Failed Tech Deployment Initiatives: Is Poor IT Governance to Blame?

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Abstract: Information Technology (IT) solutions have become a critical enabling tool in businesses and communities. As a result, organisations invest heavily in technology solutions to transform businesses. Motivated by rapid technological advancements, there have been radical changes in IT infrastructure management, IT applications, and IT services delivery. The recent COVID-19 pandemic also encouraged the rapid adoption of technology solutions. However, despite numerous prescriptive models and 'best practice frameworks' available in the field, and an increased uptake of ITG in organisations, achieving key ITG outcomes is consistently ranked as one of the top concerns of management. After establishing a theoretical foundation for effective ITG practices (via literature review), this study begins a pilot examination to determine if tech deployment failure can be attributed to poor ITG.

Keywords Information Technology (IT) Governance, Effectiveness of IT Governance, IT Deployment

1. Introduction

Today, Information and Communication Technology (ICT) solutions play a significant role in enabling businesses. Therefore, organisations commit considerable funds to both capital and operational expenses to deploy ICT (Lovelock et al., 2016; McLellan, 2014). At the same time, deploying technology is often associated with significant organisational change and risks (Davis, Schoorman, & Donaldson, 1997; EDUCASE centre for applied research, 2008; Gauld & Goldfinch, 2006; Laudon & Laudon, 2014). As a result, significant technological advancements have increased awareness of technology management. However, some IT deployment cases fail to deliver (Gauld & Goldfinch, 2006; Gole & Shinsky, 2013). For instance, some of the recent case studies of challenged IT deployment initiatives where the deployment of technology failed to deliver the expected outcomes include the Queensland Health project, the WINZ NZ kiosk security failure and the NOVOPAY project (NZ Government, 2013).

Recent rapid advancements in ICT have introduced increased complexity in ICT planning and decision-making processes (Asgarkhani, 2012; Venkata, Reddy, & Chandra, 2012; Wen & Hsu, 2012). The literature on ITG provides advice and recommendations on models and frameworks for ITG implementation (De Haes & Van Grembergen, 2010; Van Grembergen & De Haes, 2009; Weill & Ross, 2004; Weill & Vitale, 2002; Williams, 2012). Achieving key ITG outcomes is consistently ranked as one of the top concerns of management. The review of previous ITG research indicates two prominent theories are applied to provide a theoretical foundation: Agency Theory and Stewardship Theory. Most ITG practices and approaches are grounded in Agency Theory (Bonazzi & Islam, 2007; McColgan 2001). However, practitioners are increasingly concerned that practices guided by Agency Theory fail to respond to a rapidly changing tech sector.

This study concentrates on broad questions: What influences or constitutes the effectiveness of ITG practices? And how do poor ITG practices contribute to the failure of IT deployment initiatives? Based on the in-progress outcomes of the current research, the paper examines the connection between poor ITG and failed IT deployment projects.

2. The methodology

The research methodology constituted a systematic literature review followed by a pilot case study analysis via thematic analysis. A Systematic Literature Review (SLR) established a theoretical model of parameters likely to influence effective ITG (Cooper, 2003; Okoli, 2015; Elliott, 2018). Multiple case studies were considered to assess if IT initiatives fail due to poor ITG. Case study analysis has been recommended as a suitable methodology for qualitative studies where contextual analysis adds value to the study (Baxter & Jack, 2008; Ritchie & Lewis, 2003; Stake, 2006; Yin, 2011).

3. The theoretical foundation of ITG effectiveness

The systematic literature review established eight key themes in three broad groups as the theoretical model of influencers or indicators of effective ITG (Asgarkhani, Cater-Steel, Toleman, & Ally, 2017; Asgarkhani, Cater-Steel, Toleman, & Ally, 2018).

- **Group A - IT Maturity**: The experience and rigour in implementing ITG best practices ((De Haes & Van Grembergen, 2010; DeLone & McLean, 1992; Delone & McLean, 2003; Van Grembergen, 2004; Weill & Ross, 2004; Weill & Vitale, 2002)
- **Decision-making Support Structure** - IT steering committee, Strategic information systems planning steering committee, Reporting structure (IT directors to CEO), monitoring and assessing the value returned from decisions made on deploying IT.
- **Formalised ITG systems and process** - ITG standards and framework, Business and IT partnership in decision making, Formalised portfolio management, Formalised information strategy planning, A formal process for strategic information systems planning, Formalised IT deployment project governance.
- **Effective communication of strategic issues -** IT director or CIO involved in executive decision-making and represented on the executive committees, IT strategy committee (or similar) tasked with reporting and discussing IT issues; a CIO or a similar role is to raise awareness and articulate a vision for IT's role.
- **Group B - Strategic Alignment of IT and Business**: The connection and coherence between fulfilling business strategy and the IT strategy (De Haes & Van Grembergen, 2010; Kaplan & Norton, 2004; Prasad, Green, & Heales, 2008; Ramgovind, Eloff, & Smith, 2015; Van Grembergen, 2004; Van Grembergen & De Haes, 2009; Weill, 2004).
- **Business outcome-orientated alignment of IT and Business -** IT strategies recognise and support new business outputs (products and services), Technology support for business outcome diversification strategies, and technology and service support for business outcome differentiation.
- **Alignment of organisational quality-orientated strategies with strategies for the use of IT solutions** - Adoption of IT Solutions supports business outcomes (products and services quality), including production and marketing.
- **Group C - Organisational performance influenced by technology deployment**: Organization's overall performance and delivery of outcomes supported by IT relative to its competition (DeLone & McLean, 1992; Delone & McLean, 2003)(Esteves & Joseph, 2008; Halonen et al., 2009; Hellsten & Karkove, 2006; Zaied, 2012).
- **The history and the current state of IT deployment within an organisation** - The current level of process automation via IT, User acceptance of technology solutions, Support mechanisms for IT solutions, Timely delivery of relevant information for effective decision making, Effective service management of IT solutions.
- **Awareness of the organisation's financial performance supported by IT solutions** - Processes for monitoring an organisation's performance; metrics such as return on investment are used to assess the value delivery of IT
- **Operational excellence influenced by the deployment of IT** - The existence of processes and metrics for operational performance, Seeking ongoing productivity improvements via the deployment of technology solutions, Service level agreements and the timeline for service delivery

4. Case study analysis

Six case studies that were selected for analysis included: New Zealand's NovoPay (NZ Government 2013), Victoria's (Australia) HealthSMART (Brouwer 2011), UK's IT in NHS (Campion-Awwad et al. 2014), Canada's Phoenix project (Barnhart et al. 2013), HP's ERP Implementation (Chaluverdi & Gupta, 2005), and JetSmart Qantas.

In the end, the case study analysis resulted in identifying twenty two factors that contributed to IT deployment failure - including: (1) lack of adequate implementation and rollout planning (resulting in implementation difficulties), (2) lack of sufficient training for IT personnel (inadequate technical know-how), (3) inadequate test planning and poor testing processes, (4) lack of sufficient technology and people resource, (5) data migration failures (prior to implementation and rollout), (6) poor or slow adoption of technology by the organisation (including the user community), (7) poor technology governance and executive oversight, (8) lack of role clarity and confused roles accountability, (9) lack of stakeholder involvement, (10) complexity of design and functionality – possibly ending with poor design of functionality & usability, (11) poor day to day tactical and operational project management, (12) conflicting or dysfunctional leadership, (13) poor IT and Business alignment (business case) for the technology deployment concerned, (14) unrealistic goals and expectations, (15) poor scope definition and scope creep, (16) poor risk and contingency assessment/planning, (17) poor relationship management of parties involved (including external parties), (18) poor business processes and

practices, (19) ineffective communication, (20) lack of flexibility of models or frameworks applied, (21) unrealistic and unnecessary pressure on project teams, and (22) inadequate change management.

Next, an extended analysis of the case studies involved the establishment of broader categories of factors/contributors to IT project failures (Creswell, 2015). The establishment of more general themes/established high-level connections between IT failure and poor IT governance (Creswell, 2015). The grouping resulted in eight broader categories that embodied the twenty-two factors which contributed to IT deployment failure: (1) Implementation and rollout factors, (2) resource management issues, (3) Accountability and role clarity matters, (4) IT and business alignment considerations, (5) IT leadership factors, (6) Design and functionality issues, (7) Risk and change management contributors, and (8) the existence and the utilisation of standardised frameworks and processes.

5. Concluding analysis

Next, the connection between the identified categories of eight contributors to IT deployment failure (the results of case study analysis) and the theoretical model of influencers/indicators of effective ITG (the results of the systematic literature review) are investigated and mapped. The method for indicating a connection between a category of failure contributors (case studies) and a specific group of influencers/indicators of effective IT government was as follows:

> *If any contributor to IT deployment failure from the case study analysis is likely to be influenced by any indicator identified by the literature review (either broad or individual indicators), the research establishes a connection between the broad theme (identified by case study analysis) and the general (heading) category of indicators of literature review.*

For instance, one of the contributors to failure (case study analysis) in the category of resources management issues is the lack of sufficient training for IT personnel (inadequate technical know-how). However, this factor could be influenced by the lack of formalised information strategy planning (including resources) and a formalised IT deployment project governance (literature review). Therefore, the category of resource management issues from case studies could be influenced by ITG organisational maturity (literature review). Therefore, this sample of six projects suggests that the failure of IT deployment was influenced by ineffective or poor governance.

Finally, the theme/code presence was examined (case study analysis) was used to determine the significance of the contributing factors to failure. NovoPay had experienced problems related to all eight types of contributors to project failures. Table 3 presents the summary of the theme/code presence analysis – Table 1.

Table 1: Summary of Case Study Analysis by theme/code presence

Identified categories of themes (Areas of Failure)	NovoPay	JetSmart Project (Qantas)	ERP at HP	HealthSMART	IT in NHS	Phoenix
Implementation Management	√	√	√	√	√	√
Resources Management (including people)	√	-	√	-	√	√
Accountability and clarity of roles	√	√	-	√	√	-
IT-Business alignment	√	√	√	√	√	√
Information Technology Leadership	√	√	-	-	√	√
Design and functionality	√	√	√	-	√	√
Risk and change management	√	√	√	√	√	√
Use of standardised processes and practices	√	√	√	√	√	√

The analysis presented in table 3 suggests that problems associated with four themes were present in all six case studies: (the list). Therefore, this sample indicates that these four groups of contributors significantly impacted IT deployment failures. In addition, at least three of the four groups are concerned with high-level governance matters: (1) IT-Business alignment, (2) risk and change management, and (3) use of standardised processes and practices (M. Asgarkhani, 2011; M. Asgarkhani, 2012; M. Asgarkhani & Sitnikova, 2014; Wu et al., 2015). Consequently, the analysis suggests that ineffective or poor governance played a role in the failure of IT deployment.

6. Conclusions

A systematic literature review was conducted to determine critical influencers (or indicators) of effective ITG. Next, secondary data from six case studies of IT deployment were analysed. The analysis aimed at identifying the factors/contributors that led to IT deployment failure. The thematic analysis of the project case studies determined eight main factors contributing to the failure of the investigated IT deployment projects. The last stage of the study mapped the theoretical model based on the literature review to the identified groups of contributors to project failures (case study analysis). The mapping suggested a connection between IT deployment failure and poor governance.

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