The Largest Admitted IT Project Failure in the Southern Hemisphere: A Teaching Case

Teaching Case

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Abstract

The Queensland Health implementation project failure is the largest IS failure in the southern hemisphere to date, costing $1.25 billion AUD. This case highlights the importance of systematically analysing project failure. It examines the case organization details, royal commission report, auditor general report and 118 witness statements pertaining to the Queensland Health implementation project. The objective of this teaching case is (1) to illustrate the factors that contributed to Queensland Health's disastrous implementation project and (2) to understand the broader applications of this project failure on state and national legislations as well as industry sectors. The case narrative and teaching notes are appropriate for both undergraduate and postgraduate students studying IS and project management subjects.

Keywords: Teaching case, success and failure, failure case, case study, health IS

The Background

There is a wealth of literature on the implementation of large IS implementation projects (Eden et al. 2012). Such studies focus on critical success factors (Francoise et al. 2009), project management issues (Bernroider 2008), and in general, the antecedents of successful IS implementations (Tsai et al. 2011). Cases of IT failure are not uncommon in practice. For example, Bridgestone, the world's largest tire company (Bridgestone 2014) experienced system failures upon going live with an Enterprise Resource Planning (ERP) system, which disrupted key business processes, ultimately resulting in a purported $200 million USD in lost revenue (Krigsman 2013). Additionally, Marin County in California experienced total implementation failure, which resulted in abandoning the implementation project. This project is said to have cost approximately $30 million USD (Krigsman 2010). Consequently, large IS implementation failure is estimated to cost three trillion dollars per year (Krigsman 2012). Panorama Consulting (2013) reports that 53% of ERP systems implementation projects exceed their budgets, and 61% exceed their allotted timelines.

The objective of this teaching case is to demonstrate project governance and policy issues pertaining to Information Systems (IS) implementation projects. The teaching case observes the largest IS failure in the southern hemisphere, which cost Australians $1.25 Billion AUD ($245 million AUD has been allocated for fixing the system, and it is estimated to cost $1,000 million AUD to maintain and operate the system,

which is $530 million AUD greater than anticipated prior to going live). The case narrative has been developed using the Royal Commission hearing transcripts, the Auditor-General's Report and the Royal Commission's report, in which 118 witnesses were interviewed. Hence, the approach used in this study is inductive, as opposed to theory driven deduction. This teaching case is appropriate for technology and project management subjects for both bachelors and postgraduate students within management and IS disciplines. [1]

Introduction

The health department of the state of Queensland in Australia (henceforth referred to as Queensland Health) payroll system failure is said to be the most spectacular Information Systems (IS) implementation failure in the Southern Hemisphere. It was 18 months behind schedule and 300% over budget. Additionally, upon going live a large number of Queensland Health employees, including doctors and nurses, were either incorrectly paid or not paid at all. The total project costs including implementation, stabilization and maintenance is estimated to be approximately $1.25 billion AUD (KPMG 2012). There were heavy casualties for the failure, including the resignation of the minister of health, industrial strike action and in some cases, loss of staff members to other employers. The state government of Queensland embarked upon the highest judicial form of enquiry in Australia (Royal Commission) to examine the cause of the failure and to provide a series of recommendations to be applied to future large governmental IS projects. Findings of the Auditor General and Royal Commission reports highlight issues pertaining to project management and governance.

> *"Those causes were: unwarranted urgency and a lack of diligence on the part of State officials. That lack of diligence manifested itself in the poor decisions which those officials made in scoping the Interim Solution; in their governance of the Project; and in failing to hold IBM to account to deliver a functional payroll system."*

> The Honourable Richard N Chesterman (2013, p. 217), Commissioner

> *"Whilst the accountability for payment of staff within Queensland Health ultimately lies with the Director-General, Queensland Health, I consider that the governance of the project was unclear between his responsibilities and the responsibilities of the Director-General, Department of Public Works as the Accountable Officer responsible for the management of CorpTech and its responsibility for the implementation of the whole of government HR solution."*

> Glenn Poole (2010, p. 2), Auditor General

This teaching case further examines the reasons for the disastrous Queensland Health IS implementation project. Included in this teaching case are: (1) an overview of the environmental and technological project drivers; (2) the roles and responsibilities of the key stakeholders involved in the project; (3) the implementation approach; (4) the outcome of the implementation project; and (5) a discussion into the reasons for the implementation failure.

The Organization and its Systems

The Queensland Government consists of predominantly three types of organizations: (1) Government agencies and departments; (2) Government owned corporations; and (3) General statutory bodies. All of which report to both the Queensland State Treasury and their respective ministers in the Queensland Parliament. With Queensland state government elections occurring every three years, ministers and corporate goals ultimately change to be reflective of the strategies of the political party in power. Hence government organizations are turbulent in nature due to the shifting power and embedded bureaucracy.

Queensland Health is the public sector health care provider for the Australian state of Queensland. It provides dental, medical and aged-care facilities in Queensland, which has the most geographically dispersed population of all Australian States. Therefore, Queensland Health needs to ensure that

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[1] Contact Rebekah Eden for a copy of the teaching notes.

adequate healthcare services can be provided in the most remote areas of the state (Queensland Health 2013a). Everyday Queensland Health provides hospital services to approximately 40,000 people throughout Queensland. Consequently, Queensland Health is responsible for approximately eighty-five thousand employees (85,000) across 300 sites (Queensland Health 2013b). Furthermore, being a state government department in the healthcare industry, Queensland Health is riddled with substantial layers of bureaucracy (Dunbar et al. 2011), thus adding to the complexity and increasing the difficulties associated with decision making, visibility and accountability. Due to the vast number of employees and their diverse skill sets there are a substantial amount of complexities inherent in the payment of staff. With, the existing payroll structures yielding more than 24,000 payroll calculation combinations (Poole 2010).

In order for Queensland Health to pay their employees, the disparate payroll system, LATTICE and the ESP (Environment for Scheduling Personnel) rostering engine, was utilized. The LATTICE and ESP solution was rolled out progressively over six years from 1996 to 2002. However, the LATTICE solution required a substantial amount of manual interventions to accommodate the complex award and incentive structures evident within Queensland Health (Poole 2010). Yet, in 2005, just three years after the progressive rollout was completed, Queensland Health received notification from the LATTICE system vendor, Talent2, that their existing LATTICE system was becoming obsolete and was no longer going to be supported, with services and updates ceasing on the 30th June 2008 (Chesterman 2013). Consequently, in order to continue paying their employees Queensland Health needed to consider appropriate software to replace the obsolete LATTICE system.

Additionally, in 2003 the Queensland State government formally established a whole of government Shared Services Initiative (SSI) mandating that all state government departments replace their existing legacy system with a standardized software solution that incorporates SAP HR and SAP Finance (Chesterman 2013). The overarching objective of the SSI was to consolidate technology and resources through delivering a high quality solution with standardized business processes (Queensland Government 2006). The SSI was expected to deliver the following benefits: (1) increased opportunities through enabling workforce mobility; (2) increased visibility into the cost of services; (3) reduced data duplication through the consolidation of systems; (4) reduction in costs associated with licensing agreements; (5) reduction of personnel; (6) achieve economies of scale; (7) enables the government organizations to focus on their core competencies, thus increasing the standard of service; and (8) consistency of HR and finance information across all government agencies (Chesterman 2013; Queensland Government 2006).

 As part of the SSI the Queensland Government established CorpTech within the Queensland Treasury to oversee the standardized implementation across all state government departments (Poole 2010). Therefore CorpTech was responsible for overseeing the consultant selection process (Request for Information, Request for Proposals, and Invitation to Offer) and managing the consultant organizations. CorpTech sent out a Request for Information (i.e. document used to gather information and shortlist potential consultant firms) on the 2nd of July 2007, in which four consultant firms responded, Accenture, IBM, Logica, and SAP (Chesterman 2013). CorpTech then requested detailed proposals (i.e. document used to determine the appropriateness of the consultant firm based on specific organizational requirements) from the aforementioned consultant firms on the 25th of July 2007 (Chesterman 2013). However, prior to the RFI being issued, CorpTech had managed the implementation of SAP HR at the Department of Housing, and SAP Finance at the Department of Justice (Poole 2010). These implementations proved to be quite costly as a substantial number of consultant firms and private consultants had been utilized. Due to the large expense associated with the multiple consultant firms, the consultant methodology for the SSI was changed to the prime contractor model on the 16th of August 2007 (Chesterman 2013). Subsequently, on the 12th of September 2007 CorpTech released an Invitation to Offer (i.e. document used to gather bids from perspective consultant firms), where IBM, Accenture and Logica responded. Ultimately on the 5th of December 2007 IBM officially signed the contract to be the prime contractor of the SSI (Chesterman 2013).
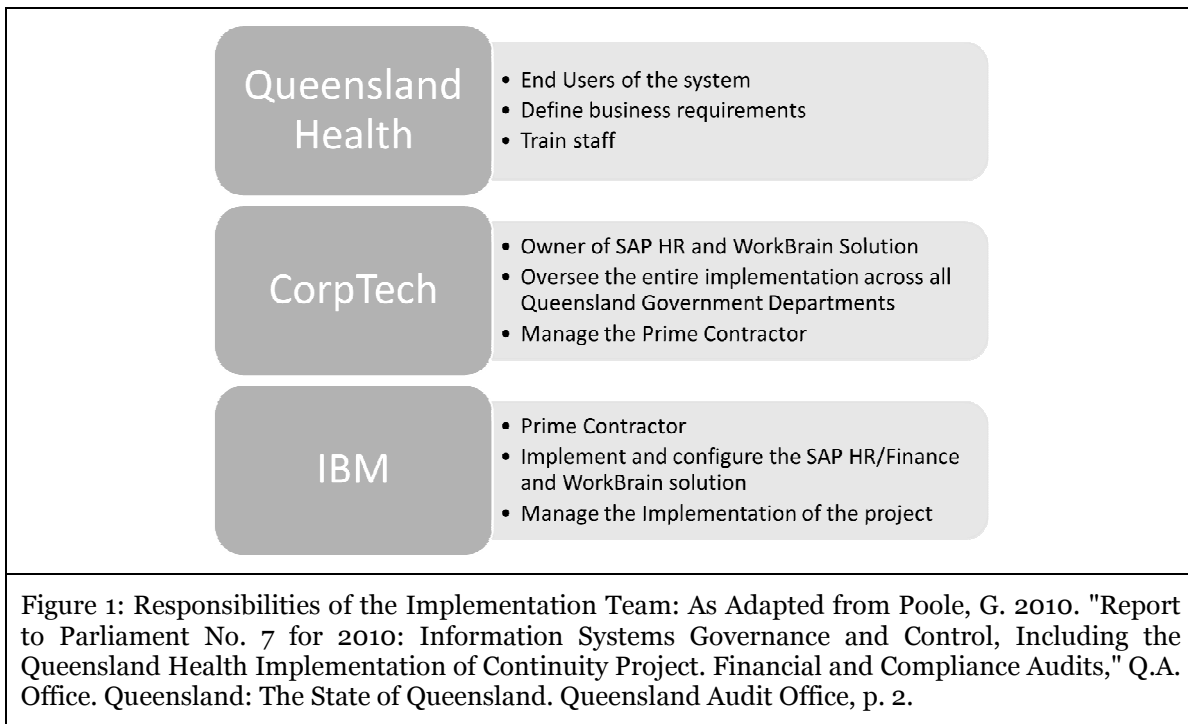
During the tender process IBM put forth the use of "Workbrain" rostering system to be utilized to perform the award interpretation and rostering of staff members (Chesterman 2013). Workbrain is a best-of-breed solution for awards interpretation. If Workbrain was not utilized the awards would have needed to be hardcoded into SAP using the ABAP programming language, which is a complex, time consuming, and

labour intensive process (Bloomfield 2013). Hence, future SSI projects were to utilize SAP HR, SAP Finance and the "Workbrain" rostering system.

Whilst the government had formed the SSI prior to LATTICE notifying Queensland Health of the discontinuation of support; the unsupported LATTICE system was the predominant project driver as ongoing support was critical. Therefore to mitigate the risks inherent with an obsolete and unsupported system, Queensland Health undertook the SSI, thus alongside CorpTech and IBM replaced their system with SAP HR, SAP Finance, and the "Workbrain" rostering solution. Thus, the purpose of the WorkBrain system was to process the timesheets and transport them to the SAP system. SAP was then used to further process the timesheets into a format that was acceptable to the appropriate financial institutions, so that employees could be paid. The focus of this case narrative is on the SAP HR and WorkBrain rostering solution. The 85000 employees and the complex award structures within Queensland Health resulted in a complex and challenging implementation project.

Implementation Team

The project to standardize Payroll and Finance Systems was mandated for all government departments. Therefore a specialized unit of the government (referred to as CorpTech) was responsible for managing all Payroll and Finance implementation projects for the relevant government departments. As a result the implementation at Queensland Health involved three primary stakeholder teams: (1) Queensland Health staff members were the eventual end users of the system, and during the implementation project Queensland Health was responsible for defining and documenting the business requirements and ensuring that those requirements were fulfilled during the testing phase. (2) IBM was the prime contractor (also referred to as principal consultant) of the Queensland Health implementation project. They were initially contracted to manage and implement the government mandated standardized software solution across all government departments. However, by the conclusion of the project IBM was no longer responsible for the remaining government departments' implementation projects due to the budget and time overruns experienced in the case of Queensland Heath. IBM was managed and selected by the third stakeholder group CorpTech. (3) CorpTech was responsible for managing the prime contractor's role (IBM in the case of Queensland Health implementation project) not only in the Queensland Health department implementation project but for the entire implementation throughout all government departments. Figure 1 documents the responsibilities of each team.

Figure 1: Responsibilities of the Implementation Team: As Adapted from Poole, G. 2010. "Report to Parliament No. 7 for 2010: Information Systems Governance and Control, Including the Queensland Health Implementation of Continuity Project. Financial and Compliance Audits," Q.A. Office. Queensland: The State of Queensland. Queensland Audit Office, p. 2.

Whilst IBM was ultimately selected as the prime contractor a number of individuals expressed their concerns pertaining to whether this was the appropriate choice and hinted that bias may be present (Chesterman 2013). In the tendering processes the government organization, CorpTech is required to remain neutral and provide all consultant firms vying for the position of the prime contractor the same information. However, the royal commission identified that the project director (Mr Terrence Burns) favored IBM ultimately providing them with a competitive advantage.

> *"Although nothing went to IBM as a result of Mr Burns' encouragement during his May review, it would be naïve to think that his partiality for it did not continue"*

> The Honourable Richard N Chesterman (2013, p. 33), Commissioner

> *"The issue for consideration was whether IBM in the course of the RFP received or misused confidential information belonging to the State or Accenture, its main competitor in the bid process, which gave it a competitive advantage."*

> The Honourable Richard N Chesterman (2013, p. 45), Commissioner

Additionally, whilst the roles and responsibilities of each stakeholder team were briefly outlined at the commencement of the implementation, it became apparent throughout the project that the responsibilities were not clear (Poole 2010).

> *"The relationship difficulties with Queensland Health seemed to arise because there was confusion about roles and responsibilities"*

> Natalie MacDonald (2013, p. 2), Department of Public Works

Therefore there were two clear issues that arose in the formation of the implementation team: (1) unclear roles and responsibilities, and; (2) bias in the tendering process.

Implementation Approach

A total of $153 million AUD was allocated for the entire implementation of the SSI across all government departments (Poole 2010). Prior to Queensland Health commencing the implementation the Department of Housing had successfully implemented SAP HR, and the Department of Justice had implemented SAP Finance. The configuration structure used by the Department of Housing was to be utilized by Queensland Health in their implementation (Poole 2010). Queensland Health commenced the planning and scoping of the project in November 2007, with the implementation and testing documentation being approved in January 2008 (Poole 2010). Subsequently, IBM began the implementation project. Initially the plan was to complete the configuration with minimum customization by August 2008, however in June 2008, IBM decided to perform more planning in order to deliver the final complete solution (Poole 2010). The additional planning, which occurred in October 2008 revealed that the scope and complexity of the project had been greatly underestimated by IBM. This change in scope and the lack of defined business requirements ultimately resulted in substantial time and cost overruns (Poole 2010).

Payroll and user acceptance testing was performed in parallel over a series of stages between July 2009 and February 2010 (Poole 2010). The first test of the payroll compared the pays of only 10% of employees from all employee groups when performed in the SAP HR and WorkBrain rostering solution as opposed to the legacy LATTICE system, which resulted in a $1.2 million AUD discrepancy in the fortnightly payroll. A second payroll test occurred in February 2010, which only resulted in a $30,000 AUD discrepancy, however casuals and overtime claims were not tested. Queensland Health accepted the inherent risks and opted to Go-Live without full testing of all the functionalities of the system in March 2010 (Chesterman 2013; Poole 2010).

Upon completion of the standardized solution within Queensland Health, the project was 18 months behind schedule and 300% over budget (refer to figure 2). There are a myriad of factors that can be attributed to these cost and time overruns: (1) Firstly, a specific project management methodology was not followed; Furthermore (2) the approach and implementation structure followed the Department of Public Housing which has significantly less complexity in their pay structures when compared to Queensland Health; (3) The roles, responsibilities and ownership of each of the three key stakeholder groups weren't clearly defined as an adequate governance structure was not established until June 2009,

which was 10 months after the planned go-live date; and (4) business requirements were poorly defined, which subsequently negatively impacted the user testing phase.
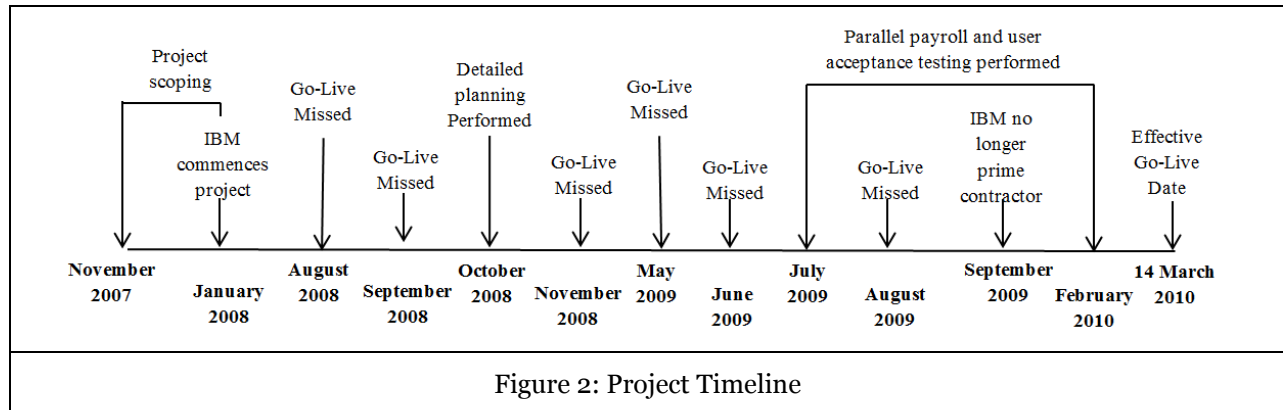

Figure 2: Project Timeline

Project Outcomes

Time and cost overruns are inherent in ERP system implementation projects due to the inherent complexities with systems of this type. Furthermore the healthcare industry is also renowned for possessing complexities due to its orientation and requirements (Avison and Young 2007). The implementation project at Queensland Health is an unequivocal failure, and is arguably the worst IS failure in the southern hemisphere. The project itself ultimately failed being substantially over budget and schedule. Additionally upon going live the system failed and a significant proportion of employees were either not paid, or paid incorrectly. However the system was not abandoned, and the issues were eventually resolved after prolonged attention by Queensland Health, CorpTech and IBM. Asides from the financial and operational costs that were attributed to the system failure, there was also a human impact with distress caused to many (Chesterman 2013). Consequently, industrial strike action resulted and a number of employees ultimately resigned. The total cost of the Queensland Health implementation project as well as stabilization and maintenance efforts is estimated to be $1.25 Billion AUD (KPMG 2012).

Discussion: Complexity Management

There are a multitude of different reasons behind why the Queensland Health implementation project failed, many of which can be attributed to poor management of the project as a consequence of the poor handling and the lack of understanding of the complexities inherent in the IS implementation project. The complexity associated with a large IS implementation project are derived from: (1) the complexity of the industry; (2) the complexity of the system itself; and (3) the complexity associated with the client-consultant relationship. IS implementation projects are both an organizational and technical project, which are typically associated with a substantial amount of business process reengineering efforts, and are riddled with complexity. As such it is imperative that the adopting organization: (1) clearly articulates their requirements; (2) utilizes an appropriate implementation strategy; (3) performs a substantial amount of system testing prior to the decision to go live being reached; (4) utilize an appropriate project management methodology; and (5) effectively communicate with all stakeholder groups involved. In the royal commission several witnesses highlighted these areas as well as issues pertaining to the health care industry and client consultant relationships as key issues in the Queensland Health implementation project. Furthermore the complexity of the client-consultant relationship encompasses the interactions between the client, consultant, and vendor, as well as the need for project governance and effective communication.

Industry Complexity

The healthcare industry encompasses the people, processes and services provided by hospitals, pharmacies, diagnosis agencies etc. (Hashemi 2012). It is fundamentally different to other industries regardless of whether they belong to the public or private sector (Avison and Young 2007). The healthcare

industry differs from other industries not only in its nature but in its focus and size. According to Avison and Young (2007) the following differences between industries exist: (1) the focus of healthcare is on the client as opposed to the enterprise itself as the safety and wellbeing of patients is paramount; (2) person-to-person interaction is crucial as opposed to communication being performed only with the IS; (3) The number of clients the healthcare industry caters for is typically in the millions as opposed to the thousands experienced in other industries.

The healthcare industry is notorious for being a complex and complicated system (Weeks and Wadsworth 2013). This complexity stems from a number of facets including: (1) The healthcare industry caters to a broad and diverse customer (patient) base; (2) Given this diversity and the nature of healthcare each patient (customer) is unique and at times unpredictable; (3) Due to the uniqueness of each patient, treatments differ considerably, and an incorrect treatment can lead to a detrimental outcome (Weeks and Wadsworth 2013). The substantial amount of clients that the healthcare industry caters for is partially responsible for the inherent complexity riddled throughout healthcare as each client has individual requirements and an exorbitant amount of specialists are necessary, whom have different roles, responsibilities and pay scales. Yet, the complexity of healthcare is not only associated with the treatments of patients, rather it is additionally apparent in the management structures and decision making processes (Kannampallil et al. 2011).

The motivations behind a healthcare organization's decision to adopt an IS are often coupled with idealistic expectations that the system will transcend the organization becoming a ubiquitous component of their operations (Greenhalgh and Keen 2013). Moreover, in government run healthcare organizations, the organizations tend to possess a utopian dream of harmony existing between the stakeholder groups (Greenhalgh and Keen 2013). This is unrealistic given the potentially turbulent political environment they operate in. Thus further adding to the complexity associated with an IS implementation project. Additionally, upon going live with an IS the differing political viewpoints often result in vastly contrasting perceptions on whether the IS is a success or a failure (Coiera 2007). In the healthcare industry 50% of IS implementation projects fail. However, whilst there are inherent complexities in the healthcare industry, 65% of these failures are attributed to management issues, encompassing lack of top management support, poor project management and inefficient communication between all stakeholder groups. The remaining 35% of failures are attributed to technical issues, which includes poor system testing, and a lack of defined business requirements (McManus and Harper-Wood 2007).

Queensland health as a public sector state government department provides a vast range of heath related services to over 40,000 people per day, across 300 sites in Queensland. As such the complexities apparent in the healthcare industry applies to Queensland Health. This is clearly evident in the payroll structure as there are approximately 24,000 combinations of award wages. Underestimating the complexity associated with the industry itself and in turn the organization can prove disastrous in an implementation project. Consultant organisations vying for the position of the prime contractor clearly articulated the complexity inherent with the Queensland Health implementation.

"highest risk component of the whole of government program"

Marcus Salouk (2013), Accenture employee

Requirements Definition

The definition of requirements is a key component of the IS acquisition process and details the functional areas, problems and opportunities associated with the adopting organization (Verville et al. 2007). The requirements definition is necessary to not only ensure that the system performs what the adopting organisation intends, however it also is imperative in detailing the scope of the implementation in a consultant partnered project (Hilditch-Roberts 2012). However in the case of Queensland Health the requirements were not adequately documented and in the testing phase of the implementation project a number of user-acceptance issues and functionality issues arose. These issues were discussed between Queensland Health and the prime contractor. The prime contractor then communicated with CorpTech and as a result the prime contractor was able to increase the cost of the project, as the issues that were identified, were not components that were detailed in the project scope. Hence the lack of defined requirements, ultimately lead to scope creep. This resulted in significant budget overruns. In the

Queensland Health Payroll Commission of Inquiry, Darrin John Bond identified this issue of cost and timeframe overruns with the project, stating:

> *"Once the state entered into a head contract with a prime contractor it becomes essential to have those requirements and specifications defined. But in this case agencies were still debating and arguing about what they would or would not get and what they would or would not accept. Without that agreed the prime-contractor would come in the scope would continually vary and the prime contractor would claim variance and the cost and timeframes of the contract would blow out"*

<div align="right">Darrin Bond (2013, p. 17), Corptech</div>

Implementation Strategy

As previously mentioned, the Queensland Health implementation project was part of a whole of government solution. The risk of the Queensland Health implementation could have been minimized by performing the implementation projects in smaller less complex government agencies first. Therefore the processes and implementation procedure would have been tried and tested in a number of scenarios. However this was not a viable option for Queensland Health, as the main project driver was the obsolete LATTICE system becoming unsupported by the vendors. Thus the Queensland Health implementation project could not be postponed to a later phase of the whole of government Shared Services Initiative as the legacy system could potentially collapse. As such in the Royal Commission a recommendation was made to ensure that all legacy systems present in government agencies had a succession plan.

> *"There be forward planning for all legacy systems. The state should, to the extent its 2012 ICT Audit has not already done so, undertake risk assessments, contingency and succession planning for such systems to ensure they do not present the same level of risk and urgency that LATTICE was thought to present, and that decisions concerning them are not made in haste."*

The Honourable Richard N Chesterman (2013, p. 218), Commissioner of the Royal Commission

The implementation strategy that was to take place in Queensland Health was 'brownfield' in which it was to be based off of the Department of Housing solution. However, the Department of Housing is a comparatively smaller department, with fewer complexities than Queensland Health. Moreover, the Department of Housing did not utilise WorkBrain in their solution and did not utilize the prime contractor consultant engagement methodology.

> *"The number of awards, staff, and the host of other considerations presented major difficulties. That said SAP has been used to deal with these complexities elsewhere so I suspect the approach of using the Housing Payroll design as the blueprint for Health was a failed strategy."*

<div align="right">Michael Duke (2013, p. 5), Logica</div>

> *"The proposal also said that we were trying a model that had not been proved - in that we had not used WorkBrain in the implementation in the Department of Housing. To try it for Queensland Health was in my mind, way too risky."*

<div align="right">Darrin Bond (2013, p. 8), Corptech</div>

Furthermore, the configuration of WorkBrain had not been performed in other Queensland government agencies which introduced additional risks and complexities into the Queensland Health implementation project. Keith Goddard (a freelance project manager for CorpTech) further agreed with the above sentiments.

> *"the issue was that it [WorkBrain and the payroll system] was an unsubstantiated position"*

<div align="right">Keith Goddard (2013, p. 20), freelance project manager</div>

WorkBrain is one of the key elements that helped secure IBM the position of the prime contractor. It was used to process the timesheets, which were then transferred through to SAP for furthering processing of the files, so that they were in an acceptable format for the payment of staff by the appropriate financial

institution. Due to the substantial number of possible payroll permutations the payment of staff became a time intensive process. Ultimately, the use of WorkBrain resulted in a lag in the system and placed emphasis on the need for good interfaces between the WorkBrain solution and SAP. Additionally, creating interfaces between multiple systems is known to increase the difficulty associated with system testing (Shaul and Tauber 2013), maintenance, upgrades (Brehm et al. 2001), and conserving data quality (Xu et al. 2002). Furthermore, the WorkBrain rostering solution whilst being utilized by IBM in past projects, it had never been utilized in an organization as large and as complex as Queensland Health (Bond 2013).

Due to the unsubstantiated position of the WorkBrain rostering solution and the inherent risks it presented, the implementation team should have considered performing a progressive implementation methodology at Queensland Health, by rolling out the system in one location (specific hospital site) and scaling to other locations, as opposed to performing the implementation for the entire department. Furthermore, the progressive implementation methodology had been utilized successfully by Queensland Heath in the past when they implemented the LATTICE and ESP rostering solution. Alternatively, Queensland Health could have minimised the complexity of the implementation project, by actually following the Department of Housings implementation procedure in terms of the software components to be implemented, whilst changing the award structures to be reflective of the requirements of Queensland Health, therefore not implement the WorkBrain solution and perform the award interpretation directly into SAP. This would have reduced the complexity and the risk associated with it as it is a tried and tested solution.

System Testing and Data Quality

Extensive system testing is a factor that is statically proven to be related to implementation success, where the more extensive the testing the greater the success of the implementation (Saini et al. 2013). Yet, in the Queensland Health implementation project rigorous testing was not performed and only a subset of employees (10%) pays were tested prior to going live. The test uncovered a discrepancy of $1.2 million AUD in the fortnightly payroll of these 10% of staff, and typically the discrepancies were attributed to casual staff and overtime request claims (Poole 2010). Due to the substantial discrepancy uncovered in the parallel payroll test, further testing was performed. This test of the payroll resulted in only a $30,000 AUD discrepancy; however casuals and overtime claims were not retested (Poole 2010).

However, due to the pressure to go live and the risk apparent with an unsupported system, Queensland Health did not perform a complete parallel test of the system. Whilst Queensland Health had classified defects into four distinct categories and mandated that the system could not go live if an issue of the highest severity level was classified, the pressure to go live resulted in the reclassification of defects, so that the Go-Live decision could be made. This resulted in not all the critical issues being fixed prior to the Go-Live date, and therefore when Go-Live did occur a significant number of staff members were not paid or paid incorrectly. Additionally if adequate testing was performed the data conversion and integrity issues would have been identified. Data is an essential component to every organization, it is used in day-to-day operations, and is a key component of decision making, therefore data must be of a high quality and exhibit the following dimensions: (1) intrinsic [complete, unambiguous, meaningful, and correct]; (2) accessible, and (3) useful (Haug et al. 2009).

> *"40% to 50% of the no-pay instances, there had been no bank code/account number input into the pay file for those individuals. This meant that the system would have calculated the pay but had nowhere to send it. Other no pays also could be attributed to incomplete or inaccurate data"*
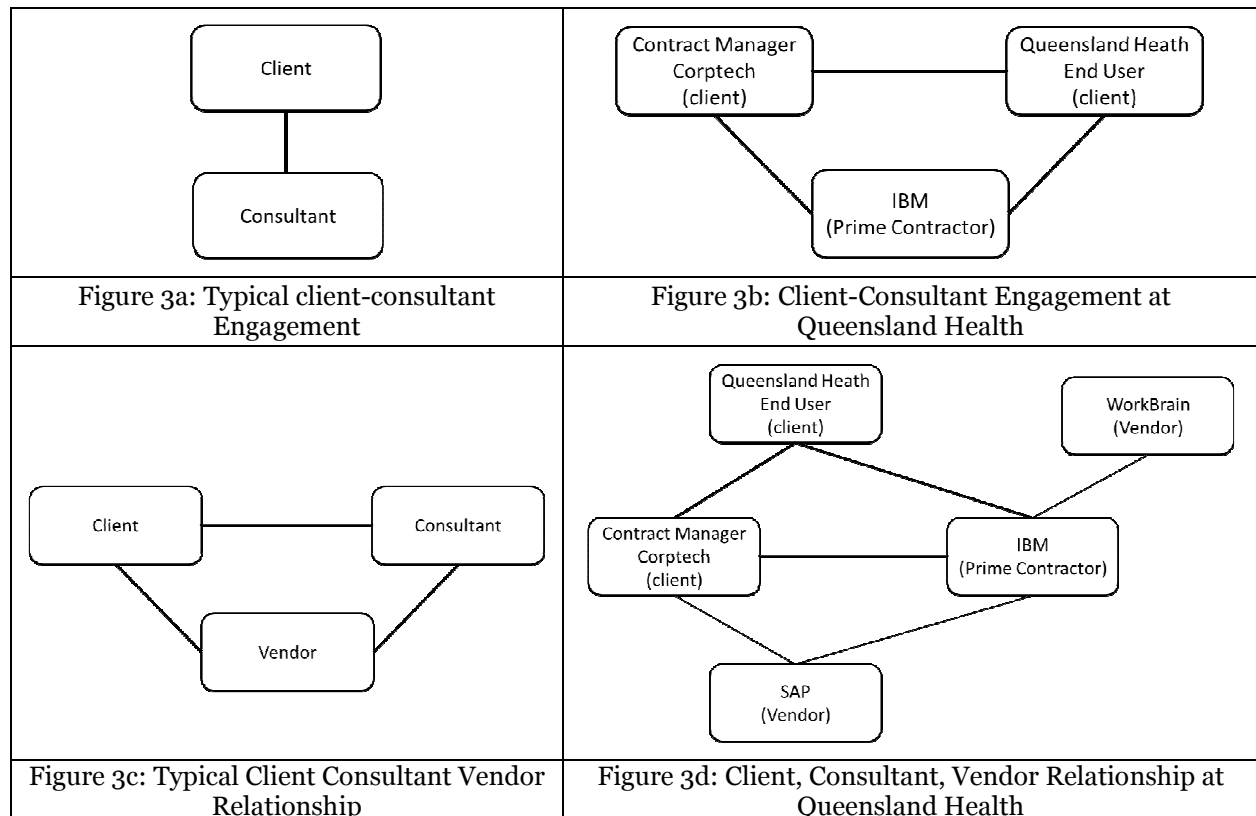
> Malcolm Grierson (2013, p. 20), Department of Public Works

SAP, the ERP system vendor also recommended that complete parallel pay testing should have been performed prior to going live as opposed to only testing a selection of employee's wages. This recommendation was not followed, which would have brought light to the severity of the pay discrepancies prior to going live.

Client Consultant Relationship Complexity

Selecting the appropriate consultant that has a blend of business skills and technical skills does not ensure a successful implementation project. Whilst it is important, the relationship between the client and consultant is also of utmost importance (Finney and Corbett 2007). A poor consultant relationship can result in ineffective communication, which leads to a disjointed perception of the goals and outcomes of the project. Traditionally in complex IS projects there is only one client organization and the number of consultant teams can vary (figure 3a). Contemporary client consultant engagement models incorporate the use of a prime contractor, in which a single client organization hires a consultant organization (prime contractor) who manages the entire project. That prime contractor is responsible for ensuring all the necessary expertise is on the project and often they can hire additional consultant organizations to fulfil the gaps in skillsets. However in the case of Queensland Health there were three parties involved in a quasi-multiple client-consultant engagement (figure 3b): (1) CorpTech, who was responsible for managing the prime contract; (2) Queensland Heath; and (3) IBM (prime contractor). Alternative to traditional and contemporary consultant engagement models, in which there is only one client organization present, there was a quasi-multiple client consultant relationship apparent in which there were two different client organizations, who ultimately had different end goals. Therefore IBM had to satiate both Queensland Health, and Corptech. This resulted in unclear roles, responsibilities and objectives of the overall project, emphasizing the need for project management and governance strategies.

Furthermore, in ERP implementation projects the communication with the vendor is also of extreme importance. The relationship between the vendor, client and consultant is considered to be a tripartite relationship in which all relevant stakeholders communicate with each other (figure 3c). Effective and efficient communication is imperative to project success as: the vendor has the greatest knowledge pertaining to the capabilities of the system; the client has the greatest knowledge about their organization, its requirements and objectives; and the consultant has the blend of technical and organizational knowledge necessary to perform the implementation project (Sedera and Gable 2010). Yet, in the case of the Queensland Health implementation the quasi-multiple clients changes this dynamic. Furthermore as the prime contractor was utilizing another product in the overall Queensland Health implementation project multiple vendors were also apparent (figure 3d).

Figure 3a: Typical client-consultant Engagement	Figure 3b: Client-Consultant Engagement at Queensland Health
Figure 3c: Typical Client Consultant Vendor Relationship	Figure 3d: Client, Consultant, Vendor Relationship at Queensland Health

Project Management/ Governance Complexity

The lack of defined requirements and the complete underestimation of the complexity of the Queensland Health implementation project consequently resulted in concerns pertaining to the management of the project. In an IS project, the challenges encountered in project management are amplified due to the complexity of the system (Amoako-Gyampah and Salam 2004). According to Metaxiotis et al. (2005, p. 55) "project management provides an organization with powerful tools that improves its ability to plan, implement and control its activities as well as the ways in which it utilizes it people and resources." The complexity of the system, coupled with the complexities surrounding the healthcare industry, highlighted that the project management of the Queensland Health implementation would be extremely challenging. There are many different types of project management approaches including goal directed project management and Prince2. Yet, in Queensland Health it appears that there was a lack of a formalised project management strategy, which is evident in the budget and time overruns.

> *"There was a lack of integrated project planning and no integrated critical path with clear timelines and deliverables"*

> Gary Uhlmann (2013, p. 4), Arena Consulting

The eventual tension and communication issues that resulted between IBM, Queensland Health and CorpTech could have been prevented if appropriate governance techniques were utilised. Project Governance encompasses defining the roles, responsibilities and relationships of individuals and the monitoring of the aforementioned aspects throughout the entire implementation project (Fitz-Gerald and Carroll 2003). Furthermore, effective and on-going project management is critical to the overall success of a complex implementation project (Bernroider 2008). The governance structure utilised throughout the Queensland Health Payroll implementation project is observed through the analysis of Witness Statements to be lacking.

> *"During 2009, the relationship with IBM deteriorated as deadlines were not met, blame for whose fault it was became a finger pointing exercise."*

> Malcolm Grierson (2013, p. 13), Department of Public Works

> *"There was a lack of clarity about the role of some of the governance committees and a lack of single point project accountability with dual accountability to both SSIO and CorpTech and some confusion over their individual responsibilities"*

> Gary Uhlmann (2013, p. 4), Arena Consulting

In client-consultant relationships governance takes on extreme importance as the consultants can wield a substantial amount of power due to their technical knowledge.

Communication Issues

Communication is an important aspect of effective project management. Effective communication is imperative to an IS implementation project as it minimizes the extent of user resistance, and is positively related to organizational impact (Dezdar and Ainin 2011). Furthermore, in IS implementation projects the communication between the consultants, vendors and client is necessary for the purposes of transferring knowledge (Ko et al. 2005). However in the case of Queensland Health effective communication was not utilized with the consultants, as employees in Queensland Health were openly vehement to the IBM consultants.

> *"Department of education, health and CorpTech senior officers were openly critical of the performance of IBM and I was concerned for the future of the relationship with IBM and hence the project. The cause of much of the friction and tension appeared to be the lack of faith in the IBM team"*

> Malcolm Grierson (2013, p. 9), Department of Public Works

This lack of faith with the IBM team was also identified by other individuals as they believe that IBM didn't put the best people on the job. Having a well balanced team comprised of the best functional, and technical consultants as well as IT experts is critical to the success of an IS implementation project

(Altuwaijri and Khorsheed 2012). Thus, IBM not placing the best people on the project may have ultimately contributed to the failed implementation.

> *"I was disappointed that IBM had put a B team on the project whereas I would have expected the IBM I had known in the past to have had an A team on a project such as this"*

> Malcolm Grierson (2013, p. 9), Department of Public Works

This ineffective communication was detrimental to the outcome of the project.

Conclusions: Lessons Learnt

The case of Queensland Health Information Systems implementation failure has clearly demonstrated that IS failure can prove disastrous to the adopting organization with the project estimated to have cost $1.25 billion AUD to implement, stabilize and maintain. A number of lessons can be learnt from this failed implementation which center around the management of the industry, system and relationship complexity. These lessons include: (1) the relationships apparent in contemporary IS projects do not necessarily follow the traditional tripartite relationship of client, consultant, and vendor, hence clear definition of roles, responsibilities and interaction paths need to be performed prior to the commencement of the project to avoid a breakdown in communication and resultant misunderstandings. (2) In a quasi-multiple client relationship the clients need to discuss and agree upon the set of requirements prior to communication with the prime contractor, this will ensure that each stakeholder has the same understanding of the objectives. (3) Complete parallel system testing should be performed prior to the go-live decision to highlight the level of defects apparent in the system. (4) Furthermore, as recommended by the commissioner (2013), succession planning for legacy systems needs to be put in place, to prevent the pressure to go-live before the system is ready, due to the lack of support by the legacy system vendor. In the case of the Queensland Health IS implementation project, prescriptive project methodologies were not followed (i.e. inadequate management of the project, poor requirements elicitations, unclear roles and responsibilities, etc.) Yet, if prescriptive project methodologies had been followed the failure may well have been minimised. However, whilst project management methodologies are adequate for linear projects they are not necessarily capable of the execution and governance of complex contemporary IS implementations. The IS implementation undertaken at Queensland Health was a large scale, complex, contemporary project with complexity stemming from: multiple reporting hierarchies; multiple subprojects; parallel implementations; and the nature of payroll structures in the healthcare industry. This case highlights that whilst the prescriptive project management methodologies were not followed current project management methodologies may also be inadequate for projects of this nature.

As a consequence of Queensland Health's disastrous payroll implementation project, the Queensland Government radically improved their ICT strategy and governance procedures. The ICT strategy consisted of 12 key areas for reform, two of which are: (1) at-risk ICT asset stabilization; and (2) portfolio, program and project management competency (Queensland Government 2013). These two areas focus upon implementing a lifecycle management plan to minimize the criticality of replacing IS (Queensland Government 2013). Furthermore the Queensland Government ICT audit specified a series of constraints that must be placed on high risk projects, which included: (1) project management personnel must be of the highest quality; (2) rigorous application of the Queensland Government project and program methodology; (3) the project must be approved by numerous chains of command, and (4) a reporting regime to be established to increase the visibility of the costs associated with ICT projects (Queensland Government 2012). Ultimately these reforms, whilst necessary also add multiple layers to the governance process, increasing the number of bureaucratic decisions and increasing the degree of red tape. Consequently, both client and consultant organizations are more cautious throughout recent ICT projects due to the increase in compliance which leads to project delays, and increased project costs. Thus asides from the financial and societal implications associated with the Queensland Health implementation failure, the failure has also had national, industry wide ramifications.

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