2.



### 3 Referenced Material

---

I have based my responses on my review of the following documentation:

1. Expert IT Consultant's Brief (EICB) Volumes 1 – 6.
2. Documents forming the Contract Bundle (CB) Volumes 1 – 15.
3. Some of the witness statements and exhibits available at the QHPCI web site.
4. Documents supplied by IBM in response to Request 16 (R16) dated 15 April 2013.
5. Documents supplied by the State in response to Request 19 (R19) dated 17 April 2013.

10

Oral material:

1. I participated in an interview with Brett Cowan on 15 April 2013 at the Commission's premises, to better understand the material in his witness statement.

### 4 Responses to Questions

---

#### 4.1 Question 1

1. Was the solution which IBM offered in its response to the Invitation to Offer one which was sensible for a prudent vendor in IBM's position to propose?

20 IBM's offering of Workbrain in its ITO response as part of a SAP/Workbrain solution was sensible and prudent subject to its ability to manage its associated risks.

The reasons for IBM's choice of Workbrain in its ITO response make sense both technically and business-wise; it is a mature product and credibly offered the potential for quicker implementation through its design capability by configuration and extensions. This latter point is a key one for risk management, because configurability and extensibility are important for dealing with (at ITO time) the looming requirements from Queensland Health. (In saying this, I am not qualified to make any statement about Workbrain's capability to meet all Queensland Health's requirements, nor about the capability of Workbrain relative to any other product.)

30

The choice of Workbrain was for these reasons a sensible and prudent choice for meeting the State's requirements.

As with all solution strategies, there were technical and other risks. IBM must have identified and had management sign-off on at least the following risks:

- The degree to which IBM locally had Workbrain expertise, recognising that it was embarking on a large and complex Workbrain implementation.
- The risk associated with scoping the requirements for a customer as large and complex as Queensland Health.

40



These risks and IBM's response to these risks must be viewed against the backdrop of the short time frame they proposed for the interim payroll solution, and the large step between the Department of Housing solution, its starting point, and those for Queensland Health.

10 The risks must be viewed also against the backdrop of IBM's knowledge of its Workbrain reference sites. The "closeness" of the Workbrain application at these sites to that proposed for Queensland Health must have been a key factor for IBM's determination of its risk. Inasmuch as IBM had large reference sites, it could have confidence in its ability to scale the Workbrain solution to the size required by Queensland Health. IBM initially proposed Woolworths as a reference site. Woolworths was not able to be contacted, and IBM offered instead Bunnings and Pacific National as alternative reference sites [CM Vol.2 Item 5 Page 788 Clarification Questions 11-Oct-2007 Question 16]. Where these sites demonstrated a large application of Workbrain, IBM could have confidence in the scalability of Workbrain with respect to the Workbrain functions used at those sites.

20 Also, it would have been sensible and prudent for IBM as system integrator to qualify internally or with Infor their strategy for Workbrain with respect to the size of the anticipated solution.

The integration of Workbrain with SAP was technically demanding and a key area of technical risk, but the integration strategy was sensible and prudent given the technical resources and systems integration capability of IBM.

It was essential for IBM to ensure that it had sufficient specialist Workbrain expertise "on the ground" to handle the expected workload in the short timeframe.

30 Prior to the ITO, IBM Australia already had an established relationship with Workbrain [R16 Item 3] and some experience in Queensland proposing Workbrain to Corptech under its HRBS program involvement [EICB Vol.1 Items 1,2,3] although little or no Workbrain implementation experience in this context. During the course of the contract, IBM engaged two Workbrain staff between January and August 2008 and further Workbrain staff from August 2008 until the end of the project [R16 Item 3].

40 To meet its objective of a large Queensland Health Workbrain implementation for a go-live 31 July 2008 IBM must have planned for significant Workbrain resources to be immediately available to "hit the ground running". If IBM had any significant reliance on the Workbrain staff it brought in from Infor, then this was too little and too late and would not have been sensible or prudent.

Regardless of its dependence on Infor staff, the first major Workbrain design documentation deliverables were delivered in the period July-October 2008 [R19 Item 2] and the software implementation delivered subsequently. This is not consistent with the initial go-live date of 31 July 2008. IBM was not able to deliver on the schedule for the design documentation defined by SOW 8 [CB Vol.4 Item 24] as varied by CR5014 [CB Vol.4 Item 35]. Qualified by any changes in scope that appeared over time and resulting "churn", the initial Workbrain implementation was not delivered until early 2009.

50 Risk management by a prime contractor is inherent in their role, so the risk they took was not one that was necessarily imprudent. IBM took a significant risk on the timeframe of its



Workbrain implementation, and this risk turned into an issue: their Workbrain implementation was late – they “got it wrong”. IBM under-estimated the work they had to do. However, this issue became swamped by other change issues. From about May 2008, IBM was caught up in a shifting set of scope changes reflected in a sequence of change requests e.g. CR60 [CB Vol.5 Item 62] and other later change requests. The timeframes manifested through these change requests became the time-determining factor, rather than that of slow Workbrain implementation.

10 Part of the overall quality assurance proposed by IBM is contained within the testing strategy. This strategy was sensible and prudent.

20 Workbrain scalability performance was rightly identified at the time of the ITO response and contract as a risk to be addressed. Workbrain had not only to be functionally capable of doing what Queensland Health required, but also demonstrate sufficient performance to satisfy the size of the Queensland Health application. IBM defined an early Workbrain Scalability Assessment as part of SOW 5, and this was the right thing to do. As system integrator, IBM took on the risk of Workbrain’s scalability. It would have been sensible and prudent, even essential, for IBM to have qualified Workbrain scalability internally or with Infor, as part of its general product qualification.

Workbrain scalability was an issue in 2008, and was ultimately brought to a reasonable state in 2010. The changing timeframe of the project allowed IBM time to address the scalability issue. As with its functional Workbrain implementation, IBM took on the Workbrain performance risk and its management fell within its ambit as prime. It is unlikely that Workbrain would have met its performance targets had it been deployed in the timeframe initially proposed.

30 Queensland Health must have been recognised by IBM as a challenging customer in terms of the size and complexity of the solution – the known number of awards and the known existence of many business rules governing payroll – and the likely difficulty in determining the business requirements and solution scope with such a customer in a short time. As a large systems integrator, IBM must have been fully aware of this risk, in particular as it had an existing relationship with Queensland Health.

It was important for IBM to mitigate its risk in determining the solution baseline scope for Queensland Health.

40 The determination of baseline scope was captured in SOW 7 and specifically for the interim solution definition in SOW 8A which work took place over approximately two weeks in January 2008. Such early scoping work was the right thing to do. However, the SOW 8A activity in particular was very short given the likely difficulty in determining business requirements with Queensland Health.

Recognising that baseline scope determination from SOW 7 and SOW 8A may be insufficient, and constrained by the customer’s expectation for short timeframe, IBM should have taken the sensible and prudent step to put a checkpoint in the project plan in 2008. This issue is also one of project governance, and is addressed in Question 3.

50 In summary, IBM proposed in its response to the ITO a solution that was both sensible and prudent subject to its ability to manage the risks associated with its proposal. This, by and



large, it did. The existence of risks does not make their proposal of Workbrain imprudent, nor does even the actual manifestation of these risks into issues (as did happen), as long as IBM managed its overall Workbrain risk as prime.

## 4.2 Question 2

2. Did IBM properly and diligently implement the solution it proposed?

### 4.2.1 Workbrain Implementation

10 IBM was diligent in implementing the interim payroll solution. The extent to which there were defects before and at go-live determine whether IBM properly implemented its solution.

There are two aspects to IBM's implementation:

1. The (technical) work performed by IBM for the definition and software development of the Workbrain solution and its integration with SAP.
2. The project management processes performed jointly by IBM and the State to deliver the Workbrain and wider solution.

20

The first of these aspects is covered in this section. The second aspect is covered under Question 3.

A configurable or extensible product like Workbrain requires product-specific expertise for effective implementation, especially for a complex application such as IBM proposed for Queensland Health. Qualified by the issue of uncertain scope, but also by the crucial role of Workbrain, IBM was slow in its initial Workbrain design specifications. In terms of diligence, IBM delivered an encompassing and credible set of Workbrain functional, technical, configuration and interface specifications in the period July-October 2008 [R19 Item 3]. The work was done, albeit late according to the initially proposed schedule.

30

For the wider solution implementation and testing processes from late 2008 until early 2010, the acceptance and payment information in the documentation shows that IBM was diligent in producing its implementation deliverables.

The implementations delivered into UAT and most importantly UAT4 were of contentious quality [CB Vol.8 Item 210 dated 17-Mar-2009 "QHIC Test Audit Report: UAT Readiness, Version 1.0"], [CB Vol.10 Item 282 dated 5-Aug-2009], [CB Vol.12 Item 427 dated 20-Nov-2009].

40

I am not in a position to rule on what was a defect and what was not. What is apparent is that there were a number of classes for the defects that were identified:

1. Test script defects rather than actual defects in the implementation.



2. Acknowledged defects that were handled by alternative methods (as work-arounds) with assent from the State.
3. Defects which were down-graded in severity so that they may be treated later.
4. Defects acknowledged by IBM and fixed.

The role of the tester is to work within the parameters he is given. There is always a temptation to “shoot the messenger” as is apparent in this project. The focus should always be on the “message”.

10 I make the following observations:

- It is possible that test script defects existed, even after four rounds of UAT, given that the baseline scope was changing. All parties have some liability for this, though principally the customer. While UAT is “owned” by the customer, the supplier has a review role to ensure test scripts are appropriate. The documentation suggests that there may have been such issues, though affecting a minority of tests.
  - It is acceptable within a project methodology to handle an identified defect by alternative means, provided it is well documented and considered by the project board. This may or may not relate to imperfect business requirements. Regardless, in the end there is a defect which has to be fixed.
- 20 - It is acceptable within a project methodology to change the severity rating of a defect. Severity is defined up front for good reason, so any change is a signal for caution. Downgrading in combination with an alternative resolution (work-around) is generally acceptable. Regardless, in the end there is a defect which has to be fixed.

A large number of defects were in contention at the time of UAT4. The number of these defects, regardless of their treatment, is an issue. The high number of defects that resulted in work-arounds, though agreed with the State as per the project defect management plan, is an issue for the complexity of the solution.

30 The QHIC project issues registers dated 21-Jan-2010 [R19 Item 1] show some quality issues still existed late in the project.

Infor’s “Workbrain Audit” of 11-Nov-2009 [CB Vol.12 Item 422] reports a high level of issues with the Workbrain implementation and with “go-live” assessments. The issues raised are serious but mainly because they come so late in the project and were performance-affecting. To qualify this, it is the role of the project board, not Infor to assert what is acceptable for go-live.

40 In summary, IBM was diligent in its implementation but qualified by the effects of the uncertainty in baseline scope did not properly deliver into UAT a solution of sufficient quality. However, the assessment of defects contractually post-UAT was in the hands of the State. If the State accepted the treatment of the defects, which it did, then it rendered the solution “proper” and accepted the risks of the solution subject to the contractual warranty conditions.

#### 4.2.2 Baseline scope uncertainty

The baseline scope of requirements for Workbrain in Queensland Health was not well established early in the project, and this had flow-on negative effects on the quality and



timeliness of Workbrain deliverables. (This topic is also addressed in the response to Question 3.)

IBM produced a baseline scope document out of SOW 7 and SOW 8A resulting in the “QHIC Scope Definition – Version 1.0 Final” dated 21-Feb-2008 [CB Vol.4 Item 28]. However, this did not resolve all the business requirements of Queensland Health and a stream of new requirements and associated change requests followed.

10 The number of scope change requests from both IBM and the State is direct evidence of uncertain and increasing scope. This exacerbated the trend towards a high number of Workbrain extensions or work-arounds, and delays to Workbrain deliverables. These issues did not arise generally from a lack of diligence by IBM, but from a lack of efficiency in the project process caused by requirements being constantly added or changed.

IBM bid an aggressive schedule, and was aware of the time risk to its project and the likely difficulty in engaging Queensland Health. Given the appreciation of this risk, evident in IBM’s ITO response assumptions, a better mechanism than just the SOW 7 and brief SOW 8A activity performed in January 2008 should have been proposed.

#### 20 **4.2.3 Performance**

Performance of a complex, large-scale solution is a key area of risk, and was implicitly recognised in the project execution plan and test strategy. The project test strategy contained an extensive and credible set of tests addressing performance.

The project SOW 5 defined a Deliverable 15 “Workbrain Scalability Assessment Report” [CB Vol.2 Item 2] although the documentation set does not contain this report. Performance validation testing was performed throughout the project and issues were uncovered. For an application of this size, this is to be expected. There is evidence of diligent responses by both IBM and the State to performance issues. The performance issues were of two types:

- 30
1. Online rostering real-time performance.
  2. Throughput performance of payroll processing.

Workbrain rostering system performance and the number of users it could support was the focus for scalability testing. The number of users able to be supported remained an issue through the project and in the end was not resolved. There is conflicting evidence. In time sequence:

- 40
- The SOW 5 Deliverable 15 “Workbrain Scalability Assessment Test Report” has not been made available.
  - The QHIC meeting record of 22-May-2008 [CB Vol.4 Item 50] reports that on 1-May-2008 “Certification has now been achieved with 3000 users”.
  - Infor report “Performance Assessment Report” dated 30-Jul-2009 [CB Vol.9 Item 278] reports that the number of users greater than 250 could not be achieved.
  - QHIC Briefing Note dated 28-Oct-2009 [CB Vol.11 Item 405] reports conflicting results that suggest changes in the implementation performance. One indicative statement is



“Stress and Volume Testing for 3000 virtual users has been successful over 50 minute test but has failed the eight hour test”.

- The “QHIC Release 0.192 Performance Validation Report – Round 5” dated 22-Jan-2010 [CB Vol.13 Item 494] reports “Certificate Withheld” with respect to a benchmark of 3,500 concurrent users, and lists reasons.

10 The conclusion to be drawn is that solution performance was still maturing and though close, the target benchmark of 3,000 users was not quite met in time. Some user issues remained at go-live but these were ameliorated after go-live.

Test reports indicate that payroll throughput processing was sufficient e.g. “Payroll Performance Verification – Completion Report” v2.0 dated 16-Dec-2009 [R16 Item 4].

20 IBM was diligent in its implementation with respect to performance but some system performance results were equivocal. This is a manifestation of both implementation risk and risk inherent in the Workbrain product itself for scalability. Acceptable performance is unlikely to have been reached in the short timeframe initially bid. Performance can usually be improved by optimisation of solution design over time, and probably such is the case here. Performance optimisation involves attention to both the software implementation, in particular extensions, and the configuration of the server configuration running the software.

In summary, IBM produced a not-quite-proper implementation of Workbrain for performance for March 2010.

### 4.3 Question 3

3. What actions ought the State to have taken, as the reasonable self-interested customer, to ensure that IBM properly and diligently implemented the solution?

#### 4.3.1 Program and project management processes

30 Both the State and IBM possessed strong program and project management processes and structures. IBM’s proposal and project plans reflect their well-established project methodology. The documents generally show that good project and governance processes were instituted and that governance process was strong. There was plenty of active oversight of the program.

However, successful governance is not just about having processes, but about how governance processes and tools are used to get the result. The documents show that poor decisions were made by the State during the project with a major contribution to the outcome in March 2010.

40 Generally, the relevant issues and risks were raised and decisions were made. The key issue here is the extent to which governance decisions should have been different without the benefit of hindsight.



### 4.3.2 Timeline summary

- IBM was awarded the tender and completed a contract on 5 December 2007, where the interim solution for QH payroll was determined as an initial focus with a go-live date of 31 July 2008.
- IBM did a scoping study in January 2008 under SOW 8A to qualify the baseline scope of the QH payroll interim solution and SOW 7 in order to determine SOW 8.
- A revised scope and extended timeframe was set in June 2008, as captured by CR60-61 relating to HR <math>\leftrightarrow</math> FI interface and unrelated to Workbrain.
- Problems with baseline scope during 2008, resulting in a large number of change requests [CB Vol.7 Item 127 Spread sheet of change requests dated 3-Nov-2008] led to extensions in time and scope.
- A revised project scope was set in 30 June 2009 via CR184 [IECB Vol.4 Item 19] with a November 2009 go-live date.
- Some further changes in scope occurred almost to the last minute.
- From July 2009 onwards, the program was marked by difficulties with the implementation and testing process, further delays and ultimately the difficulty in achieving successful completion of UAT4 in late 2009 and early 2010.
- Various risk assessments were performed in February 2010 leading to a go-live decision and a first payroll run in March 2010.

### 4.3.3 Assessment of State's actions

IBM bid an aggressive timeframe for the Queensland Health payroll solution, and needed everything to fall into place to meet this timeframe. Three factors stand out:

- It took a long time for the baseline scope to stabilise
- IBM struggled to implement Workbrain in a short time
- Implementation and testing became rushed and were allowed by the project board to be unsatisfactory.

Under the pressure to deliver, poor decisions were made by the State contributing to a project “death spiral” where an immature system (software and processes) was taken through unsatisfactory parallel stages and cycles of testing and UAT to meet a time imperative.

There is an axiom in project management that you can have any two of: 1) big scope, 2) short time, and 3) quality, but not all three. The State chose the first two. This is common behaviour under pressure. Governance is ultimately about the people and how they handle this pressure, as well as the processes.

The proposed SOW 7 and the additional SOW 8A for a requirements analysis in January 2008 were a good thing. However, given the known state of knowledge of payroll requirements generally, and Queensland Health requirements specifically, the decision to have only a two-week additional requirements analysis for the interim solution was a poor decision and exacerbated the looming delivery pressure. There is no evidence as to how IBM addressed the State about the lack of scope certainty, except through the mechanism of change requests. The State’s response was expressed primarily through its consideration of and moves towards a notice of breach. This was not the right approach.

IBM had a key dependence on the customer to determine the baseline scope of Workbrain requirements early in the project. This was not met. The process to establish a baseline scope with the customer took a long time. While a prime contractor is accountable for



delivery, there are always crucial dependencies on the customer's timely input to establish what is to be built. There is no record in the documentation, except indirectly through change requests, that the customer was aware of the cause of slowness in forming the baseline scope and took any governance action to address the cause.

10 There were a number of change requests that flowed subsequently in 2008 and ultimately these change requests were accepted by the program board in June 2009. The documentation pertaining to baseline scope from the ITO, contract, and subsequent change requests shows that IBM protected its commercial position in a way that any vendor would. Where a vendor is confronted by uncertain scope and customer risk and dependencies, it has two tools: 1) contingency, and 2) assumptions. I cannot speak to the former, but IBM's use of the latter is clearly evident. This is a necessary part of vendor life. The governance failure was in the way the change requests were handled. The lack of a mutually agreed scope was clear in early 2008, but there is no evidence that the State considered a project re-set to establish a baseline. This is difficult territory, but governance processes are there to address difficult territory.

20 While governance structures and program and project management processes were strong, poor decisions were made under the continual and intense time pressure on people for delivery. An unrealistic initial timeframe led to a spiral of solution scope changes and insufficient quality, and was the single most important factor in setting the scene for what happened.

#### 4.3.4 Testing and go-live

30 Once the project was late, enormous pressure came to bear upon implementation and testing. Much testing was done in parallel, and curtailed. Not-ready software was delivered into various stages of testing, leading to unsatisfactory test results. The ultimate response of the State was to lower the bar for testing, in particular UAT, and to allow a not-ready system into production. The State should have acted to address the underlying issues when they were apparent, which was well before the go-live decision.

40 Testing follows a standard "verification and validation" process and is represented by a "V curve". The left-hand side of the "V" describes the requirements specification process. At the top left level are business requirements and concepts of operation. As we move down the left-hand side of the "V" requirements become more technical and more specific until at the bottom of the "V", are the detailed design requirements that are used by a software developer to build a software module. The requirements at any level all trace back to a requirement in the level above – this is "verification". On the right-hand side of the "V" is testing, which is the "validation" of correct implementation. Testing at a certain level corresponds with the requirements at the same level on the "V". Testing works its way up the right-hand side until at the top UAT is performed by the customer in order to validate the business solution presented to him, and may be followed by business verification testing for cut-over. The levels of testing in this project included, top down:

- UAT
- Performance Testing (different forms)
- E-E Testing
- System Integration Testing
- System Testing
- Unit Testing



Test specifications and defect definitions are written during the first specification “verification” phase. These specifications are applied by the various testers. All tests are traceable by these means back to business requirements. The customer has a role to audit test reports, and to perform UAT on the delivered system. The UAT is not intended to be an exhaustive test of system functionality.

10 KJ Ross and Associates was involved in and performed UAT testing on behalf of the State for approximately 12 months from January 2009 to January 2010. The role of UAT is well described in the KJ Ross UAT Test Completion Report [CB Vol.13 Item 505]. UAT cannot commence until UAT entry criteria are met. The documentation indicates that entry criteria were changed by the project board in order to permit UAT to begin. Although many defects were found during UAT, exit criteria were met by a combination of last-minute fixes and put off via a management plan for known defects.

20 Amendment of entry and exit criteria is allowable in a project methodology so it is not wrong *per se*. However, it is beholden on the customer to be aware of the risks he is taking by modifying these criteria, and to explicitly accept these risks as part of the QA process. In its wholesale treatment of entry and exit conditions, the State ended up in a riskier position than its management comprehended.

The State’s risk assessments previous to the go-live were unsatisfactory and reflect more a desire to go-live than to assess actual risk. The risk assessment by the State focussed on Severity 1 and 2, defects and on establishing work-arounds in mitigation, as established by the defects management plan. This is reasonable behaviour for this aspect of risk management. However, there was a crucial absence in the consideration of residual risk, so that an objective view of residual risk, post mitigation, was not available. Issues include:

- UAT is not designed to detect all defects; there was no consideration of such risks.
- The number of software fixes done in response to defects left a residual risk of consequential defects left undiscovered.
- The sheer number of work-around mitigations was an operational risk and there was no consideration of residual risk.
- An initial project decision was made not to perform a full parallel payroll test against Lattice [CB Vol.3 Item 15 dated 19-Dec-2007]. In the light of the number of defects and work-arounds, initial assumptions were not revisited.

30

All unconsidered risks by definition became risks accepted by the State.

#### 4.4 Question 4

40

4. The extent to which the design of the solution and the way in which it was implemented contributed to the problems experienced by the Health Payroll System after it went live on 14 March 2010 (explaining as simply as you can, what the major problems were).

The responses to Questions 1 – 3 describe the extent to which the design of the solution and the way it was implemented contributed to the problems experienced in March 2010 when the Queensland Health payroll system went live.



The design of the Workbrain solution was generally sensible and feasible.

To summarise the major problems:

- The baseline scope was established too late.
- IBM was diligent but did not properly deliver a solution of sufficient quality, exacerbated by scope uncertainty and churn.
- Under continual time pressure, poor decisions were made by the State within its governance process affecting its people, solution quality and time.

10

In addition to the above, it is valuable to make an observation about the project starting point from the way in which the ITO was framed.

The ITO response time was impossibly short and the business and functional requirements for Queensland Health payroll were not available. This provided a poor commercial starting point for the Queensland Health payroll project and set the scene for what followed.

## 5 Summary of Conclusions

---

20 IBM proposed in its response to the ITO a solution that was both sensible and prudent, subject to its ability to manage the risks associated with its proposal. This, by and large, it did. The existence of risks does not make their proposal of Workbrain imprudent, nor does even the actual manifestation of these risks into issues (as did happen), as long as IBM managed its overall Workbrain risk as prime.

To meet its short proposed timeframe, IBM defined an accordingly short timeframe to determine the requirements for the interim payroll solution. The project may have been better served if the likely difficulty resulting from its dependence on the State for establishing Queensland Health requirements were better accommodated in the initial project plan.

30 IBM was diligent in its implementation and produced a large body of work, but qualified by the effects of the uncertainty in baseline scope, did not properly deliver a solution of sufficient quality into UAT and in particular UAT4.

IBM and the State in their respective roles had credible project management methodologies and instituted strong governance structures and processes, but these were not well used.

Governance processes are owned by the customer and the State did not use its governance processes well. Poor decisions were made under the intense pressure of the time imperative. All these decisions were reactive in nature. Without the benefit of hindsight:

40

- The ITO process in 2007 was unrealistic in timeframe.
- There was no proactive State response to the clear and obvious difficulty in establishing a mutually agreed baseline scope.
- Once a baseline was agreed and under the pressure of time, an abbreviated process of parallel implementation and testing was allowed to progress by the State despite clear signs of its failure.
- The decision to go live by the State was not based on objective risk assessment.



IBM bid a short timeframe for delivery of the Queensland Health payroll interim solution. The delay in establishing scope with the State and some issues with IBM's implementation created continual time pressure, the response to which was a wasteful, concurrent process of requirements determination, insufficient implementation and testing which burned people, sacrificed quality and resulted in a system going into production prematurely.

## 6 Confirmation

---

There are no further readily ascertainable facts of which I am aware that would enable me to reach a more reliable opinion.

10

My review of the documentary material was necessarily selective in the time available, but I am confident that I have seen enough of the material to support the information in this report and its conclusions.

More detailed analysis might be done to better qualify some of the factors covered in this report. For example:

- Review of all Change Requests.
- Review of test reports.
- Review of design documentation.
- 20 - Assessment of Workbrain extensions and work-arounds with respect to functionality and performance.
- Review of go-live risk assessment and management.

Such further detailed analysis is unlikely to significantly affect the conclusions in this report.

I confirm that:

- (a) The factual matters stated in this report are, as far as I know, true;
- (b) I have made all enquiries considered appropriate;
- (c) The opinions stated in the report are genuinely held by me;
- 30 (d) The report contains reference to all matters I consider significant; and
- (e) I understand my duty to the court and have complied with that duty.

Signature:

  
\_\_\_\_\_

Dr David Manfield

  
\_\_\_\_\_

Date

## 7 Attachments

---

[1] Letter of Engagement 11 April 2013.

[2] CV Dr David Manfield.

Our reference: 2155663

11 April 2013

Dr David Manfield  
vPerformance Pty Ltd  
28 Tooth Avenue  
PADDINGTON QLD 4064

Dear Dr Manfield

I refer to your meeting with Mr Horton of Counsel and Ms Wylie Nunn on 9 April 2013. The purpose of this letter is to formally engage you as an expert to assist the Commission, to prepare a report and to give evidence. The issues upon which your assistance is sought are set out below.

I draw your attention to the Commission's Terms of Reference, a copy of which are enclosed. The Commission has been directed to, among other things, make a full and careful inquiry into the implementation of the Queensland Health Payroll system and, specifically:

1. why the contract price for that system increased over time; and
2. any recommended changes to contractual arrangements for major Queensland government information and communication technology projects initiated in the future to ensure the delivery of high quality and cost effective products and systems.

The Commission seeks your expert opinion in respect of:

1. the solution proposed by IBM in its response to the State's Invitation to Offer;
2. how well, with respect to the Health Payroll System component of it, that solution was implemented and delivered; and
3. the extent to which IBM's conduct of the implementation contributed to the problems which were experienced with the system.

Would you please consider the following questions in your report:

1. *Was the solution which IBM offered in its response to the Invitation to Offer one which was sensible for a prudent vendor in IBM's position to propose?*

In answering this question, please focus upon IBM's proposal to use Workbrain for rostering and awards interpretation functions. The suggested use of Workbrain as the awards Interpretation engine seems to have been something which assisted IBM to win the tender and offer a lower price for implementing the solution.

2. *Did IBM properly and diligently implement the solution it proposed?*

Please consider whether, in particular, the system and performance testing of the system was undertaken and showed satisfactory results. Please also consider what testing was done of Workbrain and its interface with SAP. We draw your attention in this respect to:

- a. Schedule 46 of the Contract which provided for further testing to be done on Workbrain;
- b. Change Requests 129, 174, 177 and 179, each of which, in Enclosure 2, specified that testing be done on Workbrain. I note that Change Request 184, by contrast, does not contain such a requirement. Would you please consider if, between Change Requests 129 and 184, Workbrain was proved to be operating properly, including in its interface with SAP.

Please find enclosed a memorandum drawing your attention to aspects of the testing performed on Workbrain.

- c. The User Acceptance Testing (UAT) undertaken by KJ Ross.

We will provide a memorandum drawing your attention to aspects of that testing and the decision to go live which may be relevant to this aspect of your work.

3. *What actions ought the State to have taken, as the reasonable self-interested customer, to ensure that IBM properly and diligently implemented the solution?*
4. *The extent to which the design of the solution and the way in which it was implemented contributed to the problems experienced by the Health Payroll System after it went live on 14 March 2010 (explaining, as simply as you can, what the major problems were).*

### Formal Matters

There are some formal matters to which expert reports given for the purposes of Court proceedings must adhere. The Commission is not, strictly speaking, a Court. Nevertheless, we do draw to your attention the Court rules because they summarise accurately the obligations of an expert.

Rules 426 and 428 of the *Uniform Civil Procedure Rules 1999* (copy enclosed) state the ordinary duties of an expert. We ask that you familiarise yourself with those rules.

Would you please ensure that your Report:

1. is addressed to the Commission and signed by you;

2. Includes-

- a. your qualifications (perhaps in a CV to be annexed);
- b. all material facts, whether written or oral, on which the report is based;
- c. references to any literature or other material relied on by you to prepare the report;
- d. for any inspection, examination or experiment conducted, initiated, or relied on by you to prepare the report—
  - (i) a description of what was done; and
  - (ii) whether the inspection, examination or experiment was done by you or under your supervision; and
  - (iii) the name and qualifications of any other person involved; and
  - (iv) the result;
- e. if there is a range of opinion on matters dealt with in the report, a summary of the range of opinion, and the reasons why you adopted a particular opinion;
- f. a summary of the conclusions reached by you;
- g. a statement about whether access to any readily ascertainable additional facts would assist you in reaching a more reliable conclusion.

Please include the following declaration at the conclusion of your report:

*I confirm:*

- (a) the factual matters stated in this Report, as far as I know, are true;*
- (b) I have made all enquiries I consider appropriate;*
- (c) the opinions stated in this Report are genuinely held by me;*
- (d) this Report contains references to all matters I consider significant;*
- (e) I have prepared this Report on the basis that as an expert I have a duty to assist the Commission; and*
- (f) I understand the duty specified above and I have complied with that duty.*

**Expected completion date**

We require a draft of your report no later than 22 April 2013.

It is anticipated that you will be required to give evidence in the week commencing, Monday 29 April 2013.

**Queensland Health Payroll System**  
Commission of Inquiry

Please note we have enclosed a duplicate letter for you to sign and return in acceptance of this engagement. Please return the duplicate to the following address at your earliest convenience:

Queensland Health Payroll System Commission  
PO Box 13674  
George St QLD 4003

If you have any queries, please do not hesitate to contact myself, Mr Horton of Counsel (3109 1732) or Ms Wylie Nunn (3109 1702) if you have any questions.

Thank you for your assistance.

Yours sincerely

  
Fr. Fran Copley  
Official Solicitor  
Queensland Health Payroll System Commission of Inquiry

Encl

I accept the terms and conditions of my engagement as an expert by the Queensland Health Payroll System Commission of Inquiry as described in this letter.



Dr David Manfield  
vPerformance Pty Ltd  
ABN 97 105 166 961

this ..... 15<sup>th</sup> ..... day of ..... April ..... 2013

*Education (General Provisions) Act 2006*  
**SCHOOL ENROLMENT MANAGEMENT PLAN**

In accordance with Chapter 8, Part 3 Section 170, of the *Education (General Provisions) Act 2006*, School Enrolment Management Plans for the following school has been prepared by the Regional Director, South East Region, delegate of the chief executive.

Copies of School Enrolment Management Plans are available for public inspection, without charge, during normal business hours at the department's head office, and accessible on the department's website <http://education.qld.gov.au/schools/catchment>

Region: South East Region  
 School: Benowa State High School (new)

*Commissions of Inquiry Act 1950*  
**COMMISSIONS OF INQUIRY ORDER (NO. 2) 2012**  
**TABLE OF PROVISIONS**

Short title .....	Page
Commencement .....	1
Appointment of Commission .....	1
Commission to report .....	1
Application of Act .....	1
Conduct of Inquiry .....	1

Short title  
 1. This Order in Council may be cited as the *Commissions of Inquiry Order (No. 2) 2012*.

Commencement  
 2. This Order in Council commences on 1 February 2013.

Appointment of Commission  
 3. UNDER the provisions of the *Commissions of Inquiry Act 1950* the Governor in Council hereby appoints the Honourable Richard Chesterman AO RFD QC from 1 February 2013, to make full and careful inquiry, in an open and independent manner, into the implementation of the Queensland Health payroll system with respect to the following matters, and having regard to previous reviews of the Queensland Health payroll system implementation, including the KPMG implementation review and the Auditor-General of Queensland's report titled *Information systems governance and control, including the Queensland Health Implementation of Continuity Project (2010)*:

- the adequacy and integrity of the procurement, contract management, project management, governance and implementation process;
- whether any laws, contractual provisions, codes of conduct or other government standards may have been breached during the procurement and/or implementation process and who may be accountable;
- the contractual arrangements between the State of Queensland and IBM Australia Ltd and why and to what extent the contract price for the Queensland Health payroll system increased over time;
- any recommended changes to existing procurement, contract and project management (including governance) policies, processes, standards and contractual arrangements for major Queensland government information and communication technology projects initiated in the future to ensure the delivery of high quality and cost effective products and systems; and
- any other matter relevant to this review.

Commission to report  
 4. AND directs that the Commissioner make full and faithful report and recommendations on the aforesaid subject matter of inquiry, and transmit the same to the Honourable the Premier by 30 April 2013.

Application of Act  
 5. THE provisions of the *Commissions of Inquiry Act 1950* shall be applicable for the purposes of this Inquiry except for section 19C -- Authority to use listening devices.

**Conduct of Inquiry**

6. THE Commissioner may hold public and private hearings in such a manner and in such locations as may be necessary and convenient.

**ENDNOTES**

- Made by the Governor in Council on 13 December 2012.
- Notified in the Gazette on 14 December 2012.
- Not required to be laid before the Legislative Assembly.
- The administering agency is the Department of Justice and Attorney-General.

Department of National Parks, Recreation, Sport and Racing  
 Brisbane, 13 December 2012

Her Excellency the Governor, acting by and with the advice of the Executive Council and in pursuance of the provisions of the *Major Sports Facilities Act 2001*, has declared the major sports facility events outlined in Schedule 1 as declared events for the periods indicated:

**SCHEDULE 1**

Major Sports Facility event	Declared Period	Major Sports Facility
Super Rugby Round 2 -- Queensland Reds v New South Wales Waratahs	23 February 2013 11:00am – 11:00pm	Suncorp Stadium
Super Rugby Round 3 -- Queensland Reds v Hurricanes	1 March 2013 11:00am – 11:00pm	Suncorp Stadium
National Rugby League Round 1 -- Brisbane Broncos v Manly Sea Eagles	8 March 2013 11:00am – 11:00pm	Suncorp Stadium
NAB Cup Round 1	23 February 2013 11:00am – 11:30pm	Melicon Stadium

Steve Dickson MP  
 Minister for National Parks, Recreation, Sport and Racing

*Queensland Heritage Act 1992*

**DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION**  
**Heritage Register Decision**

Under the provisions of s.54 of the *Queensland Heritage Act 1992*, the Department of Environment and Heritage Protection gives public notice that on 7 December 2012 the Queensland Heritage Council entered in the Queensland Heritage Register the following as State Heritage Places:

- HRN 602814 Bundaberg Fallon House  
1 Maryborough Street
- HRN 602815 Bundaberg St John's Lutheran Church  
30 George Street
- HRN 602816 Indooroopilly Chapel of St Peter's Lutheran College  
66 Harts Road

*Queensland Heritage Act 1992*

**DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION**  
**Heritage Register Decision**

Under the provisions of s.54 of the *Queensland Heritage Act 1992*, the Department of Environment and Heritage Protection gives public notice that a decision has been made by the Queensland Heritage Council on the 7 December 2012 not to enter in the Queensland Heritage Register the following as a State Heritage Place HRN 602577:

Green Island Green Island Underwater Observatory

## Memorandum: Workbrain Testing

11 April 2013

Date	Event	Supporting Document
18.01.2008	<p><u>Statement of Work 8 (execution copy annexed to CR 5)</u></p> <ul style="list-style-type: none"> <li>• QHIC Scope Definition Version 0.12 defines the scope of the services and deliverables under SOW 8</li> <li>• "It was agreed at the QHIC Scope Definition deliverable review meeting held on 17 January 2008 that a number of open issues remained unresolved...amongst these open issues it was agreed that a change to the level of testing detailed in the Scope Definition may be required. A detail definition of this requirement will be provided to IBM through the Change Control Process before the end of January and IBM will advise of the impacts through the agreed process."</li> <li>• 1.4.2 Awards, leave and time and attendance to be configured in Workbrain.</li> <li>• 7.1.5 Test (June – August 2008) – 5 key streams of testing:               <ul style="list-style-type: none"> <li>○ System test;</li> <li>○ Stress test;</li> <li>○ User Acceptance test;</li> <li>○ Cutover test;</li> <li>○ Payroll trials.</li> </ul> </li> </ul> <p>Start work 19.01.2008 with completion September 2008.</p> <ul style="list-style-type: none"> <li>• 10.1.1 Lattice replacement: <i>"The additional components, such as Workbrain awards interpretation required to deliver the interim solution are built, tested and available by the dates required."</i></li> </ul>	<p>Statement of Work 8 (execution copy annexed to Change Request 5).</p> <p>[CCMB: V 4, pp 15-40]</p>
08.02.2008	<p><u>Memorandum to Executive Director "Implementation of Infrastructure for the Workbrain Proof of Concept (POC) Phase Three" prepared by Gary Palmer, Director, Technology Solutions CorpTech endorsed by Philip Hood, Deputy Executive Director, CorpTech, recommendation approved by Barbara Perrott</u></p> <ul style="list-style-type: none"> <li>• "Workbrain Proof of Concept environment is urgently required in order to validate this functionality to be delivered through this solution as an alternative to SAP. It is also required to confirm the capability of the proposed solution to scale up to satisfy expected end-state demand and requirements, when all agencies are on the new Share Services Solution. The criticality of this application demands comprehensive and progressive evaluation and early identification of issues and</li> </ul>	<p>Memorandum to Executive Director "Implementation of Infrastructure for the Workbrain Proof of Concept (POC) Phase Three" prepared by Gary Palmer, Director, Technology Solutions CorpTech endorsed by Philip Hood, Deputy Executive Director, CorpTech.</p>

Date	Event	Supporting Document
	<p>provisioning capacity and environments for this Workbrain POS will facilitate this evaluation process.”</p> <ul style="list-style-type: none"> <li>• Three Phases to the IBM Workbrain Proof of Concept: <ul style="list-style-type: none"> <li>○ Phase one is non rostering volume tests on the awards calculation (currently underway);</li> <li>○ Phase two includes rostering and awards calculation for rostering agencies (currently being built); and</li> <li>○ Phase three is full end state rostering and awards calculation excluding reporting.</li> </ul> </li> <li>• The environment for Phase Three must be implemented so that testing can commence by 4 April 2008. Your urgent approval of brief is required in order to satisfy the aggressive timeframes of the IBM program of work for the POC.</li> </ul>	<p>recommendation approved by Barbara Perrott</p> <p>[CCMB: V 4, pp 56-58]</p>
15.02.2008	<p><u>Scheduled pursuant to Contract Sch 46 – “ Installation – First Rostering Test”</u></p> <ul style="list-style-type: none"> <li>• “Interim” hardware ordered week 26-30 November 2007, with planned delivery by 1 February.</li> <li>• Workbrain installation and test environment set up by 15 February 2008.</li> <li>• Conduct test in “interim” hardware.</li> </ul>	<p>Contract, Schedule 46</p> <p>[CCMB: V 1, pp 1-188]</p>
21.02.2008	<p><u>QHIC Scope Definition Version 1.0 Final – Programme 42</u></p> <ul style="list-style-type: none"> <li>• 6.10.3 SAP and Workbrain Environment Landscape <ul style="list-style-type: none"> <li>○ The test environment is used for user acceptance, system and integration testing activities to verify any configuration and customisations adopted during development.</li> </ul> </li> <li>• 6.11 Testing Scope for QHIC Project;</li> <li>• Prescribes in scope testing; <ul style="list-style-type: none"> <li>▪ Unit testing;</li> <li>▪ System testing;</li> <li>▪ Systems integration testing;</li> </ul> </li> <li>• See 6.11.2.1.1 which states that certain Workbrain/SAP interfaces are within scope for</li> </ul>	<p>QHIC Scope Definition Version 1.0 Final – Programme 42</p> <p>[CCMB: V 4, pp 63-203]</p>

Date	Event	Supporting Document
	<p style="text-align: center;">integration testing.</p> <ul style="list-style-type: none"> <li>▪ User acceptance testing;</li> <li>▪ Parallel Testing;</li> <li>▪ Stress testing.</li> </ul> <ul style="list-style-type: none"> <li>○ 6.11.4.2 Awards and Rostering: <p style="margin-left: 20px;">"Testing will be done to validate that awards and rostering are performing as per business requirements. The testing will validate the Workbrain configurations. Awards will be managed in Workbrain via Calculation Groups which are derived from a combination of Employee Group, Employee Sub-Group, Work Contract and Agency Identifier. There are 263 calculation groups defined for QH, each with its own mapping to a prescribed set of business rules. There are 300 business rules defined for QH. The system test approach will be to build a matrix that tests each rule against its assigned Calculation Group. For example, the Daily Overtime Rule (351506) is configured for part time and casual visiting medical officers so this combination will need to be tested."</p> <p style="margin-left: 20px;"><u>"The final scope matrix for testing of Workbrain Awards Calculations and Rostering is not yet defined"</u></p> </li> </ul>	
02.03.2008	<p><u>Steering Committee Report – Program 42 – Week 9</u></p> <ul style="list-style-type: none"> <li>• Infrastructure provision for the Workbrain scalability test 3 is forecast to be at least 3 weeks later than required.</li> <li>• Test 3 is now forecast to commence at least 3 weeks later than scheduled.</li> </ul>	Steering Committee Report – Program 42 – Week 9
07.03.2008	<p><u>Scheduled pursuant to Contract Sch 46 "Build Phase – Checkpoint #1"</u></p> <ul style="list-style-type: none"> <li>• Conduct Rostering agency test on "interim hardware"</li> </ul>	Contract, Schedule 46 [CCMB: V 1, pp 1-188]
09.03.2008	<p><u>Steering Committee Report – Program 42 – Week 10</u></p> <ul style="list-style-type: none"> <li>• Build of Workbrain components for the QHIC project and DETA is under schedule pressure due to skills shortages. Containment plans are in place and this challenge is expected to be dealt with once resources are deployed and become productive.</li> <li>• Infrastructure provision for the Workbrain scalability test 3 is forecast to be at least 2 weeks later than required. Escalations have failed to improve the delivery forecast and the schedule for the Workbrain Scalability Assessment or</li> </ul>	Steering Committee Report – Program 42 – Week 10

Date	Event	Supporting Document
	<p>proposed scope will have to be changed via contract CR. Team working on assumption of scope change.</p> <ul style="list-style-type: none"> <li>• Agreement to schedule or scope change for Workbrain Scalability Assessment to be actioned by Terry Burns by 21 March 2008.</li> </ul>	
13.03.2008	<p><u>Program Delivery Director, Terry Burns, Weekly Report</u></p> <ul style="list-style-type: none"> <li>• Workbrain Scalability Test 3 is now three weeks late on proof of concept.</li> <li>• Paul Suprenant Owner of issue, impact high.</li> <li>• Terry Burns to monitor impact.</li> <li>• Resources not free to move build. Looking like moving from 28 March to 4 April.</li> </ul>	Program Delivery Director, Terry Burns, Weekly Report,
23.03.2008	<p><u>Steering Committee Report – Week 12</u></p> <ul style="list-style-type: none"> <li>• Test 1 (non rostering solution) and Test 2a have been completed as scheduled. Final review meeting for test 1 took place w/e 14 March.</li> <li>• Test 2a results have been shared with project management. Test results are positive and indicate scaling.</li> <li>• Test 2b scheduled to complete on 28 March. Current results are positive and indicate scaling.</li> <li>• Test 3 is planned to facilitate the 'go/no go' decision for Workbrain as a scalable tool. Provision of the production hardware is a pre-requisite to running Test 3. Currently it is believed that the provision of the production hardware will be made on 11 April. This is 4 weeks later than planned and as a result the 'go/no-go' decision will be delayed for 4 week (sic).</li> <li>• A change request will be raised to deal with this delay.</li> </ul>	Steering Committee Report – Week 12
27.03.2008	<p><u>Program Delivery Director Terry Burns, Weekly Report</u></p> <ul style="list-style-type: none"> <li>• Workbrain Scalability Test 3 – 3 weeks late on proof of concept.</li> <li>• Owner Paul Suprenant, impact high.</li> </ul>	Program Delivery Director Terry Burns, Weekly Report

Date	Event	Supporting Document
	<ul style="list-style-type: none"> <li>• Terry Burns to monitor Impact.</li> <li>• Resources not free to move built. Has moved from 28 March to 4 April.</li> </ul>	
28.03.2008	<p><u>Scheduled pursuant to Contract Sch 46: Build Phase – Checkpoint #2:</u></p> <ul style="list-style-type: none"> <li>• Production hardware ordered by week 10-14 December 2007</li> <li>• Production hardware delivered by 7 March 2008</li> <li>• Workbrain installation and test environment set up by 28 March 2008.</li> <li>• Conduct test on "Production" hardware</li> <li>• SAP integrated test</li> <li>• Go/no go decision 4 April 2008</li> </ul>	<p>Contract, Schedule 46 [CCMB: V 1, pp 1-188]</p>
30.03.2008	<p><u>Program 42 – Steering Committee Report – Week 13</u></p> <ul style="list-style-type: none"> <li>• Key resources taken from Forward Planning Team to address DETA planning requirements which includes response to DETA queries over Workbrain integration with SAP for awards interpretation.</li> <li>• IBM experiencing skills shortages in Workbrain and SAP.</li> <li>• Test 2a results have been shared with project management. Test results are positive and indicate scaling.</li> <li>• Test 2b (Checkpoint 1 – objectives refined based on Test 2a findings) completed on 28 March. Current results indicate scaling however not linear. Investigations are underway to identify any variables that may be causing bottlenecks. Will engage SSS Technology Services to confirm environment and re-run tests as required. Test failure over 760 users due to Hardware/Software Limitations and a software timeout, now under investigation.</li> </ul> <p>Test 3 is planned to facilitate the 'go/no go' decision for Workbrain as a scalable tool. Provision of the production hardware is a prerequisite to running test 3. Currently it is believed that the provision of the production hardware will be made on 11 April. This is 4 weeks later than planned and as a result the 'go/no-go' decision will be delayed for 4 week (sic). A change request will be raised to amend dates in Schedule 46.</p>	<p>Program 42 – Steering Committee Report – Week 13</p>
31.03.2008	<p><u>Statement of Work 12A – QHIC Workbrain Rostering Build Requirements –5 November 2007 to 14 April 2008.</u></p> <ul style="list-style-type: none"> <li>• Services under this Statement of Work relate to Workbrain Rostering Build Requirements for the period 31 March 2008 to</li> </ul>	<p>Statement of Work 12A – QHIC Workbrain Rostering Build Requirements –5 November 2007 to 14 April</p>

Date	Event	Supporting Document
	<p>14 April 2008.</p> <ul style="list-style-type: none"> <li>• Outlines the functional specifications to be delivered by the interim solution.</li> <li>• Clause 2.2 states that system testing and system integration testing are not included in the scope for Workbrain Rostering Build.</li> <li>• SOW 12A will be superseded by SOW 12 when both parties negotiate the final terms of agreement.</li> </ul>	2008.
04.04.2008	<u>Scheduled pursuant to Contract Sch 46: go/no-go decision</u>	Contract, Schedule 46 [CCMB: V 1, pp 1-188]
15.04.2008	<p><u>Statement of Work 12 – Workbrain Rostering Build Requirement</u></p> <ul style="list-style-type: none"> <li>• Introduced into the Contract by Change Request 5026 by amending Clause 4.3 of the Contract.</li> <li>• Supersedes Statement of Work 12A after 14 April 2008.</li> <li>• Clause 2.2 states that system testing and system integration testing are not included in the scope for Workbrain Rostering Build.</li> <li>• 2.3.1.2 Solution Design (a) QHIC Solution "The QHIC solution, upheld by SOW 8, identifies a dependency on the development of the Rostering, Leave, Time and Attendance and Interfaces for Workbrain (See QHIC Scope Definition Document v 1.0 for a full account of these dependencies). The priority of the approach outlined in this SOW is to accelerate these build items required for the QHIC interim HR Payroll Solution. "</li> </ul>	Statement of Work 12 – Workbrain Rostering Build Requirement
25.04.2008	<p><u>Scheduled pursuant to Contract Sch 46: "Build Phase Checkpoint #3 (if needed)"</u></p> <ul style="list-style-type: none"> <li>• Conduct test on "production" hardware</li> </ul>	Contract, Schedule 46 [CCMB: V 1, pp 1-188]
02.05.2008	<p><u>Workbrain Scalability Assessment Test Plan Version 1.1 Final</u></p> <ul style="list-style-type: none"> <li>• Outlines tests to be undertaken to meet deliverable in SOW 5 for Workbrain scalability testing.</li> </ul>	Workbrain Scalability Assessment Test Plan Version 1.1 Final

Date	Event	Supporting Document
	<ul style="list-style-type: none"> <li>• In summary, three tests scheduled:               <ul style="list-style-type: none"> <li>○ Test 1 – Non-Rostering Agency Processing (Test 1) on interim hardware;</li> <li>○ Test 2 – Rostering Agency Processing (Test 2) on interim hardware. The test will be conducted in three iterations: 2a, 2b, and 2c.’</li> <li>○ Test 3 – Combined rostering and non-rostering (Test 3).</li> </ul> </li> <li>• Test objective:               <ul style="list-style-type: none"> <li>○ “Key objective of this assessment is to obtain evidence to support Workbrain’s ability to linearly scale, providing comfort that SSS award interpretation processing business requirements can be satisfied. The term scalability refers to the capability or ability of the system to either handle growing amounts of work in a graceful manner, or to be readily enlarged. That is the capability of the system to increase total throughput under an increased load when resources (hardware) are added. ”</li> <li>○ “The scope of this project is to assess the scalability capability of Workbrain application. Any such functional testing, performance testing, stress and volume testing and any tests to confirm production sizing is out of the scope of this project.</li> </ul> </li> <li>• 6.3 Test Schedule indicates that the Tests 1 and 2a, b and c were completed. Test 3 was not completed with revised go/no go date of 23 May 2008.</li> </ul>	
11.05.2008	<p><u>Steering Committee Report – Week 19</u></p> <ul style="list-style-type: none"> <li>• Confirmation that Workbrain will be used in the standard offer based on the successful completion of the Scalability assessment, 22 May 2008.</li> <li>• Workbrain Scalability Assessment team is reporting green as Test 3 has been successfully completed.</li> <li>• Final test completion report has been produced and forwarded to the client via “PDO Communications” for their review/comment or otherwise acceptance.</li> <li>• Program Schedule:               <ul style="list-style-type: none"> <li>○ Workbrain scalability 56 days – 20 February 2008 to 13 May 2008.</li> </ul> </li> </ul>	Steering Committee Report – Week 19

Date	Event	Supporting Document
	<ul style="list-style-type: none"> <li>o Workbrain Test 2a, 2b and 2c, 32 days, Wednesday 20 February 2008 to 7 April 2008.</li> <li>o Workbrain Test 3, 17 days, Thursday 17 April 2008 to 13 May 2008.</li> </ul>	
23.05.2008	<p><u>Scheduled pursuant to Contract Sch 46: "Build Phase Checkpoint #4 (if needed)"</u></p> <ul style="list-style-type: none"> <li>• Conduct test on "production" hardware</li> </ul>	<p>Contract, Schedule 46 [CCMB: V 1, pp 1-188]</p>
July 2008	<p><u>Scheduled pursuant to Contract Sch 46: "Test Phase – Scheduled Stress Testing"</u></p>	<p>Contract, Schedule 46 [CCMB: V 1, pp 1-188]</p>
20.07.2008	<p><u>Steering Committee Report – Week 29</u></p> <ul style="list-style-type: none"> <li>• QHIC Project – Progress in Workbrain system test has not been sufficient to enter the "End-to-End" phase and it is anticipated there will be an at least 1 week delay in the commencement of this phase.</li> <li>• QHIC contractual deliverable "Solution Blueprint" submitted to SPO last Friday.</li> <li>• "Progress in Workbrain System test has not been sufficient to enter the "End-to-End" phase and it is anticipated there will be an at least 1 week delay in the commencement of this phase. Further work continues to optimise the processes and technologies used to promote defect rectifications to the system test environments. There are a range of defects and QH requirements changes that require development, promotion to system test and re-test. Risks raised (RS-00154 &amp; RS-00169 SOW 8 <i>That system test will not complete as scheduled</i>).</li> <li>• "The major feature in regard to the QHIC schedule this week in the delay in commencement of the "end-to-end" phase of system test. This slippage is due to a number of factors including changes in the requirements, defects identified during Workbrain system test and the cycle times for promotion of changes to the Workbrain system test environment,"</li> </ul>	<p>Steering Committee Report – Week 29</p>
21.07.2008	<p><u>Steering Committee Report – Week 29</u></p> <ul style="list-style-type: none"> <li>• Software issues around the non-SAP product sets (Workbrain, Cognos, Saba, Crystal Reports)... outstanding risk in relation to Workbrain to ECC integration for the QHIC Project and DR capability for Queensland Health.</li> <li>• Progress in Workbrain system test has not been sufficient to enter the "End-to-End" phase and it is anticipated there will</li> </ul>	<p>Steering Committee Report – Week 29</p>

Date	Event	Supporting Document
	be at least 1 week delay in the commencement of this phase.	
28.07.2008	<p><u>Steering Committee Report – Week 30</u></p> <ul style="list-style-type: none"> <li>• Progress in Workbrain system test has not been sufficient to enter the "End-to-end" phase and it is anticipated that there will be at least 2 week delay in the commencement of this phase.</li> <li>• This slippage is due to a number of factors including changes in requirements, defects identified during Workbrain system test and the cycle times for promotion of changes to the Workbrain system test.</li> </ul>	Steering Committee Report – Week 30
12.08.2008 4.13pm	<p><u>Email from Peter Douglas to Anthony Price and Terry Burns re CorpTech Workshop</u></p> <ul style="list-style-type: none"> <li>• Draft response to IBM delay notice.</li> <li>• Workbrain has failed testing; the test schedule was developed by IBM.</li> <li>• IBM claims responsibility for this problem.</li> <li>• IBM needs to answer whether Workbrain is fit for purpose; can it pass testing?</li> </ul>	Email from Peter Douglas to Anthony Price and Terry Burns re CorpTech Workshop
18.08.2008	<p><u>Letter from Michael Kalimnios, Director of Corporate Services, Queensland Health to Barbara Perrott, Executive Director re "Response to IBM Letter – Notice of Delay for Queensland Health Interim Solution:</u></p> <ul style="list-style-type: none"> <li>• "QH agrees that IBM tools and test processes have been a cause for the delay of Workbrain testing. However the schedule for system testing is not aggressive. The aggressive testing is applied in the rest of the schedule. It should be noted that this aggressive strategy is provided and managed by IBM."</li> <li>• "IBM has indicated in the QHIC Steering Committee and other forums that Workbrain testing is well behind schedule. Testing tools and processes have been cited as a key area that IBM needs to improve upon, if it is able to meet scheduled time lines. IBM Supplied reports on testing progress continue to show a major schedule delay of at least four (4) weeks and have suggested it could be considerably more than this figure, up to eight (8) weeks. The IBM reports also highlight a high level of defects in Workbrain testing which suggests problems with the Workbrain build."</li> <li>• QH view of the causes of delay: <ul style="list-style-type: none"> <li>o Workbrain testing has failed and is 8 weeks behind schedule;</li> </ul> </li> </ul>	Letter from Michael Kalimnios, Director of Corporate Services, Queensland Health to Barbara Perrott, Executive Director re "Response to IBM Letter – Notice of Delay for Queensland Health Interim Solution

Date	Event	Supporting Document
	<ul style="list-style-type: none"> <li>o Workbrain as an application has been seen, on occasions, to be unstable as per priority 1 defect 286.</li> </ul>	
28.08.2008	<p><u>Executive Steering Committee Meeting Minutes Notes:</u></p> <ul style="list-style-type: none"> <li>• IBM has requested additional support to address defect resolution in Workbrain. Two staff based off site are scheduled to commence week beginning 1 September 2008.</li> <li>• Peter Douglas discussed applicability of Workbrain and noted the difference between rostering and time/attendance. Mr Douglas advised that a major consideration is the element of an award interpreter. Queensland Health is currently reviewing alternatives.</li> </ul>	Executive Steering Committee Meeting Minutes Notes
28.08.2008	<p><u>Business Solutions Program: IBM Report to Executive Steering Committee</u></p> <ul style="list-style-type: none"> <li>• Checkpoint to confirm Workbrain functionality, dependent on successful completion of System Testing due on 27 November 2008.</li> </ul>	Business Solutions Program: IBM Report to Executive Steering Committee
18.09.2008	<p><u>Memorandum of understanding signed QHIC Project – principles of a proposed way forward summarised in 15 points including:</u></p> <ul style="list-style-type: none"> <li>• There will be a go/no go gate at the point in the Target schedule when both the Award Interpretation Checkpoint and Payroll Performance Validation checkpoint are completed. Clear and objective performance criteria for this decision will be defined and agreed as part of the amendment of the existing agreement. These criteria will form the sole basis on which IBM will recommend and Queensland Health will decide whether to continue the project or stop work.</li> <li>• QH will engage Infor directly to perform a QA Audit of the Workbrain functionality and performance characteristics of the "as built" system.</li> <li>• Detailed acceptance criteria relating to the two go/no go milestones will be defined in the SOW 8 revision.</li> </ul>	<p>Memorandum of understanding signed QHIC Project – principles of a proposed way forward summarised in 15 points</p> <p>[CCMB: V 6, pp 30-31]</p>
09.10.2008	<p><u>Executive Steering Committee Meeting Minutes Notes:</u></p> <ul style="list-style-type: none"> <li>• Workbrain issues – rapid progress in terms of working through defects and all issues around HR/Finance documentation have been resolved.</li> <li>• IBM Report to Executive Steering Committee Report noting that scheduled delivery date at end of November 2008 is solid. Acceptance criteria must also be met at this time and IBM must demonstrate payroll performance validation and Workbrain performance in terms of handling awards.</li> </ul>	Executive Steering Committee Meeting Minutes Notes:

Date	Event	Supporting Document
28.10.2008	<u>Business Solutions Program: IBM Report to Executive Steering Committee</u> <ul style="list-style-type: none"> <li>• Test Workbrain Awards – as at 19.10.2008 33 Severity 1 &amp; 2 defects and 1 Severity 3 &amp; 4 defects.</li> </ul>	Business Solutions Program: IBM Report to Executive Steering Committee
31.10.2008	<u>Business Solutions Program: IBM Report to Executive Steering Committee</u> <ul style="list-style-type: none"> <li>• Workbrain awards testing is still behind plan and reporting red.</li> </ul>	Business Solutions Program: IBM Report to Executive Steering Committee
11.11.2008	<u>Change Request 129 – 4 November 2008 (last executed on 12 November 2008)</u> <ul style="list-style-type: none"> <li>• Request for an extension of time for compliance with SOW 8 Version 1.2 to move Go Live to 30 June 2009.</li> <li>• Section 7 inserts a condition precedent to the incorporation of CR 129 into the Contract that the customer achieve, among other things, the Workbrain Award Interpretation Test Criteria prescribed on or before 30 November 2008.</li> <li>• Section 7 provides: <ul style="list-style-type: none"> <li>○ "In the event the condition precedent is not satisfied, the incorporation of CR 129 into the Customer Contract shall be without legal effect and all contract amendments set out in CR 129 are not effective and void <i>ab initio</i>."</li> <li>○ "The Customer may, in its sole discretion, waive one or both conditions precedent set out above by giving notice to the Contractor at any time on or before 30 November 2008 or by agreement with the Contractor to vary the condition precedent."</li> </ul> </li> <li>• Enclosure 2 contains the Workbrain Award Interpretation Test Criteria required to satisfy the condition precedent.</li> <li>• The objective of the test criteria is to: <ul style="list-style-type: none"> <li>"[V]erify the functionality of Workbrain Awards Interpretation against key business processes.</li> <li>[V]erify the Workbrain Award Interpretation produces correct results for: <ul style="list-style-type: none"> <li>▪ Time and attendance</li> </ul> </li> </ul> </li> </ul>	Change Request 129 – 4 November 2008 (last executed on 12 November 2008)  [CCMB: V 7, pp 22-36]

Date	Event	Supporting Document
	<ul style="list-style-type: none"> <li>▪ Pay Rules</li> <li>▪ Schedule Compliance. "</li> <li>• As a part of the prescribed test criteria, Enclosure 2 prescribes: <ul style="list-style-type: none"> <li>"Independent <u>Workbrain Review</u> confirms that no critical, un-resolvable risks or issues are present with in the base lined project scheduled timeframes.</li> <li>Independent <u>Testing Assurance Review</u> confirms that no critical, un-resolvable risks or issues are present with in the base lined project scheduled timeframes."</li> </ul> </li> <li>• Prescribes an Execution Plan for the Workbrain Checkpoint.</li> </ul>	
14.11.2008	<u>Business Solutions Program: IBM Report to Executive Steering Committee</u> <ul style="list-style-type: none"> <li>• Return to plan for Workbrain Awards testing test 28 November 2008.</li> <li>• "Test WB awards" 4 severity 1 &amp; 2 defects open as at 9 November 2008.</li> </ul>	Business Solutions Program: IBM Report to Executive Steering Committee
28.11.2008	<u>Change Request 174 (raised 27 November 2008, executed 28 November 2008)</u> <ul style="list-style-type: none"> <li>• Condition precedent prescribed in Change Request 129 not satisfied and the variation to the Contract is therefore void <i>ab initio</i>.</li> <li>• Customer agrees to extend the date originally set out in Change Request 129 from 30 November 2008 to 5 December 2008.</li> </ul>	Change Request 174 (raised 27 November 2008, executed 28 November 2008)  [CCMB: V 7, pp 189-203]
30.11.2008	Date scheduled to meet condition precedent in CR 129 – <u>Not met</u>	
05.12.2008	<u>Infor, Workbrain Solution Health Check</u> <ul style="list-style-type: none"> <li>• "Infor believes the Architecture of the Workbrain solution being implemented at the time of the review is within Infor's Best Practice Architecture for implemented Workbrain with a caveat on the complexity of the some of the extensions (sic)". While it is not unusual for a project the size and sale of Queensland Government to have complex extensions, Infor does have a concern that there are a few that fall into the high complexity category (e. gI eave request from, certain cognos</li> </ul>	Infor, Workbrain Solution Health Check – Queensland Government Health Workbrain Implementation Project, Final V 1.12 prepared by Gabrielle Hojer & Kevin Akermanis, Infor Pty Ltd, Rod Adams, Quay IT

Date	Event	Supporting Document
	<p>reports, overtime pay rule. Infor recommends a review of these complex extensions, initially for alternative approaches within the core Workbrain product and secondly for alternative business approaches.”</p> <ul style="list-style-type: none"> <li>• In respect of performance risks “Infor believes the current architecture should meet the requirements of the current solution however an on going and formal engagement with Infor Technical Services is recommended to ensure any future changes in design or requirements can be accommodated.”</li> <li>• “There is a perception that Workbrain cannot handle the complexities of Queensland Health’s EBA. These have been bought about due to the number of defects raised during system test against the Workbrain rules. <ul style="list-style-type: none"> <li>o Recommendation: <ul style="list-style-type: none"> <li>▪ Provide appropriate context when communicating test results. This process has already started and should become the minimum standard for reporting test results;</li> <li>▪ Openly communicating results to broader user community.</li> </ul> </li> <li>o Reviewers comments: <ul style="list-style-type: none"> <li>▪ The perception is based on historical issues and many feel this is getting better.</li> <li>▪ Direct involvement of the business with the testing team along with more direct lines of communication with the build team have resulted in overall better issue resolution times.”</li> </ul> </li> </ul> </li> </ul>	<p>Pty Ltd:</p> <p>[CCMB: V 7, pp 220-264]</p>
08.12.2008	<p><u>Change Request 177 (raised 4 December 2008, last date of execution 8 December 2008)</u></p> <ul style="list-style-type: none"> <li>• Condition precedent in Change Request 129 and 174 were not satisfied and therefore the Contract variation is void <i>ab initio</i>.</li> <li>▪ Customer agrees to extend the date originally set out in Change Request 129 from 30 November 2008 to 11 December 2008.</li> </ul>	<p>Change Request 177 (raised 4 December 2008, last date of execution 8 December 2008)</p> <p>[CCMB: V 7, pp 265-279]</p>
11.12.2008	Date scheduled to meet condition precedent in CR 129– <i>Not met</i>	
12.11.2008	<u>Change Request 179 (raised 4 December 2008, last date of execution 12 December 2008)</u>	Change Request 179 (raised 4 December 2008, last date of execution 12 December 2008)

Date	Event	Supporting Document
	<ul style="list-style-type: none"> <li>Condition precedent in CR 129, 174 and 177 not satisfied and therefore Contract variation is void ab initio.</li> <li>Customer agrees to extent the date originally set out in Change Request 129 to 23 December 2008.</li> </ul>	[CCMB: V 7, pp 284-298]
23.12.2008	Date scheduled to meet condition precedent in CR 129 – <i>Not met</i>	
24.12.2008	<p><u>Letter from Philip Hood A/Executive Director to W Doak, Program Director, IBM re Statement of Work 8 – Lattice Replacement Design Implement and Deploy, CR 129, 174, 177 &amp; 179 – "SOW Extension of Time"</u></p> <ul style="list-style-type: none"> <li>Notify IBM that it had failed to demonstrate an achievement of the Test Criteria and inviting IBM to meet on or about 7 January 2009 to consider the most practical way to complete its obligations under SOW 8.</li> </ul>	<p>Letter from Philip Hood A/Executive Director to W Doak, Program Director, IBM re Statement of Work 8 – Lattice Replacement Design Implement and Deploy, CR 129, 174, 177 &amp; 179 – "SOW Extension of Time"</p> <p>[CCMB: V 7, pp 356-357]</p>
23.01.2009	<p><u>Letter from William Doak to B Perrott re "CorpTech letter of 21 January 2009"</u></p> <ul style="list-style-type: none"> <li>"Considering the condition precedents referred to in CorpTech's Notice of 24 December 2008 were very close to being achieved, IBM considers that the purpose of the exercise, which is to establish suitability of the solution, was met... IBM therefore considers execution of CR184 "regularises" the Change Requests."</li> </ul>	<p>Letter from William Doak to B Perrott re "CorpTech letter of 21 January 2009"</p> <p>[CCMB: V 8, pp 91-63]</p>
17.02.2009	<p><u>Email from Amanda Doughty to Anthony Price cc Damon Atzeni re Workbrain Data Extract Business Requirements signed off</u></p> <p><u>Attachment Workbrain Data Extract Business Requirements "Workbrain Data Extract required of the QHIC Solution"</u></p> <ul style="list-style-type: none"> <li>"System and End to End testing have identified a number of errors/omissions with the Workbrain Pay Rules. As a result of the locking a scope, these issues will not be corrected for the QHIC Solution. These issues will potentially result in a large volume of underpayments and/or overpayments. There are no existing reports in Workbrain that could be used to identify potential issues and it is not practical to manually analyse and adjust each instance."</li> </ul>	<p>Email from Amanda Doughty to Anthony Price cc Damon Atzeni re Workbrain Data Extract Business Requirements signed off</p> <p>Attachment Workbrain Data Extract Business Requirements "Workbrain Data Extract required of the QHIC Solution"</p>

Date	Event	Supporting Document
12.03.2009	<p><u>Project Execution Plan for Delivery of the QHIC Project CD-B08-0002 author Paul Hickey, owner John Gower, Customer Queensland Health</u></p> <ul style="list-style-type: none"> <li>• Workbrain to deliver an integrated rostering solution, awards interpretation engine and leave management solution. References Department of Housing.</li> </ul>	<p>Project Execution Plan for Delivery of the QHIC Project CD-B08-0002 author Paul Hickey, owner John Gower, Customer Queensland Health</p> <p>[CCMB: V 8, pp 169-202]</p>
30.06.2009	<p><u>Change Request 184 (raised 26 June 2009, last date of execution 30 June 2009.)</u></p> <ul style="list-style-type: none"> <li>• The scope of the IBM services and deliverables proposed under SOW8 replaced the QHIC Project Scope Definition – Version 0.12 with services and deliverables proposed by "QHIC Project Scope Definition – Version 1.0 as clarified by the QHIC Scope Clarification Version 1.0.</li> </ul>	<p>Change Request 184 (raised 26 June 2009, last date of execution 30 June 2009.)</p> <p>[CCMB: V.9, pp 128-209]</p>
06.07.2009	<p><u>Briefing Note from Director of QHEST to Deputy Premier and Minister for Health re Interim Payroll Replacement- QHIC – 6 July 2009</u></p> <p><i>Design:</i></p> <ul style="list-style-type: none"> <li>○ "Queensland Health is the pilot for the whole-of-government solution for Workbrain and SAP HR. This has added further risk to be borne by Queensland Health on behalf of the government.</li> <li>○ The IBM Solution, which is based on integrating Workbrain and SAP is complex and the implications are not fully understood especially in terms of payroll performance.</li> <li>○ During the project IBM have failed to provide documentation on the end to end solution design blueprint. This has resulted in deficiencies being identified much later in the project lifecycle.</li> <li>○ Lack of fully documented system design has limited the transfer of skills to Queensland Health and CorpTech staff which is necessary to test the solution adequately to ensure appropriate support for the solution post go-live.</li> <li>○ It is understood that CorpTech have recently engaged SAP Australia, the software vendor, to undertake a review of the IBM Solution Design for QHIC. IBM have requested Infor, the Workbrain vendor to review that solution design."</li> </ul>	<p>Briefing Note from Director of QHEST to Deputy Premier and Minister for Health re Interim Payroll Replacement- QHIC – 6 July 2009</p> <p>[CCMB: V 9, pp 240-250]</p>
16.07.2009	<p><u>QHIC Board Outcomes and Decisions</u></p> <ul style="list-style-type: none"> <li>• Bill Doak advised that Workbrain's performance does not degrade as the amount of users increase. The problem exists</li> </ul>	<p>QHIC Board Outcomes and Decisions</p>

Date	Event	Supporting Document
	<p>when it reaches a certain amount of concurrent users and then it crashes.</p> <ul style="list-style-type: none"> <li>• Bill Doak agreed to confirm the discrepancies relating to the reports between the scalability of Workbrain and the performance issues.</li> </ul>	
22.07.2009	<p><u>QHIC Project – Quality Assurance Paper 11/09</u></p> <ul style="list-style-type: none"> <li>• Stress and Volume Testing <ul style="list-style-type: none"> <li>○ Results indicate a major scalability issue with Workbrain</li> <li>○ Infor Report is due this week now that they have completed their review process last week</li> <li>○ Clarity is needed between CorpTech, IBM and QH on the contracted user threshold for concurrent users as opposed to the QH future growth requirements for the product.</li> </ul> </li> </ul>	<p>QHIC Project – Quality Assurance Paper 11/09</p> <p>[CCMB: V 9, pp 317-319]]</p>
30.07.2009	<p><u>Infor Customer- Queensland Health Product – Infor WFM “Performance Assessment Report”</u></p> <ul style="list-style-type: none"> <li>• Purpose of report is to identify any immediate issues. Prelude to the proposed Audit to be undertaken by Infor on the Workbrain solution at Queensland Health.</li> <li>• Conclusion that application service performance and scalability requires further verification after solving the application suite.</li> <li>• Recommended further audit be undertaken to extract more detailed results to determine the root cause of performance issues.</li> </ul>	<p>Infor Customer- Queensland Health Product – Infor WFM “Performance Assessment Report”</p> <p>[CCMB: V 9, pp 334 – 349]</p>
04.08.2009 1.08pm	<p><u>Email from William Knott, CorpTech to Gary Palmer cc Frank Bajart, James Brown, Philip Hood and Ray re “Qld Report”</u></p> <p><u>Attachment: Report of W Knott</u></p> <ul style="list-style-type: none"> <li>• “Previous rounds of testing (2, 2b, 2c, 3 and 3b) occurred to prove scalability for Workbrain production (February to July 2008). At the end of that testing we certified that installation to be scalable AND capable of accommodating 3000 users. This means that we ramped up the number of users to a maximum of 3000, the need for servers increased from one to three in a linear manner.”</li> <li>• “The latest round of testing used the same infrastructure and middleware. Workbrain was a markedly different release.</li> </ul>	<p>Email from William Knott, CorpTech to Gary Palmer cc Frank Bajart, James Brown, Philip Hood and Ray re “Qld Report”</p>

Date	Event	Supporting Document
	<p>The testing showed a maximum of 1200 users could be accommodated. While this is markedly fewer than the original figure of 3000, the greatest concern is that the previous linear scalability is no longer exhibited, viz 900 users could be accommodated on one served and only 1200 on three services."</p> <ul style="list-style-type: none"> <li>• "The issue to be addressed is scalability, not specifically the end user population to be supported."</li> </ul>	
<p>10.08.2009 5.02pm</p>	<p><u>Email from Gary Palmer to Ray Melville, Philip Hood, James Brown, cc to Jane Stewart, Nicola Stubbings re "Workbrain online transaction processing (OLTP) – Results of a recent round of load testing"</u></p> <ul style="list-style-type: none"> <li>• "[A]ppears that issues in relation to the performance/capacity and potentially stability (yet to be confirmed as the root cause of scalability and stability issues has not been isolated by Infor) is localised to award rules, as delivered through the work detail rule file (absence and attendance rules).</li> </ul>	<p>Email from Gary Palmer to Ray Melville, Philip Hood, James Brown, cc to Jane Stewart, Nicola Stubbings re "Workbrain online transaction processing (OLTP) – Results of a recent round of load testing"</p>
<p>14.09.2009</p>	<p><u>SAP PM Review Report "SAP Project Management Review – Queensland Health":</u></p> <ul style="list-style-type: none"> <li>• Key areas of concerns: <ul style="list-style-type: none"> <li>○ Lack of clarity and results around a working "Proof of Concept" and overall solution including the complex of SAP and Workbrain.</li> <li>○ Lack of detail in function and technical specifications which have been approved.</li> <li>○ There has been multiple User Acceptance Tests (UAT) without a prior end to end integration test with full connectivity between SAP and Workbrain.</li> <li>○ Highly complex business process due to functionality residing in two systems (SAP and Workbrain) with data cycle multiple times in a non real time manner (batch file upload/download) between systems in a typical payroll cycle (15 days). One of the major concerns is the synchronisation of data between the two systems. It appears that no error handling and reconciliation process has been identified.</li> <li>○ Lack of comprehensive stress and volume testing taking into account the complex nature of the solution and integration aspects between SAP and Workbrain. Scenarios tested to date focus on individual aspects of the solution (Workbrain only or SAP only) and do not take into account several timing dependencies that exist in the solution and their impact on timeline of pay runs for example. There are over 70,000 employees in the payroll process and concerns have been raised on the ability of the solution to hand the number of transactions and Workbrain users. The review did not find any evidence of plans to address this.</li> </ul> </li> </ul>	<p>SAP PM Review Report "SAP Project Management Review – Queensland Health"</p> <p>[CCMB: V 10, pp 232 – 262]</p>

Date	Event	Supporting Document
	<ul style="list-style-type: none"> <li>o High level assessment of the integration solutions between SAP and Workbrain finds it non-optimal, potentially hard/expensive to maintain and not well protected from potential failures.</li> <li>o Solution scalability was discussed during the review particularly for end user activities on the Workbrain component. Since Workbrain is not in SAP's expertise domain, we cannot commend on the application. However, some discrepancies exist in relation to assessment of scalability of the Workbrain component following Stress &amp; Volume testing.</li> </ul>	
14.10.2009	<p><u>QHIC Board briefing note "Queensland Health Payroll Project Stress and Volume Testing" (executed by Philip Hood, CorpTech and John Gower, IBM)</u></p> <ul style="list-style-type: none"> <li>• Since 11pm on 16 September 2009, CorpTech Stress and Volume team has not been able to run valid tests against the Workbrain Solution and has been unable to demonstrate that the application can sustain a concurrent user load of great than 800 users for a period of 8 hours.</li> <li>• Successful completion of Stress and Volume testing is an exit condition of User Acceptance Testing which is due to be completed on 19 October 2009.</li> <li>• CorpTech and IBM have instigated an end to end Service Assessment Review (SAR) of the Workbrain Solution.</li> </ul>	<p>QHIC Board briefing note "Queensland Health Payroll Project Stress and Volume Testing"</p> <p>[CCMB: V 11, pp 105-106]</p>
28.10.2009	<p><u>QHIC Board Briefing note "Queensland Health Payroll Project Stress and Volume Testing" (executed by Philip Hood, CorpTech 28.10.2009 and John Gower, IBM 28.10.2009)</u></p> <p><u>Attachment: Powerpoint Presentation "CorpTech QHIC HR Workbrain Stress and Volume Testing Situation" October 2009</u></p> <ul style="list-style-type: none"> <li>• Noted that within the ambit of the QHIC Project, CorpTech has responsibility for performing stress and volume testing of the Workbrain solution to ensure it will be capable of sustaining production like user transaction and data volume loads. Successful completion of Stress and Volume Testing is an exit condition of User Acceptance Testing which is due to be completed on 15 October 2009.</li> <li>• Two specialised Workbrain resources from Infor Canada were on site on 12 October and assisting with testing and problem resolution.</li> <li>• Failed 8 hour test.</li> <li>• Architectural stream of activity has been raised with IBM to deliver architectural document for capacity and performance management for review with stakeholders.</li> </ul>	<p>QHIC Board Briefing note "Queensland Health Payroll Project Stress and Volume Testing"</p> <p>Briefing note:</p> <p>[CCMB: V 11, pp 292-294]</p> <p>Attachment:</p> <p>[CCMB: V 11, pp 326-329]</p>

Date	Event	Supporting Document
29.10.2009	<p><u>QHIC Briefing Note re: "QHIC SAP Review"</u></p> <ul style="list-style-type: none"> <li>Notes that CorpTech engaged SAP Australia to undertake an Independent Quality Assurance Solution Review and a Project and Risk Management Review.</li> <li>Attaches Summary of Recommendations and Management of SAP and SAP Statement of Work.</li> </ul>	<p>QHIC Briefing Note re: "QHIC SAP Review"</p> <p>[CCMB: V 11, pp 298-305]</p>
11.11.2009	<p><u>Infor Global Solutions, Workbrain Audit, Queensland Health Project Version 5.0</u></p> <ul style="list-style-type: none"> <li>During prior testing IBM and CorpTech reported performance and scalability issues in relation to the Workbrain application as currently implemented.</li> <li>IBM requested Infor to undertake the audit of Workbrain application at Queensland Health.</li> <li>Overall Infor found the solution implemented for Queensland Health to be reasonable as per Infor's best practice.</li> <li>"From a functional perspective, the solution was generally found to be fit for purpose. The business requirements for Queensland Health in respect to award interpretation are extremely complex in nature and this is reflected in the configuration of the calculation groups reviewed as a part of the audit. The recommendations made in this respect are aimed as simplifying the complexities involved with maintaining the calc groups, and potentially introducing performance gains in the process."</li> </ul>	<p>Infor Global Solutions, Workbrain Audit, Queensland Health Project Version 5.0</p> <p>[CCMB: V 12, pp 45-64]</p>
14.03.2010	<p><u>Go-Live</u></p>	
21.02.2010	<p><u>Infor WFM – Workbrain, Go-Live Infrastructure Audit:</u></p> <ul style="list-style-type: none"> <li>Purpose of audit to analyse and recommend best practice and optimal configuration for the Workbrain infrastructure.</li> <li>Makes architectural recommendations: web server, application server, job scheduler/batch server, report server, database server.</li> </ul> <p><u>Out of scope:</u> validation of business requirements, review of end-to-end business processes outside the scope of the Workbrain product, detailed review of functional/technical specifications, mitigation or implementation of any recommendations, performance benchmark and tuning.</p>	<p>Go-Live Infrastructures Audit, Infor WFM – Workbrain</p> <p>[CCMB: V 14, pp 392-405]</p>

Date	Event	Supporting Document
19.03.2010	<p><u>QHIC Board Briefing note. Queensland Health Human Resources Solution Post go live update #2 (unsigned)</u></p> <ul style="list-style-type: none"> <li>• Workbrain multi-viewer scheduler not performing optimally causing majority of delays to the publishing of rosters and processing adjustments to the rosters.</li> <li>• Two issues currently being experienced as a result of the integration between SAP and Workbrain. The first issue is a higher than expected volume of interface summary errors resulting in SAP and Workbrain becoming out of sync and incorrect adhoc payments occurring if intervention by the support team does not occur.....The second issue relates to the duplication of file names for offcycle payruns....As a result of this SAP is not processing the second duplicate file and if not identified and processed by the support team, the offcycle payments will be missed for the adhoc pay run. A workaround is in place and a software fix is being progressed as a matter of urgency.</li> </ul>	QHIC Board Briefing note, Queensland Health Human Resources Solution Post go live update #2
09.04.2010	<p><u>Department of Public Works – QHIC Board briefing note Re: Queensland Health Human Resources Solution Post Go Live Update #3 With attached Attachment 1 CorpTech Service Desk – Service Requirements</u></p> <ul style="list-style-type: none"> <li>• Sub-optimal performance with the Workbrain application in the MVS and roster publishing functionality.</li> <li>• IBM have engaged Infor Canada and specialist IBM resources to further analyse this problem. On Saturday 3 April an emergency Workbrain database change was implemented. From a technical perspective this has had an immediate improvement to the application and was reflected in the monitoring undertaken on Sunday 4 April...however this improvement has not been fully reflected in the QH SSP end user experience.</li> <li>• The length of time the SAP to Workbrain import interface job is taking is of particular concern and IBM and CorpTech have implemented a short term strategy to reduce the impact of this interface timing to the business...</li> <li>• Three issues are currently being experienced as a result of integration issues between SAP and Workbrain...</li> </ul>	<p>Department of Public Works – QHIC Board briefing note Re: Queensland Health Human Resources Solution Post Go Live Update #3 With attached Attachment 1 CorpTech Service Desk – Service Requirements</p> <p>[CCMB: V 15, pp 288 – 296]</p>
22.04.2010	<p><u>Department of Public Works – Ministerial briefing note DPW01409/10 Re: Queensland Health Human Resources Solution Workbrain Performance (Attachment 1 not attached)</u></p> <ul style="list-style-type: none"> <li>• This briefing note provides the status of the Workbrain performance issue which is considered the most significant system issue being experienced by Queensland Health.</li> <li>• The QH SSP continues to experience sub-optimal performance with the Workbrain application. This is severely impacting their ability to enter the volume of roster data changes required in the fortnightly pay cycle and has been an ongoing issue since go-live. This is seen as the most significant issue in the QH HR Solution at this time.</li> <li>• Includes summary of issues, actions taken to date and planned actions for resolving performance issues.</li> </ul>	<p>Department of Public Works – Ministerial briefing note DPW01409/10 Re: Queensland Health Human Resources Solution Workbrain Performance</p> <p>[CCMB: V 15, pp 298 – 302]</p>

Date	Event	Supporting Document
30.04.2010	<p><u>Ministerial briefing note DPW01542/10 re "Queensland Health Payroll Project Implementation"</u></p> <ul style="list-style-type: none"> <li>The higher than expected volume of interface summary errors resulting in SAP and Workbrain becoming out of sync was identified as an issue, as well as incorrect data being sent by Workbrain and accepted without error by SAP. CorpTech has implemented a number of manual work-arounds that ensure incorrect data is corrected prior to the fortnightly payroll. CorpTech and IBM are continuing to investigate and develop solutions to these issues.</li> <li>IBM has arranged for two experts from Infor Canada, the vendor of the Workbrain Product, to be on site to assist in the resolution of the speed and user experience issues.</li> </ul>	<p>Ministerial briefing note DPW01542/10 re "Queensland Health Payroll Project Implementation"</p> <p>[CCMB: V 15, pp 303-315]</p>
07.05.2010	<p><u>QHIC, End of Project Review (Draft), last updated 7 May 2010</u></p> <p><i>Solution Design:</i></p> <ul style="list-style-type: none"> <li>IBM were contractually obligated to demonstrate that the solution was scalable for the Queensland Government through the Workbrain Scalability Assessment exercise under Schedule 46 of the Contract. Despite a number of attempts, scalability of the solution was never fully demonstrated and IBM were unable to convince CorpTech and the Project Board to continue with the project.</li> <li>Whilst the use of Workbrain to accelerate configuration of awards may have reduced development effort it has significantly increased the complexity of the integration between Workbrain and SAP especially with regards to processing of leave. It is also now evident from the production issues post go-live that Workbrain has inherent scalability issues to meet Queensland Health processing volumes. It has also increased the complexity of the solution in terms of applying SAP support packs and has not resulted in a foundation to enable the adoption of standard SAP Employee Self Service and Manager Self Service.</li> </ul>	<p>QHIC, End of Project Review (Draft), last updated 7 May 2010</p> <p>[CCMB: V 15, pp 316-356]</p>
September 2010	<p><u>Report of Ernst &amp; Young "Review of Payroll and Rostering Solutions"</u></p> <p><i>Executive Summary</i></p> <ul style="list-style-type: none"> <li>2. There is no clear market leader of rostering products used in the Australian or international health care sector. Rather there are several "like" products currently being used. Further, there is no dominant payroll and rostering solution which is specifically designed to work together for the health care sector, although some product owners certify their products operate successfully together.</li> <li>3. Whilst recognising and understanding the current issues in the existing rostering system, Workbrain, the analysis indicates that these problems should be able to be fixed and the solution improved to adequately meet the needs of</li> </ul>	<p>Report of Ernst &amp; Young "Review of Payroll and Rostering Solutions" Queensland Health</p> <p>[CCMB: V 15, pp 357-398]</p>

Date	Event	Supporting Document
	<p data-bbox="454 272 896 296">Queensland Health Rostering Requirements.</p> <ul data-bbox="409 328 1630 536" style="list-style-type: none"> <li data-bbox="409 328 1630 456">• 4. The replacement of the Workbrain system component of the solution with an alternative software product would place additional burden on staff and require significant effort and investment from Queensland Health. For example, this effort would include additional reconfiguring, testing and staff training over and above fixing the Workbrain solution. This would result in additional burden to staff on top of their daily duties, potential further delay in resolving award interpretation for staff and risking a continued loss of confidence in Queensland Health's ability to resolve the situation.</li> <li data-bbox="409 488 1536 536">• Kronos and Workbrain were shortlisted in the report as appropriate products meeting the mandatory criteria for Queensland Health.</li> </ul> <p data-bbox="365 568 1594 616">NB: Out of scope of the report was the configuration and customisation of the "current system" and vendor analysis of specific Queensland Health business requirements against software functionality.</p>	



Queensland

*Supreme Court of Queensland Act 1991*

# Uniform Civil Procedure Rules 1999

**Current as at 1 September 2012**

- (b) produce the document or thing as the court directs.
- (4) A subpoena to produce a document or thing may be satisfied by an agent of the person named in the subpoena producing the document or thing to the court.
- (5) This rule does not apply to so much of a subpoena as requires a person named to attend to give evidence orally.

**421 Service**

- (1) A subpoena may be served under chapter 4, parts 2, 3, 4 and 5.
- (2) Compliance with a subpoena may be enforced, and a proceeding may be taken for noncompliance with a subpoena, only if it is proved that the subpoena has been received by the person to whom it is addressed or the person has actual knowledge of it.

**Part 5 Expert evidence**

**Division 1 Preliminary**

**423 Purposes of pt 5**

The main purposes of this part are to—

- (a) declare the duty of an expert witness in relation to the court and the parties; and
- (b) ensure that, if practicable and without compromising the interests of justice, expert evidence is given on an issue in a proceeding by a single expert agreed to by the parties or appointed by the court; and
- (c) avoid unnecessary costs associated with the parties retaining different experts; and

[r 424]

---

- (d) allow, if necessary to ensure a fair trial of a proceeding, for more than 1 expert to give evidence on an issue in the proceeding.

#### 424 Application of pt 5

- (1) This part does not apply in relation to a witness giving evidence, whether orally or in writing, in a proceeding who is—
  - (a) a party to the proceeding; or
  - (b) a person whose conduct is in issue in the proceeding; or
  - (c) a doctor or another person who has given or is giving treatment or advice in relation to an injured person if the evidence is limited to 1 or more of the following matters in relation to the injured person—
    - (i) the results of any examination made;
    - (ii) a description of the treatment or advice;
    - (iii) the reason the treatment or advice was, or is being, given;
    - (iv) the results of giving the treatment or advice.
- (2) This part also does not apply in relation to a proceeding for a minor claim in a Magistrates Court.

#### 425 Definitions for pt 5

In this part—

*appointed expert* means an expert appointed under division 3 or 4, including a court appointed expert.

*court appointed expert* means an expert appointed by the court under division 3 or 4.

*expert* means a person who would, if called as a witness at the trial of a proceeding, be qualified to give opinion evidence as

[r 426]

an expert witness in relation to an issue arising in the proceeding.

*report*, for a proceeding, means a document giving an expert's opinion on an issue arising in the proceeding.

## Division 2 Evidence given by an expert

### 426 Duty of expert

- (1) A witness giving evidence in a proceeding as an expert has a duty to assist the court.
- (2) The duty overrides any obligation the witness may have to any party to the proceeding or to any person who is liable for the expert's fee or expenses.

### 427 Expert evidence

- (1) Subject to subrule (4), an expert may give evidence-in-chief in a proceeding only by a report.
- (2) The report may be tendered as evidence only if—
  - (a) the report has been disclosed as required under rule 429; or
  - (b) the court gives leave.
- (3) Any party to the proceeding may tender as evidence at the trial any expert's report disclosed by any party, subject to producing the expert for cross-examination if required.
- (4) Oral evidence-in-chief may be given by an expert only—
  - (a) in response to the report of another expert; or
  - (b) if directed to issues that first emerged in the course of the trial; or
  - (c) if the court gives leave.

[r 428]

---

**428 Requirements for report**

- (1) An expert's report must be addressed to the court and signed by the expert.
- (2) The report must include the following information—
  - (a) the expert's qualifications;
  - (b) all material facts, whether written or oral, on which the report is based;
  - (c) references to any literature or other material relied on by the expert to prepare the report;
  - (d) for any inspection, examination or experiment conducted, initiated, or relied on by the expert to prepare the report—
    - (i) a description of what was done; and
    - (ii) whether the inspection, examination or experiment was done by the expert or under the expert's supervision; and
    - (iii) the name and qualifications of any other person involved; and
    - (iv) the result;
  - (e) if there is a range of opinion on matters dealt with in the report, a summary of the range of opinion, and the reasons why the expert adopted a particular opinion;
  - (f) a summary of the conclusions reached by the expert;
  - (g) a statement about whether access to any readily ascertainable additional facts would assist the expert in reaching a more reliable conclusion.
- (3) The expert must confirm, at the end of the report—
  - (a) the factual matters stated in the report are, as far as the expert knows, true; and
  - (b) the expert has made all enquiries considered appropriate; and

[r 429]

- (c) the opinions stated in the report are genuinely held by the expert; and
- (d) the report contains reference to all matters the expert considers significant; and
- (e) the expert understands the expert's duty to the court and has complied with the duty.

#### **429 Disclosure of report**

A party intending to rely on a report must, unless the court otherwise orders, disclose the report—

- (a) if the party is a plaintiff—within 90 days after the close of pleading; or
- (b) if the party is a defendant—within 120 days after the close of pleading; or
- (c) if the party is not a plaintiff or defendant—within 90 days after the close of pleading for the party.

#### **429A Supplementary report**

- (1) If an expert changes in a material way an opinion in a report that has been disclosed, the expert must, as soon as practicable, provide a supplementary report stating the change and the reason for it.
- (2) The supplementary report must comply with rule 428 and be disclosed as soon as practicable.

#### **429B Court may direct experts to meet**

- (1) The court may, at any stage of a proceeding, direct experts to meet and—
  - (a) identify the matters on which they agree; and
  - (b) identify the matters on which they disagree and the reasons why; and

[r 429C]

---

- (c) attempt to resolve any disagreement.
- (2) The court may, for the meeting—
  - (a) set the agenda; and
  - (b) specify the matters the experts must discuss; and
  - (c) direct whether or not legal representatives may be present; and
  - (d) give directions about the form of any report to be made to the court about the meeting; and
  - (e) give any other directions the court considers appropriate.
- (3) Evidence of anything done or said, or an admission made, at the meeting is admissible at a trial of the proceeding only if all parties to the proceeding agree.
- (4) However, subrule (3) does not apply to a report made to the court about the meeting identifying the matters mentioned in subrule (1)(a) or (1)(b).

#### **429C Immunity**

An expert has the same protection and immunity for the contents of a report disclosed as required under these rules as the expert could claim if the contents of the report were given orally at a trial of the proceeding in which the report is disclosed.

#### **429D Costs**

When deciding the order to make about the costs of a proceeding, the court may consider, in allowing, disallowing or limiting the costs for an expert's report prepared for a party on an issue, the extent to which the proceedings may have been facilitated by the appointment of a person as the only expert in relation to the issue.

## Dr David Manfield

Executive Leadership for new technology delivery

### Contact

M: [REDACTED] E: [REDACTED] S: [REDACTED]

### Highlights

I have wide experience with delivery of new ICT technologies, and have occupied business leadership positions in a range of ICT delivery companies. I have worked in North America and Europe. My expertise is in:

- ICT solution definition and delivery
- Health, IT Security, Telecommunications OSS
- General management and management processes for solution delivery

I am recognised in the local industry:

- Nominated for AIIA Queensland Pearcey ICT Industry Award in both 2004 and 2005 for contributions to local industry development.
- I founded and initially ran the Queensland e-Security Industry Cluster 2001.
- Industry Advisory Board of QUT Information Security Institute 2006-2010.

### Experience Summary

vPerformance Pty Ltd (July 2003 – present). Provides software solutions and expert consultancy services for telecommunications management systems, B2B systems, and IT security.

- Long-term supplier to ACT Government.

NEHTA Ltd Manager Certification Strategy (August 2008 – December 2012). NEHTA has the national public-sector role for e-health delivery.

- I set up and led the team that developed the national e-health compliance framework for health IT systems joining the national e-health network, to satisfy security, privacy and safety requirements. This framework of conformance specifications and processes is now used nationally by all e-health vendors and DoHA. It follows ISO 17000 standards.
- I initiated and led the development of engineering processes for development and management of compliance products.

SPYRUS Pty Limited GM (March 1999 – present). SPYRUS is a Brisbane-based e-security company specialising in crypto-based security product development, consultancy and systems integration. I retain an interest in the company and an advisory role.

- SPYRUS needed to establish a national business for crypto-security solutions after a local acquisition. I built and managed the business, giving SPYRUS a national profile and delivering a range of security solution projects to Tier 1 customers including Federal and State agencies – Queensland Government, Defence, ATO, APRA, HREOC.
- I participate in Defence RPDE and am a member of the Defence C4ISREW Working Group.

BHA Computer National Solution Delivery (1995-1999). (BHA is now CSG International).

- BHA developed a carrier-class customer care and billing system and needed to establish a market. I led the first major solution delivery of the system, in a multi-million dollar project for Optus corporate and government billing. The system continues to run successfully.
- I led the pioneering development of processes for product management of template products.

CiTR Pty Ltd GM (1989-1995). CiTR was a commercial spin-off from The University of Queensland. I founded and built CiTR's telecommunication software systems development and consultancy business that grew the company from 13 staff to 100 staff in six years, and became the total company business.

Telstra (1987-1988). I founded the TRL GSM digital cellular mobile programme, and then managed the TRL section for electronic messaging, EDI and X.500 directories.

Bell-Northern Research Ltd, Canada (1981-1987). BNR was the R&D arm of Nortel and Bell Canada. I managed the department for performance engineering of all Nortel's switching products.