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# Development of Information Systems Project Portfolio Management Capabilities: A Case Study on an Australian Bank

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# DEVELOPMENT OF INFORMATION SYSTEMS PROJECT PORTFOLIO MANAGEMENT CAPABILITIES: A CASE STUDY ON AN AUSTRALIAN BANK

*Research in Progress*

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## **Abstract**

*Project Portfolio Management (PPM) has emerged as an effective technique to manoeuvre and align projects and programs with business strategy. Strategic alignment empowers the Information Systems (IS) function and Information Technology (IT) enabled initiatives to support business development. To this end, organisations are using more IS projects and programs to enable them to compete. The literature identifies Information Systems Project Portfolio Management (IS PPM) capabilities but lacks empirical research on how these develop. This research seeks to address this gap by investigating how capabilities develop over time. This case study research adopts the Dynamic Capabilities theoretical lens to validate capabilities against existing research. It retrospectively analyses how these developed over time and examines how other portfolios may be able to embrace and 'learn' such capabilities. This study focuses on a portfolio of IS projects within a major Australian banking and financial institution. This study explores the top-down and bottom-up approach in building capabilities over time.*

*Keywords: Project Portfolio Management, PPM, Capabilities, Information Systems Project Portfolio Management, ISPPM, Dynamic Capabilities.*

## 1 Introduction

Project Portfolio Management (PPM) is a major evolutionary step in project management maturity (Young et al., 2014, PMI, 2006, Institute, 2010, Andersen and Jessen, 2003). PPM is an organisational capability that is a key strategic enabler, realising substantial benefits by those organisations incorporating PPM into their project management (Chiang and Nunez, 2013, Daniel et al., 2014, Petit, 2012). Organisations develop capabilities such as PPM to sustain competitive advantage over the long term (Teece, 2007, Winter, 2003, Hine et al., 2013, Amit and Schoemaker, 1993). The most successful organisations leverage project capabilities and strong business-as-usual (BAU) processes to adapt to the market (Winter, 2003, Daniel et al., 2014).

This research focuses on Information Systems Project Portfolio Management (IS PPM) and studies Information Systems (IS) projects that a large bank identified as being either purely IS or containing a significant IS component, such as a new online product (Daniel et al., 2014). This research explains how the bank's IS PPM capabilities developed over time and explores how other portfolios of projects 'learned' these capabilities. The bank is a large Australian financial institution that employs over 20,000 people and has nearly 13 million customers.

A Project Portfolio is 'a collection of projects or programs and other work that are grouped together to facilitate effective management of that work to meet strategic business needs' (PMI, 2006). The management of a project portfolio includes the processes and routines that allow coordination across an organisation's programmes and projects to meet strategic business objectives. PPM includes processes and routines relating to prioritisation, effective project management and resource allocation (Daniel et al., 2014)

To study how the portfolios developed capabilities over time, the research adopts a dynamic capability lens. Dynamic capabilities theory shows how PPM capabilities change over time. This theory assumes the reconfiguration of resources and capabilities according to changing market and economic conditions (Teece, 2007, Daniel et al., 2014, Eisenhardt and Martin, 2000). In this way, it illuminates how the bank's PPM capabilities evolved and adapted to their organisational environments. This research seeks to extend the knowledge of IS strategic development by enhancing the understanding of how organisational capabilities necessary for effective IS PPM develop. Given that organisational capabilities enable a competitive advantage (Teece, 2007, Daniel et al., 2014, Eisenhardt and Martin, 2000), extending our understanding of these project portfolio capabilities may help organisations to develop a more effective IS strategy. To ensure a full evaluation of the process organisations use to capture portfolio success requires a rich understanding of the context.

The structure of this paper is in three main sections. First, the theoretical grounding reviews the literature on PPM capabilities and how, through a dynamic capabilities perspective, these capabilities can develop over time. Second, the research design discusses the nature of data collection and site selection. The final section presents findings and analysis.

## 2 Project Portfolio Management Capabilities Theory

### 2.1 Project Portfolio Management Capabilities

For decades now project management researchers have studied why IT projects succeed and fail (Nelson, 2007, Bannerman and Thorogood, 2012, Skulmoski and Hartman, 2010, Young et al., 2012). There are calls for practitioners to adopt program management and PPM to improve results in large organisations. Strategically aligning projects to business objectives requires dynamic PPM capabilities

(Killen et al., 2012) that organisations use to drive innovation (Killen et al., 2007), new products (Larsson, 2007, Cooper et al., 1999) and strategic change (Young et al., 2012).

Organisations run many projects (Nelson, 2007). However, many organisations do not consider project delivery to be their core focus, instead most define themselves by the conduct of everyday business-as-usual activities, such as the processing of customer transactions, sales and marketing activities and managing operational costs (Carroll, 2006). This is in contrast with consulting, technology and construction organisations that see projects as core to their business. For business-as-usual (BAU) organisations, although project delivery is not the ‘bread and butter’ of the organisation, there is growing recognition of project management’s significance (Yonggui and Bing, 2010) as the vehicle for strategic change (Crawford, 1998, Young et al., 2014). For BAU organisations this becomes challenging. Their mental models involve incremental continual improvements and reliable delivery. It is not surprising that although projects are seen as the drivers of strategic change, research shows that BAU organisations feel that the benefits are often unclear and that strategic goals are rarely met (Young et al., 2012). With digital transformation of the economy taking place, there are many concerns for BAU organisations. Poor portfolio management skills will lead to as many as 50% of digital transformation initiatives becoming unmanageable (Gartner, 2014). This lack of project direction endorses three requirements for effective PPM: selecting projects carefully, grouping them strategically, but most of all optimising for benefits realisation and business value (Young et al., 2012).

## 2.2 Development of Dynamic Capabilities

Dynamic capabilities provide a theoretical lens for reviewing how organisations attain and sustain competitive advantage in ever-changing market conditions (Hine et al., 2013, Teece, 2007, Petit, 2012). The definition of dynamic capabilities continues to evolve (Wang and Ahmed, 2007, Barreto, 2010, Daniel et al., 2014). The theory built on the resource-based view and extended it. External and internal competencies of the organisation drive the evolution of capabilities (Guttel and Konlechner, 2007). By highlighting the significance of continuously renewing the resources, the firm’s performance improves as it competes with other businesses, establishing a sound foundation for constant innovation and development (Anand, 2013, Teece, 2007).

This research adopts the formal definition of capabilities as being “a firm’s capacity to deploy resources, using organisational processes to achieve a desired end. They are information-based, tangible or intangible processes that are firm-specific and are developed over time through complex interactions among the firm’s resources” (Amit and Schoemaker, 1993).

Determined and stated intentions and constituted processes provide one way of identifying capability development (Daniel et al., 2014, Koch, 2010). However, this offers a limited view in understanding how the capability develops and only provides for a predetermined strategic intent. Helfat and Peteraf (2003) consolidate the founding, development and maturity of capabilities into a lifecycle, essentially a framework which provides a comprehensive and multidimensional approach to how capabilities develop over time and multiple causal factors. This research applies Helfat and Peteraf (2003)’s capability lifecycle model for dynamic capability development.

The capability life cycle contains six outcomes: retirement (death), retrenchment, renewal, replication, redeployment and recombination. There are two primary influences of the selection event: those that threaten to make a capability obsolete and those that provide new opportunities for capability growth or change time (Helfat and Peteraf, 2003).

Industry practitioners use maturity models that lead towards industry standards or baseline levels of capabilities. Higher levels of maturity convey superior performance (Young et al., 2014). Consequently, many organisations adopt maturity models to formalise an understanding of their organisational maturity relative to their competitors. Young et al. (2014) surprisingly found that small-

er organisations appear to have more mature portfolio management processes whereas larger organisations have more mature project management processes.

One criticism of maturity models is they focus on organisational competence at the expense of personal competencies. Maturity models examine the explicit knowledge and formal processes behind an organisation with an emphasis on standardization and business process improvement rather than the tacit knowledge and informal processes. Project performance is contingent on maturity and improvement in organisational and personal competencies (Young et al., 2014).

Maturity models provide an industry standard for organisations to compare the maturity level of the capability. However, it does not translate well within the organisation in terms of recording how the capabilities develop over the time. As it only details the specific levels of capability maturity and the respective characteristics, it fails to detail how to develop the capabilities from one level to another. Thus, there is a clear need for research on how capabilities develop and transform across a period within a project portfolio.

## **2.3 Organisational Learning**

Organisational Learning is the change in the state of knowledge in an organisation (Wang and Ahmed, 2003). It involves knowledge acquisition, dissemination, refinement, creation and implementation (Wang and Ahmed, 2003, Bhatt et al., 2005). Whilst it is evident that employees can learn, the ability for an organisation or a portfolio to 'learn' is more abstract and can be seen as a reified concept (Lane et al., 2006). By treating it as a culture or a metaphor, the environment can be seen as a 'learning organisation' whereby the individual and collective learning contributes towards the organisation's knowledge. By viewing organisational learning as a reified concept, organisational learning is bounded by absorptive capacity. In this way, organisational learning has a recursive relationship with the firm's capacity for 'learning' (Lane et al., 2006). If a particular project portfolio area discovers additional 'learning', then the portfolio improves its knowledge base within that area. This may increase its absorptive capacity and enabling more 'learning'. However, the ability to assimilate external knowledge is just as important as creating knowledge from within the organisation.

Between project portfolios, there is significant interorganisational learning i.e. the sharing and knowledge transfer within business units. Greater benefits occur when there is 'sufficient knowledge similarity' for learning to flow easily between two business units and there is 'sufficient knowledge dissimilarity' for something to be gained between both parties (Lane and Lubatkin, 1998).

The capabilities within PPM evolve through organisational learning (Killen et al., 2008). As Killen et al. (2008) argue, these 'learning mechanisms' of inevitably shape the practice and evolution of PPM capabilities over time.

### **2.3.1 Organisational Learning and Building Capabilities**

Organisational learning and capability building are closely aligned (Biedenbach and Müller, 2012, Cohen and Levinthal, 1990, Dodgson, 1993, Brady and Davies, 2004). Capability-building refers to the ability of firms to form unique competencies and capabilities that can leverage their resources (Bhatt et al., 2005, Teece and Pisano, 1994). For a capability to develop there must be situated learning and knowledge accumulation within the organisation (Andreu and Ciborra, 1996). IT can contribute to the creation of a capability and top management can tailor and guide the process. However, the environment has a great influence over the learning process and the development of capabilities (Andreu and Ciborra, 1996).

As with all capabilities, project capabilities grow through organisational learning in two main approaches: bottom-up project-team led approach or a top-down business-sponsor led approach (Brady and Davies, 2004). The following discussion explores both approaches.

For project-led learning, there are three primary phases (Brady and Davies, 2004): Phase 1 – Vanguard project(s); Phase 2 – Project-to-Project; Phase 3 – Project-to-organisation. Phase 1 project-led learning begins with a pilot program steering the innovation and initiating the capability development. If successful, the learnings from the initiative are ‘captured and transferred’ to other projects. Phase 2 project-to-project may be through a knowledge sharing team event or other team bonding activities. Finally, to facilitate knowledge transfer between a project and its organisation, the business unit establishes the learning as a shared infrastructure. This infrastructure makes it possible for a greater number of projects to absorb this capability. With this bottom-up approach, the individual projects customise the capabilities to fit their needs. Whilst this option fits more easily to the needs of project members, it may not have the support of senior management, making it challenging in Phase 3, when the business unit implements this capability.

For a top-down approach, senior management implements processes and frameworks they believe will benefit the projects. The core objective of a top-down approach is to ‘refine and extend the firm’s organisational capabilities and routines in order to exploit the technology or market base’. Whilst this approach has the support of senior management, there is a risk of resistance by project members, as the tool might not meet their personal needs.

## **2.4 PPM Dynamic Capability Identification, Development and Learning**

This research investigates how capabilities within a project portfolio develop over time. The research method structures the analysis into three components. First, it identifies the dynamic capabilities, which existed within a case study organisation. Second, it outlines and categorises the capabilities into their respective levels and their development behaviours within the portfolio. Third, it addresses how capabilities could be ‘learnt’ by other portfolios where organisational learning was applied.

# **3 Research Design**

## **3.1 Site Selection**

This research applies the dynamic capabilities and organisational learning frameworks to multiple portfolios of projects within a single large organisation. Single case studies can act as a rich contextual test of significant theories, by either “confirm[ing], challenge[ing] or extend[ing]” the original theoretical propositions (Yin, 2009). It applies Winter (2003)’s capability hierarchy to studying and analysing capabilities. This framework is already adapted into a hierarchy of IS PPM dynamic capabilities by Daniel et al. (2014).

Finally, by analysing the capabilities within a rich and natural ‘real-life’ context, the research studies the capability evolution over a four-year longitudinal period Langley and Stensaker (2012). There are two main types of longitudinal research: real time and retrospective case analysis Leonard-Barton (1990). This research chose the latter as it is more efficient to do within the research project’s one-year period. As this research measures the change in capabilities, collecting retrospective data is more meaningful and valuable for recording historical changes at the aggregate level (Vaus, 2006). There are some issues in the reliability of retrospective research in collecting information about less significant events and obtaining objective information. This research mitigates this risk through data triangulation.

Multiple case designs have been used to study PPM dynamic capabilities before Daniel et al. (2014). However, such an approach diminishes the richness that a single site in-depth case permits.

The research team chose a large Australian Financial Institution based in Sydney. It is a bank listed on the ASX. The project portfolio chosen for this study is a project delivery arm responsible for deliver-

ing IS projects. The delivery of projects, in particular IS projects, fundamentally disrupts the business-as-usual activity, in this case the provision of banking and financial services. Thus, the project portfolio must balance benefits realisation and the seamless integration of projects into day-to-day operations.

The case study organisation had clearly structured project portfolios containing both business and technology projects. The formal project management frameworks and established Enterprise Project Management Office were indications that it was a mature organisation and an appropriate choice. This organisation balanced both operations in its banking and financial services, along with conducting strategic initiatives through projects to gain a competitive edge. Thus, it fulfilled the criterion of being a business-as-usual organisation outlined for this research.

### 3.2 Data Collection

The research team collected monthly portfolio reports and many other documents spanning from June 2011 – May 2013. There were twenty-three monthly portfolio reports (June 2011 – April 2013). Monthly portfolio reports containing information regarding Project portfolio health, milestones and capabilities met for that month, benefits tracking, project portfolio health drivers, project spending and funding, project specific scheduling issues, project aging, project timeline, project resourcing, project-specific financial issues. The Case Study Organisation's Project and Execution Framework (PEFm) was also part of the database.

The team also conducted eleven in-depth semi-structured interviews, consisting of: one pilot; (Approximately 50 minutes in length; 1 interviewee); nine individual interviews (Approximately 60 minutes in length; 1 interviewee per interview); one interim findings interview to consolidate and validate preliminary findings (Approximately 30 minutes in length; 1 interviewee); and one final debrief interview reviewing the corporate portfolio documentation. The interviews were semi-structured to allow for some free-flowing discovery of information whilst permitting some cross-interview analysis.

The research studied each level within the portfolio in depth. The monthly portfolio reports and corporate documentation e.g. PEFm Framework revealed capabilities at the Portfolio-Level. The Program-Level studies the capabilities within the individual business unit's projects via document analysis of the monthly portfolio reports. As there are certain business needs and scalability requirements within particular business units, the capabilities were customised and unique to their own business unit's project portfolios. Thus, the interviews with the respective managers within the business unit portfolio further supported the initial analysis. Individual projects developed their own capabilities within the life of the project. Lastly, document analysis of the portfolio reports revealed the capabilities embedded in the resource-level across the portfolio reports, later visually mapped through open and axial coding of the interviews.

## 4 Findings and Analysis

To structure the data analysis the team applied narrative analysis through thematic coding. Interviews were analysed through open and axial coding in adherence to Corbin and Strauss (2008)'s approach. This research compared 33 individual dynamic capabilities consolidated from the existing literature to the case study (Appendix A). The research identified thirteen dynamic capabilities that helped the portfolio to improve its project management. Their development varied from bottom-up through top-down with some capabilities developing with both mechanisms. Other capabilities did not develop but were present. Table 1 provides a summary of the initial findings from the case study.

**IT Resource Integration** is a dynamic capability that evolved from the Portfolio-level. There was an evolution of established processes for resource integration by combining various business and tech-

nology expertise to facilitate organisational changes. The findings identified that when there was a shift in portfolio structure to focus on project-centricity, the natural progression is for resources to be centralised. Over time, it was apparent that some resources were more suitable to be centralised across the portfolio, whilst others were more suited to remain within the portfolio. What also became apparent is that this structural change enabled a more fluid and dynamic resource allocation to occur, in turn this contributed to a greater responsiveness to project demand.

**IT Resource Configuration** was a key capability that changed over the four-year period of the case study. The Portfolio established processes and routines to facilitate the replication, transfer and distribution of IT knowledge assets. This capability assumed a top-down approach, reflected through two main instances: the first through the formalisation of the resource allocation framework and the second through the PMO, a shared service accessible to all programs.

Table 1 Initial Findings from The Case Study

Dynamic Capabilities Identified within Case Study	Level within the Portfolio			
	Portfolio-Level	Program-Level	Project-Level	Resource-Level
Resource Integration	Top-Down Learning Approach			
Resource Configuration	Top-Down Learning Approach			
Resource Acquisition and Elimination	Top-Down Learning Approach			
Constant Change Culture	Top-Down Learning Approach			
Business Objectives Driving Projects	Top-Down Learning Approach			
Multiple and Dynamic Prioritisation Criteria		Bottom-up Learning Approach		
Demand Management		Bottom-up Learning Approach		
Customised Tools				Bottom-up Learning Approach
Intensity of Organisational Learning			Top-Down Learning Approach	Bottom-up Learning Approach
Training and Career Paths	Top-Down Learning Approach			Bottom-up Learning Approach
Sensing the Environment		Capabilities Identified. No Significant Learning Development.		
Dynamic Balancing of Risk/Reward	Capabilities Identified. No Significant Learning Development.	Capabilities Identified. No Significant Learning Development.		
Cancel/Reconfigure In-flight Projects	Capabilities Identified. No Significant Learning Development.	Capabilities Identified. No Significant Learning Development.		
<b>Total # of Capabilities Identified</b>	8	5	1	3



**Resource Acquisition and Elimination** was transformed as the processes and routines embedded within this capability changed. By acquiring new resources and removing obsolete resources from the team, a greater efficiency of project mobility was realised. This capability evolved through a top-down approach over the four-year period at a portfolio-level and was primarily being reflected through the formalisation of a resource allocation framework enabling a more efficient on boarding and acquisition of resources.

**Constant Change Culture** was a capability evident through the pre-emptive mechanisms embedded in the PMO. This prepared the portfolio team members for organisational change(s), which had a direct impact on their projects. At the Portfolio-level, this manifested itself through a top-down approach over time and was evident through the PEFm, a project management framework implemented across the organisation. Essentially, the role of the PMO was to bridge the gap between the organisational changes and the project teams.

**Business Objectives Driving Projects** was a capability described through the monthly reports, clearly indicating benefits tracking metrics. This displayed efforts to align projects with business strategies. Within the Portfolio, the business solution managers essentially acted as relationship agents between the business and the projects. In terms of their contribution to The Portfolio, the use of benefits tracking metrics facilitated both project forecasting and benefits realisation. On the other hand, the role of the business solution managers was to help secure future potential projects for their respective program domains.

**The Multiple and Dynamic Prioritisation Criteria** capability was applied by the various programs across the Portfolio. The project selection framework transformed through a bottom-up approach at the program-level. Different business needs, maturity levels and economic influences dictated how programs selected their projects.

**Demand Management** Over the four-year period, there were two primary indications of how the Portfolio improved processes and routines surrounding how future projects were secured. At the Program-Level, the first was in formalising the processes to secure future work and the second was in engaging business solution managers.

**The Customised Tools** were automated tools designed specifically for day-to-day project operations. Resource acquisition process for PMs and Bas were a tenuous and manual process before. By automating such processes there were greater efficiencies gained at a resource-level. Benefits were reflected through greater project resource mobility, resource visibility and forecasting.

**Intensity of Organisational Learning** was a complex, multi-level capability that transformed across the levels within the Portfolio. The different knowledge sharing routines and activities often interacted with other capabilities such as IT Resource Integration and Training and Career Paths. A top-down and bottom-up approach drove how knowledge was accumulated, shared and applied within the Portfolio. At the Program-Level, employees held practice meetings to facilitate the sharing of technical knowledge. At the Project-Level, the portfolio promoted initiatives and routines for cross-fertilisation of knowledge in a bottom-up fashion starting at the resource-level. At the resource-level, managers and senior professionals fostered domain knowledge by building individual communities of practice.

**Training and Career Paths** Formal structures and career development activities enabled a continuous renewal of knowledge and training for employees. Two main instances were indicative of this capability: at the Portfolio-level, the Head of the Portfolio strongly encouraged the concept of “job families”, a formal structure for career development introduced by Senior Management. At the resource-level, practice meetings developed the technical expertise of the project resources.

**Dynamic Balancing of Risk and Reward** showed no significant changes over time. Using specific techniques to track program and portfolio health, the portfolio was able to recognise and balance risk and reward between project and portfolio levels. Individually at the Program-Level, the Steering

Committee reassessed projects if benefits were not realised. At a Portfolio-Level, the monthly report indicated a RAG traffic light system to symbolize a project or portfolio's risk and status. Even though the visualization of the RAG function varied, the basic purposes for it remained the same.

**Cancelling and Reconfiguring In-Flight Projects** was confirmed to be an existing capability within the Portfolio as it was able to execute control over the project status – in terms of stopping, postponing or reconfiguring project resources depending upon the needs of the business and organizational changes. On the Portfolio-level, a variety of techniques were utilised to communicate project status clearly. For instance, there were timelines illustrating when projects to be implemented. On the Program-Level, the monthly portfolio reports indicated the overall program health status, showing reconfiguration over time to adjust to the rhythms of BAU activities. The case study found that this capability and its dimensions did not change significantly over time with respect to its function or role.

Finally, **Sensing the Environment** was a dynamic capability that demonstrated activities that established for 'spotting, interpreting and pursuing opportunities'. As there was a lack of investment towards the pursuit of new opportunities, there was no evidence of this capability developing significantly over the four-year period.

## 5 Implications for Theory and Practice

Dynamic capabilities literature has commonly been critiqued for its lack of empirical insight (Barreto, 2010, Arend and Bromiley, 2009), thus this research seeks to add a greater comprehension in the study of dynamic capabilities. Furthermore, this need for greater granularity and in-depth insight into IS PPM capabilities was a response to a Basket of 8 Journal Paper (Daniel et al., 2014). By validating the dynamic capabilities identified by Daniel et al. (2014), this case study performs confirmatory research based upon existing literature.

For practitioners, this research contributes a multi-dimensional and multi-level perspective of IS PPM capabilities. The list of capabilities and their respective development behaviours enable project portfolio managers to realise a greater potential and be aware of unidentified capabilities within their project portfolio team. By identifying these capabilities, they are able to articulate the capabilities that can be invested in and developed. Furthermore, this research studied the effect of the capabilities on the portfolio environment, thus informing practitioners of how one case study portfolio was able to shift from a weak matrix to a strong matrix portfolio structure. This will educate portfolio managers, who work within more functional or matrix-based organisations, on how to focus more upon projects. This research provides an empirical contribution towards the discussion around the underlying influence of organisational structure on project management.

## 6 Conclusion

This research-in-progress paper has identified and validated 13 capabilities within the context of the Case Study Organisation 'Product Projects'. It shows that capabilities are multi-faceted, evolving over upon multiple levels within the portfolio. An interesting preliminary finding is that some capabilities were built through a combination of top-down and bottom-up approaches, which prior literature does not identify. This suggests that senior management or project teams alone cannot solely drive development of some capabilities; rather both levels need to provide input in order to develop these capabilities successfully over time. This area needs further research to review and document the capability identification and approaches explicitly. The findings need testing in other organisations. Finally, the capabilities need consolidating to rationalise the set of IS PPM Dynamic Capabilities.

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Appendix A

Table 0.1 Examples of Capabilities in Existing Literature. Adapted from Daniel et al. (2014)

<b>Authors</b>	<b>Domain</b>	<b>Examples of Dynamic Capabilities identified in literature</b>
Eisenhardt and Martin (2000)	Strategic Management	Product Development
		Alliancing
		Strategic Decision-Making
		Knowledge Creation
Drnevich and Kriauciunas (2011)	Strategic Management	Use Of IT To Develop A New Product Or Service
		Develop A New Business Process
		Create New Customer Relationships Or Change Ways Of Doing Business
Maklan and Knox (2009)	Marketing	Demand Management
		Creating Marketing Knowledge
		Building Brands
		Customer Relationship Management
Chen et al. (2008); Wu (2006)	IT	Resource Integration
		Resource Configuration Capability
		Resource Acquisition And Elimination
Pavlou and El Sawy (2006), Wu (2006)	IT	Sensing The Environment Capability
		Learning Capability
		Integrating Capability
		Coordinating Capability
Bhatt et al. (2005)	IT	Intensity of organisational learning
Killen et al. (2007)	IT/Innovation	Innovation PPM
Daniel et al. (2014)	IT	Business Objectives Drive Projects
		Multiple And Dynamic Prioritisation Criteria
		Dynamic Balancing Of Risk And Reward
		Cancel/Reconfigure In-Flight Projects
Koch (2010)	IT	Digitized Process Reach
		Customer Agility
		Entrepreneurial Alertness (Related To E-Marketplace Development/Launch)
Anand et al. (2009)	Operations	Training and Career Paths for People

	Management	Constant change culture
		IT support