STRATEGIC ALIGNMENT AND IT PROJECTS IN PUBLIC SECTOR ORGANIZATION: CHALLENGES AND SOLUTIONS

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Abstract

Strategic alignment (SA) has become a challenging task for the public sector. The purpose of this research is to investigate the impact of strategic alignment perspectives on government IT projects in Australian local government. The subject frames the general contribution of this paper. The methodology of this research is based on two approaches. Firstly, a review of archival records was examined. Secondly, participatory observation was completed in a pilot study. As a result, a rich history of the process involved in IT projects over time was obtained. These data provide us with an insight to enable us to understand and explain SA in the real context of a local government. The data was analyzed according to our research design and questions. One of the major findings of this study is that simply introducing formal standards and mechanisms into the process cannot guarantee the success of IT projects. It is important that SA perspectives be practically deployed to contribute to the success of IT projects. In this regard, we propose a reference model which will achieve better linkage between business and IT strategies and generate public value. The model is simple but effective, consisting of a maturity level of strategic alignment perspectives and implemented criteria called attributes for each of these perspectives. Since the success of IT projects depends on the existence of a high maturity level of SA perspectives, the findings reveal that attributes affecting SA need to be taken into account throughout the entire process of project implementation. This contribution advances an understanding of how government policy-makers can optimize the value of their IT projects.

Keywords: Strategic Alignments, IT Projects, Public sector organization, Value Realization
1 INTRODUCTION

Today, some of public sector organizations can deliver their IT projects on time and on budget such as Telco Bundled Procurement Project, Software Asset Management System Project and Local Government Toolbox Project of a local government (Council, 2009). Few of them however, report that they actually identify and measure the benefits supposedly arising from those projects (Gershon, 2009). In other words: a project may be executed correctly and come in on time and within budget, but fail to realise any acceptable benefits because it was not strategically aligned with enterprise strategy. While the scope of this paper is not to identify or measure those benefits, it does examine strategic alignment perspectives that affect IT projects.

Governing information technology (IT) however, is difficult and is recognised as being a critical issue facing the public sector today. IT itself delivers no value without careful planning to achieve the potential of IT alignment with business goals. Such concern is a focus of many business executives today (Chan & Reich, 2007; De Haes & Grembergen, 2008). In this paper we propose a reference model of strategic alignment (SA) in public sector organization which will achieve better linkage between business and IT strategies with a purpose of generating public value through IT projects.

2 THE DEVELOPMENT OF STRATEGIC ALIGNMENT MODELS

2.1 Definition of Strategic Alignment

The roots of strategic alignment go back almost four decades where academics and researchers have attempted to understand the role of IS/IT in organization (Brown & Magill, 1994; Burlingame, 1961; Garrity, 1963; Henderson & Venkatraman, 1993; Hodgkinson, 1996). Henderson and Venkatraman (1993) define strategic alignment as ‘selecting appropriate alignment perspectives for achieving business objectives’. Reich & Benbasat (2000) define alignment as the degree to which the information technology mission, objectives, and plans support are supported by the business mission, objectives, and plans. Luftman (2000) defines business IT alignment as applying IT in an appropriate and timely way in harmony with business strategies, goals and needs.

Kearns & Sabherwal (2007) argue that in order to improve organizational performance, achieving strategic alignment between business and IT is essential. Others argue that firm’s failure to realize the potential value of IT is due partially to the absence of strategic alignment (Brynjolfsson, 1993; Henderson & Venkatraman, 1993; Prairie, 1996).

Chan and Reich (2007) published an annotated bibliography of alignment which listed over 150 articles. The current concept of the strategic alignment models in some ways reflects and accommodates a long history of research and practice concerning the most effective means of linking business and technology strategies. However, it is important to measure this alignment, and to quantify its effectiveness.

2.2 Strategic Alignment Models

Responding to a call for a more comprehensive alignment measurement, many models have been developed. For example the Critical Success Factors (CSF) model developed by Rockart (1979) is one of the earliest models that link the use of IT to the organizational objectives and its strategies. The CSF is still widely used today. The Strategic Grid model, developed by McFarlan (1984), addresses
four quadrants: support, factory, transition, and strategy each of which represents a situation for the company. This model explains how IT is related both to strategy and business operations within a company.

The Strategic Alignment Model (SAM) was formulated by Henderson and Venkatraman (1993) and forms the basis of many recent models today. The internal and external factors of the company are the main issues of this model. It is to some extent based on the Balanced Scorecard approach (Kaplan & Norton, 1992). According to SAM the four factors that should be taken into account are: business strategy, IT strategy, organizational infrastructure, and IT infrastructure. While strategy is considered to be an external factor, infrastructure is considered to be an internal factor. The model emphasizes the impact of IT strategy on a company’s business strategy. This model however, does not deal with operational and information/communication levels (Maes, 1999). SAM is not a constructive theory of Strategic Alignment as it does not provide clear guidelines on how to reach a specific goal. For example, there are no concrete criteria to determine which of the strategic alignment perspectives contribute to the success of IT projects (Bhansali, 2007).

Critics of these earlier models rely on the fact that strategic alignment is no longer considered as a static point. Alignment is now considered as a process since both IT and business strategy are facing a dynamic environment (Boynton & Zmud, 1987; Eisenhardt & Schoonhoven, 1996). Ryan and Harrison (2000) indicate that over 50 percent of IT implementations actually cost more than twice their original estimates. Such problems are due to the lack of foresight in the IT investment decision process (Schniederjans & Hamaker, 2003) or due to the human or organizational issues (Gartner, 2004; Gutierrez, Orozco, Serrano, & Serrano, 2006). A lack of board oversight for IT activities is dangerous (Nolan & McFarlan, 2005). As a result many IT projects still fail. For example, Enron in US lost $80 billion in 2001 (Gelinas, Sutton, & Fedorowicz, 2004) and Nike lost $200 million due to the failure of implementing supply chain software (ITIL, 15/10/2007).

The Management by Maxim model developed by Broadbent and Weill (1997) is similar to Rockart’s CSF model. The principle of this model is to guide analysis of how business and IT managers can create flexible, responsive and effective IT infrastructure by considering what to coordinate across the firm, what to leverage from within business units, and what to align IT infrastructure decisions to. A rigid information technology infrastructure will frustrate even the best strategic initiatives, making it difficult to introduce change in cost and time efficient ways (Ghoneim & El-Haddadeh, 2006; Prahalad & Krishnan, 2002). This difficulty is increasing in public sector organizations.

### 3 LIMITATIONS OF STRATEGIC ALIGNMENT MODELS IN PUBLIC SECTOR ORGANIZATION

The public sector organization depends on IT for its day to day operations. If IT fails, there is a distinct and grave possibility that entire enterprise will be damaged. IT projects typically involve organisations committing substantial resources and funds, and so project failure can result in not just loss of the funds invested, but also in the loss of benefits that would have accrued.

Based on the previous definitions of strategic alignment in section 2.1, strategic alignment in government is understood as comprising of IT services and objectives which are matched with government public services and objectives. For most governments, ‘e-government’ has come to mean the on-line provision of government services while ‘e-governance’ is the management of the associated policy issues. In this paper, IT Governance in government means that ‘the government is effectively using information technology in all lines of business and leveraging capabilities across (boundaries)… appropriately to not only avoid unnecessary or redundant investments, but to enhance appropriate cross-boundary interoperability’ (NASCIO, 2008). Governments’ management of IT projects broadly faces numerous challenges namely: excessive cost, project failure, unrealized value
and others (Siau & Long, 2004). Public sector organizations are often more complex and have more stakeholders which reflect their social, economic and political priorities. Thus the most challenges that many public sectors face are a legacy of rigid bureaucracy, established illogical routine tasks, time-consuming, lack of harmonizing integration and lack of coordination of different information systems (Wederakody, Janssen, & Hjort-Madsen, 2007). These problems have been found in IT Governance implementation in many countries (Siau & Long, 2004; Yining, M., H., & W., 2007).

Many of the strategic alignment models such as The Balance Scorecard or Management by Maxim are derived from empirical studies conducted in the business sectors. For example, Broadbent & Weill (1993) studied the Australia banking industry; Reich & Benbasat (2000) studied 10 Canadian insurance companies; and Kearns & Sabherwal (2007) studied more 1100 companies in US. These models shifted their focus over the last three decades from resources, automation, marketing, processes, knowledge, IT investments and value to the more holistic functional applications of a whole organizational context. The IT architectures in these models were developed through a series of isolated segmented projects which is not suited to a government context today. They do not readily reflect the enterprise-wide integration and collaboration that is necessary in government models (A. E. Brown & Grant, 2005). In fact, Enterprise Application Integration (EAI) technologies are an expensive and problematic solution even in business sectors. These problems are multiplied in the public sectors (Wederakody et al., 2007).

According to several IT Governance Institute Reports (ITGI, 2003, 2006, 2008), overall IT governance implementation in private sectors is higher than in the public sector. The reason for this difference is perhaps due to fact that the financial values realized from IT by financial sectors occurred earlier than in public sectors. The non-financial value realization benefit from IT governance has emerged later in government with its limits in public service level spending. However, the importance of IT in all sectors continues to increase according to the IT Governance Global Status Report (ITGI, 2008). The best practice frameworks of IT Governance in governments have not been fully investigated (Chen, Chen, Ching, & Huang., 2007). Other studies in Australian organizations indicate that little research has been conducted into examining what mechanisms contributed to establish effective IT governance within public sector organizations (Green & Ali, 2007).

Governments do use various financial-based parameters to assess whether IT investments deliver the expected value. Such parameters include payback periods, Net Present Value (NPV), Internal Rate of Return (IRR), Economic Value Added (EVA) and Return on Investment (ROI). The study shown by Shin (2002) on the impact of information technology on the financial performance indicates that investment in IT does not in itself ensure profitability for an organization in financial terms. Thus, due to the nature of the relationship between government and its various stakeholders, these investments are less effective in a public environment as they do not account for other forms of returns based on political issues, effectiveness, efficiency of government services and social objectives; collectively called ‘public values’. Other finding by Davis et al. (2003) indicates that payoffs from investments in information technology are difficult to recognize. Traditional ROI measures will fail in government (Gartner, 2004). Therefore, relating IT initiatives to public values remains a challenge to IT and non-IT executives alike. IT is an essential asset. However, in order to allow IT to facilitate better coordination and productivity, it should be coupled with organizational changes and practices (Bhansali, 2007).

Governments, therefore, from various countries have developed their own public value frameworks that attempt to measure the public value of IT investments. For example, the ‘Demand and Value Assessment’ in Australia (A. Government, 2010), the ‘Federal EA Performance Reference Model’ in America (Federal EA Program Management Office, 2007), ‘WiBe’ in Germany (G. W. government, 2009), ‘MAREVA’ in France and E-Governance Assessment Framework (EAF version 2) in India. Gartner defines (2007) Public value of IT (PVIT) in terms of three dimensions:
• **Constituent service level:** this level measures the impact on time and cost of users or beneficiaries of government services, in terms of accessibility, quality, and convenience of services.

• **Operational service level:** this level measures the internal impact of an initiative both on individual departments and across government organizations.

• **Political return:** measures the impact of investments on political goals and consensus, the overall impact on society in terms of wider reach of information, alleviation of digital and cultural divides and the impact of economy.

Strategic Alignment issues however, can not be understood in isolation. To better understand the concept of strategic alignments, it must be studied in the context from which it occurs. Hence, IT governance of a local government is introduced in the following section as a pilot study.

4 **OBSERVED STRATEGIC ALIGNMENTS IN IT GOVERNANCE CONTEXT OF A LOCAL GOVERNMENT.**

A pilot study of a local government was undertaken to observe SA in the public sector. The methodology of this research was based on two approaches. Firstly, a review of archival records was examined. These documents provide a rich history of the process of IT projects overtime. The evolution of IT is clearly depicted from the evaluation of these documents. The role of IT is seen as ever expanding and its role in the future is questioned.

Secondly, participatory observation was carried throughout the research. This method was important in obtaining personal opinions that were not expressly given by the business/strategy owners. Real effort was put into observing how employees in the local government communicate effectively.

The council was chosen because of its significant number of government IT projects. Moreover it has already established a sound IT Governance Framework (based on COBIT, ITIL, PRINCE2, AS 8015) to support their Corporate Strategy. The methods used to collect data consisted of observations within the site and information acquired through government documents. While every organization has some form of IT strategic alignment either specified or implied, in this local government, the five main components of strategic alignment comprise of IT Strategy, Corporate Activity Framework, IT Governance Framework for Management of IT Activity, IT Project Management Framework and Assessment Model. These components are discussed in Subsections 4.1-4.5.

In relation to strategic alignment, there is the flow of information between decision makers (Figure 1). The Executive Leadership Team (ELT) determines strategic direction while the role of Corporate Governance Committee (CGC) is to ensure that the mission of individual corporate activities are aligned to strategic priorities set by the ELT, risk is mitigated, achievement of business benefits is maximized and that initiatives are valued to ensure that high value initiatives are given priority. The CGC is also responsible for ensuring that the all IT Activities are endorsed by the Chief Executive Officer (CEO), taken into consideration available IT resources and the IT portfolio. The office of the Chief Information Officer (OCIO) is responsible for maintaining the IT governance processes, the strategies, policies and architecture within a local government. As mentioned earlier, the local government uses of different components in their IT governance framework in designing alignment. All are integral to the way in which government processes are wedded to internal governance processes to ensure alignment.
Executive Leadership Team (ELT)  
(endorsement authority, may request/receive information from either CGC or PMC)

![Diagram of organizational structure]

Figure 1. Local Government Decision-makers of Business/IT Strategy (Council, 2006)

### 4.1 IT Strategy

IT Strategy, called ICT Strategy in this council, provides clarity of direction for future IT related investments. The main focus areas in council’s IT strategy are Enterprise Architecture (EA) and IT Governance, Information Management, Best Value IT Service Delivery, Enabling Business Innovation and ICT Risk Management. Councils Strategic Priorities are Safe Community, Customer Service, External Communication, Diversity and Strengthen the Economy, Leadership and Governance, Information and Knowledge Management and Internal Services. Table 1 presents a detailed overview of alignment between IT Strategy and the Corporate Plan.
<table>
<thead>
<tr>
<th>Corporate Plan 2005-2009 Strategic Priority</th>
<th>ICT Strategy</th>
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<tr>
<td></td>
<td>EA and ICT governance</td>
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<tr>
<td>Safe Community</td>
<td>Public information easily accessible</td>
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<td>Customer Service</td>
<td>Corporate shared services model aligned with customer service model</td>
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<tr>
<td>External Communication</td>
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<tr>
<td>Diversity and Strengthen the Economy</td>
<td>Prioritization and benefits realization over whole lifecycle of IT and systems assets</td>
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<tr>
<td>Leadership and Governance</td>
<td>Ensure IT/IM initiatives, delivery &amp; expenditure aligned with Council priorities</td>
</tr>
<tr>
<td>Information and Knowledge Management</td>
<td>Sound Information policies and standards</td>
</tr>
<tr>
<td>Internal Services</td>
<td>- Report performance against an agreed service provider model. - Prioritization of IT and systems assets - Optimized use of IT assets.</td>
</tr>
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Table 1. Alignment Between ICT Strategy and Corporate Plan

4.2 Corporate Activity Framework

Corporate Activity Framework describes the process by which corporate activity is defined, identified, and approved. The focus areas of Corporate Activity include Concept Plan, Business Case, Project Management Plan (PMP), and The Post Implementation Review (PIR). They are all linked together to ensure high value projects are given priority according to IT Strategic goals. In the local government, projects are first received at the public sector and approved via a long process, finally they are also post implementation reviewed.
4.3 IT Governance Framework

IT Governance Framework aligns with best practice standards by measuring and monitoring IT governance maturity against AS 8015-2005, Project Management Book of Knowledge (PMBOK), and the State Government’s Information Standards. It clearly defines decision-making, responsibilities and accountabilities by establishing a process by which the current and future use of ICT is directed and managed. The custodian of the IT Governance Framework is the Office of the Chief Information Officer (OCIO). The framework will enable effective IT portfolio planning, prioritization, monitoring and delivery aligned to the local government’s strategic objectives.

4.4 IT Project Management Framework

IT Project Management Framework describes the Project Management Methodology such as PMBOK to be used for (IT) projects within local government by formalizing the activities and responsibilities of the various parties involved in the IT project initiation, planning, execution, controlling and closure. While it is important to select the elements of the methodology that are most suitable to each project undertaken, most steps are repeated for every project in order to gain efficiency within the approach. Use of this methodology helps to monitor cost, scope, schedule, and quality and most importantly to minimize risks, over use of supplies and staff difficulties across local government. The IT Project Management Framework consists of four components namely: IT Portfolio Management, IT Program Management, Sub Projects and Project Management office. A clear understanding of these components will boost the chances of delivering a successful project.

4.5 Value Assessment Model: The measurement of value and alignment of projects in local public sector

Assessment Model assists internal audit and facilitates self-assessment of IT Controls Maturity. It consists of two models: Value and alignment assessment model by focusing on four value principles (cost, benefits, alignment, and risk) and Maturity Assessment Process Model by evaluating the process using COBIT and IS Controls-Phase 1.

In order to measure the project’s alignment, benefit and risk to a local public sector’s strategic priorities, the Likert scale tool is applied with rating a low, medium and high score. To be considered, each project must be aligned to local public sector priorities and have two scores: an Alignment Score and a Value Score.

5 ENABLERS OR INHIBITORS OF STRATEGIC ALIGNMENT IN A LOCAL GOVERNMENT

5.1 Enablers: Factors That Promote Alignment

Based on literature review, there is no a single factor that aligns IT strategy with IT projects. However, based on our observation of SA in council, government documentation and preceding discussion of strategic alignment, four elements of these perspectives have been identified as contributing to local government and IT projects. These four perspectives are: sharing decision-making within IT Portfolio Management, alignment between IT Strategy and Corporate Plan, linking high level of technical integration with Customer Services, and linking between IT projects with the Value and Alignment Measurement Tool.
5.1.1 Sharing Decision-making within IT Portfolio Management

In Council, decision-making is taken by senior level management and includes all key representatives such as Corporate Governance Committee, IT Portfolio Management Committee, Office of the Chief Information Officer, Technical Representative Group (TRG), and Business Solution Representative Group (BSRG). The accountability of decision-making and the clarity of to whom decisions are taken and to what extent they assume responsibilities to be given, have been supported by earlier studies [9, 18, 30]. By doing this, the Council builds what Gartlan and Shanker (2007) called ‘meeting of the minds’ that facilitate the overall process of the agency mission which in turn increase the possibility of the IT project’s implementation success. They avoid dangerous of a lack of board oversight that would put the local government at risk (Nolan & McFarlan, 2005).

5.1.2 Alignment Between ICT strategy and Corporate Plan

Alignment is a mutual understanding between employees. It is achieved when each employee understands and supports the organization’s goals (Norman Vargas, Leonel Plazaola, & Ekstedt, 2008). Good IT governance draws on corporate governance principles to manage and use IT to achieve corporate performance goals (A. E. Brown & Grant, 2005). In our case study, five core IT Strategy areas namely EA and IT governance, Information Management, Enabling Business Management, ICT Risk Management and Best Value IT Service Delivery have been aligned with several Corporate Plans. For example, when IT Risk Management is aligned with Customer Service and Internal Services, Disaster recovery projects must be in place to ensure continuity of management of internal services so that customer access to core Council services continues in the event of business disruption (Table 1). Without well planned and monitored alignment the benefits of such projects would never be realized. It has been noted however, that corporate activity here treats both minor and major projects in the same manner.

5.1.3 Linking a High Level of Technical Integration with Customer Services

Technical integration plays a significant role in business/IT alignment. The role of Integrated Architecture is to align business vision with IT vision which eventually leads to IT enabled enterprise (Gemini, 2000). Local government services are a good example of such a single point of entry for customer enquiries and transactions via web, kiosks, portal transactions on-line, access to Local Laws, FAQs, infrastructure charges, payments on line, fees and charges, and venue bookings (Table 1). Thus it is important to determine the customer population and expectations for council services that should be available electronically, as well as the level of service expected. Fully integrate budget allocation and customer services provide focus and credibility for IT Portfolio Management in the public sector and help to build data integration, integrity and access across the many business systems aligned to the IT’s strategic context.

5.1.4 Linking Between IT Projects With A Value And Alignment Measurement Tool

The success of IT projects remains a challenge in many governments. The local government reduces this gap by using tools, other than the standard frameworks such as Project Management Book of Knowledge (PMBOK) and Prince2, to measure the existence of alignment, benefits and value realization in their whole IT Governance process. PMBOK and Prince2 are used as the standard guidance in the IT project management areas whereas the additional tools are used here as practical processes for managing IT projects. Such tools create a project roadmap, minimize risks and increase the success of IT projects delivery.
5.2 Inhibitors: Factors That Reduce Alignment

5.2.1 Misalignment in Public Sector

This section deals with the unsolved issues that governments face that promote value from IT. Although many of the projects surveyed were considered to be successful by definition, since they were delivered on budget and on time with less variation in value delivery, our observation revealed that some problems were encountered during the implementation of these projects which correspondingly also limited the expected benefits. These problems are synthesized into three major groups namely miscommunication in IT activities (Gartlan & Shanks, 2007), and lack of IT quality plan (J. N. Luftman, 2009) in business case and the lack of value realization created by alignment domains (Gartner, 2004; Gershon, 2009). The problems are explained in more detail in the following sections.

5.2.2 Miscommunication In IT Activities

Coordination amongst employees is a major factor influencing the implementation of best practices of IT governance in public policy. A lack of board oversight for IT activities is dangerous; it puts the firm at risk in the same way the failing the audit its books would (Nolan & McFarlan, 2005). In addition, there are a lot of rigid bureaucracies that display a lack of coordination of different information systems in the public sector (Weerakkody et al., 2007). While according to ITGI’s definition of IT governance, boards of directors are considered of high rank and responsible for IT activities, The study by ITGI (2006) reveals that there is still confusion in understanding the concept of IT governance.

In our case study, communication is very important but is however lacking in some projects. The business case was open to many interpretations in the Workplace Incident Module Project. In addition, there was no relationship between the Steering Committee and the PMG in the Work Management Business Continuity Project. The lack of a well defined, agreed and understood scope and of issues not being escalated to the Steering Committee for resolution, was yet another problem in the Project IM Program-Information Audit. The importance of communication within an organization results in three structures CGC, IT MMG and CIOdesigned specifically to address challenges. A dedicated project manager is required to follow up the process. Future projects should have sufficient clarity of a Project Management Plan, Terms of Reference and Schedule, to ensure that business resources are available at the time needed and that adequate notice is given to their manager.

5.2.3 The Lack of a Well Defined IT Plan

The majority of problems occur where clarity of the IT plan is poorly defined. For example if there was a lack of documented project process and governance guidelines due to the absence of the business owner/ sponsor documentation, the roles and responsibilities of project members were either not known or not applied satisfactorily. This was clear in the in Mobile In-Field Data Acquisition System (MIDAS) project where a Technical Options paper was requested by the committee which was outside the scope of the project itself. Such a request could have been more appropriately dealt with outside the ambit of the project as it related to a technical assessment of alternative approaches to the one already taken by the project. Furthermore, the request was not valid to decisions on closing or dealing with this project, as such decisions should in the ordinary course of events be based on the
project tolerances and on other success criteria that are built into the Mobile In-Field Data Acquisition System project plan/business case.

Likewise, other projects suffer from the quality of IT planning. For example, in an Accounts Payable Project, the vendor was four weeks behind in the delivery of the configuration because the vendor had inadequately interpreted the business requirements and underestimated the configuration. Moreover, a number of issues were encountered that were not experienced during user acceptance testing causing another delay of three months before delivery when the vendor was required to make significant improvement in the software concerned. Moreover, the cost owners were unaware of the planned project costs on another project called RRIF PD Online, and an amended business case/PMP was missed. These problems can effectively be minimized if the vision and clarity of the projects plan are well understood and structured from an earlier stage of the projects. To achieve this, the business case must be fully detailed and structured.

5.2.4 The Lack of Value Realization

On time and on budget is no longer considered an indication of success of IT projects. In a recent review of the Federal Government, Gershon (2009) found that 52 percent of government IT projects were delivered on or under budget and 43 percent were delivered within time frames, only 5 percent reported that they actually identified and measured the benefits from a project. Although top executives knew the scope of projects and adopt formal project management methodologies, the study reveals that it is often not until the end of the project that they examine what they were supposed to achieve, by which time it is too late. Therefore, public agencies, by their nature, are often more complex, have more stakeholders and are less concerned about financial issues than they are with public values which reflect their social, economic and political priorities.

6 PROPOSED MODEL OF STRATEGIC ALIGNMENT FOR THE PUBLIC SECTOR

The increasing complexity of IT projects in the public sector mandates that an effective methodology be developed to ensure that the objectives of IT projects are aligned with council strategic objectives. This methodology can also be used to determine that the value of the IT invested also be realized. Although successful implementation of IT projects may be found in the public sector, this pilot study suggests that many public sector organizations still face difficulties to deliver their IT projects on budget, on time and within scope, in order to achieve the value expected. This indicates that significant barriers still remain. In our study, one conclusion was that putting formal structures in place does not guarantee the delivery of value realization from IT and the delivery of projects on time, on budget and within scope without consideration of strategic alignment. Hence the proposed model in Figure 2 was developed.

Figure 2 portrays the proposed framework for the study, which is made up of organizational strategy, knowledge theory, organizational structure theory, enterprise architecture and public value. By integrating these perspectives into an IT governance process, public sectors can improve the success or value of IT projects. These perspectives are explained in the following section.
6.1 Strategy

IT assets play a vital role in all aspects of organization today. Without them, organizations will not be able to compete on other organizations. For this reason, every public sector large or small needs a strategy to ensure that the IT function sustains the organization’s strategies and objectives. Having a strategy in an organization means having a clear direction aligned along with clear defined objectives. Successful alignment between business and IT strategy is evident where both IT and business strategy can demonstrate a planned alliance which then leads to tangible, successful, business-focused outcomes (Gartlan and Shanks, 2007). Attributes that affect strategy are many including clear objectives of organization, IT/business plan, IT investments and Performance Measures (De Haes & Grembergen, 2008; J. Luftman, 2000; Reich & Benbasat, 2000).

6.2 Knowledge

Based on Knowledge theory, the recent model trying to link strategic alignment between business and information technology was developed by Kearns and Sabherwal (Kearns & Sabherwal, 2007). The role of knowledge considerations in a firm is the main focus in Kearns and Sabherwal’s model. According to this model, it is important to adopt a knowledge-based view to understand the effect of context and planning behaviors on business-IT strategic alignment. In addition, top managers’ knowledge of IT effects strategic alignment by supporting the sharing of domain knowledge.

In short, Kearns and Sabherwal theoretically and empirically examined the following factors in relation to strategic alignment as a whole in an organization:

- planning behaviour (IT managers’ participation in business planning and business managers’ participation in IT planning)
- top management knowledge of IT
- Contextual factors (organizational emphasis on knowledge management and centralization of IT decisions in regard to business-IT strategic alignment).
- IT projects (quality of IT planning and implementation problems in IT projects).
Results from a survey of 274 CIOs reveal that organizational emphasis on knowledge management and centralization of IT decisions affect top manager’s knowledge of IT (Templeton, Lewis, & Snyder, 2002) which facilitates planning behaviour of both business/IT managers (Johnston & Carrico, 1988) and this in turn affect business-IT strategic alignment. Achieving business-IT strategic alignment will increase the quality of IT project planning and reduce problems during IT project implementation (Kearns & Sabherwal, 2007; J. N. Luftman, 2009; Tallon & Kraemer, 2003). Both of these will in turn finally affect the business impact of IT.

6.3 Decision-making

Weill & Ross (2004) developed an IT Governance model called IT Governance Arrangements. According to their model, IT governance is defined as: ‘specifying the decision rights and accountability framework to encourage desirable behaviour in the use of IT’. IT is not about what specific decisions are made. That is management. Rather, governance is about systematically determining who makes each type of decision (a decision right), who has in put to a decision (an input right) and how these people (or group) are held accountable for their role. Good IT governance draws on corporate governance principles to manage and use IT to achieve corporate performance goals.

The model combines many previous fundamental concepts into a single new IT governance framework. For example, the federal archetype in their work reflects the centralized-decentralized concept of (Zmud, Boynton, & Jacobs, 1986). The notions of structure related to different IT decisions discussed by (Brown & Magill, 1994; Sambamurthy & Zmud, 1999; Zmud et al., 1986) are included in the horizontal levels of their model. Such a model is based on a classic organizational structure theory (Huang, Litzenberger 1988). Overall the Weill and Ross new model addresses three questions:

1. What decisions must be made to ensure effective management and use of IT?
2. Who should make these decisions?
3. How will these decisions be made and monitored?

6.4 Enterprise Architecture

Enterprise architecture (EA) is defined as a conceptual framework for describing the architecture of a business and its information technology and their alignment (Zarvic & Wieringa, 2004). It should be seen that Architectural Design plays a significant role in business/IT alignment. The Integrated Architecture Framework (IAF) was designed by Maes et al. (2000) to support the role of IT in the existing business process. The model consists of three dimensions. The horizontal dimension depicts the four main architectural areas of: business processes; information; information systems; and technology infrastructure. The vertical dimension depicts the five design phases supported by the architectural description. The third dimension is called special architectural viewpoints that deal with all architectural areas. In this light, the role of the Integrated Architecture Framework is to align business vision with IT vision which eventually leads to IT enabled enterprise. The components of business/IT alignment found in most Enterprise Architecture frameworks include Business, Information, Application and Technology Architectures. Alignment here is defined as the combination of these components such as alignment between business process(BP) and information or between BP and application as a way to quantify the coherency level in relation to the business necessity, the systems offer and information management (Pereira & Sousa, 2005).
6.5 Value Realization

From a management perspective, strategy is defined as the statement of specific intended results of enterprise’s long term direction, which is backed by values. Enterprise values are behaviours espoused by the enterprise, such as ‘We treat our customers with courtesy’. In contrast, value based management (VBM) is a management approach that ensures that an enterprise is consistently organized and operated to maximize shareholder value (Ittner & Larcker, 2001). IT Governance shares the focus on shareholder values.

The public sector is also concerned with values but there are inherent differences that suggest that a single approach to IT Governance may not apply both in the private and the public sectors. For example, strategic goals in the private sector are often related to financial performance and shareholder value whereas public sector goals are related to social, economic and political priorities such as providing public online access to all government services.

In 1995, Moore introduced the concept of public value as the public sector equivalent of shareholder value. Public value is used today to include the social benefits of corporate activity which are hard to value in monetary terms such as public policy, service improvements and effectiveness/efficiency outcomes (Gartner, 2004; Hales, 2005). An example of public value in the energy industry would be the environmental benefits that would come from developing a low-carbon economy. Many governments develop and publish overarching public value statements which define the strategic values of their administration. For example, The Queensland Government’s Charter of Social and Fiscal Responsibility identifies three overarching strategic outcomes; developing the State’s already strong economy; building safe, healthy, fair and culturally vibrant communities throughout the State; and promoting sustainable development to protect Queensland’s unique environment and heritage (Queensland Government, 2004), and all subordinate agencies are expected to align their activities in support of these values. Despite the difficulty of evaluating ICT projects, governments are finding that being unable to demonstrate a public value proposition is becoming politically unacceptable.

To improve the success rate and public value return of the IT investments, we propose a model presented in Figure 1 and suggest implementing the criteria presented in the following Table 2 and Table 3. The tables are used to promote an understanding a maturity level of strategic alignment and their attributes to a public organization. In Table 2, each of perspective, e.g strategy, has attributes such as objectives, IT/business plan, IT investments and Performance Measures. The absence of these attributes will put an organization into an ad-hoc maturity level. Likewise, if an organization wants to achieve a high level of SA maturity in a Strategy perspective, then these combined attributes need be taken into account.
### Table 2. Strategic Alignment Perspectives and its Attributes

<table>
<thead>
<tr>
<th>Level</th>
<th>Strategy</th>
<th>Knowledge</th>
<th>Decision</th>
<th>EA</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>initial or no thing is clear</td>
<td>lack or initial business/IT understanding</td>
<td>ad-hoc or decision is given to technicians</td>
<td>ad-hoc or initial (eg accounting, email)</td>
<td>non or initial some technical and financial value realization</td>
</tr>
<tr>
<td>Level 2</td>
<td>limited strategy plan</td>
<td>some occasional meetings and trainings</td>
<td>limited sharing responsibility of decisions between business/IT group</td>
<td>Transaction (eg, ESS, DSS)</td>
<td>some functional cost effectiveness</td>
</tr>
<tr>
<td>Level 3</td>
<td>good strategy plan</td>
<td>good understanding of business/IT planning</td>
<td>good decision-making effectiveness</td>
<td>integrated across organization</td>
<td>operational and financial established measurement</td>
</tr>
<tr>
<td>Level 4</td>
<td>well-established quality of business/IT plan</td>
<td>well-established regular business/IT meeting</td>
<td>well-established by whom and what decision must be made and how these decisions are monitored</td>
<td>well-established integrated with partners</td>
<td>well-established public value realization measurement</td>
</tr>
<tr>
<td>Level 5</td>
<td>optimized clarity of strategy</td>
<td>optimized business/IT understanding amongst employees and shareholders</td>
<td>optimized systematic approach of IT investment and prioritization</td>
<td>optimized evolvement with partners</td>
<td>optimized shareholders value (public value)</td>
</tr>
</tbody>
</table>

### Table 3. Maturity Level of Strategic Alignment Perspectives

Al-Hatmi and Hales.

Strategic Alignment and IT Projects in Public Sector Organization: Challenges and Solutions


7 DISCUSSION AND CONCLUSION

The high expenditure of technology and the increasing failure of IT projects in many countries are crucial and call for a more proactive involvement in the control of IT activities. In addition, the high accountability level of decision-making and collaboration amongst executives and stakeholders together with a systematic approach are now considered to be at the core of success of any IT projects. Hence this study has focused on strategic alignment perspectives that have an impact on IT projects and was carried out on local government in Australia.

The study starts with the development of strategic alignment models. The earlier models such as Critical Success Factors (CSF) by Rockart (1979) and the Strategic Grid model by McFarlan (1984) were addressed. These models focus on how IT links to organizational strategy and objectives. The strategic alignment model (SAM), a famous earlier model, focuses on the internal and external factors of the company. Based on this model, many other models emerged to focus on different perspectives; business/IT investment strategy, enablers of strategic alignment, accountability and sharing knowledge of decision making, Enterprise architecture, people engagement, process, and organizational issues. Due to deficiency of these models to quantify the value of IT in non financial terms, new models were developed such as Public Value of IT (PVIT) by Gartner and ‘WiBe’ in German. Such models are useful to measure costs, benefits, social intangible benefits, political returns, and the efficiency of government services. In short, issues of SA were examined from various perspectives found in literature and we examined how the deployment of these perspectives has had an impact on success of IT projects within the local government. From this assessment, a conceptual framework for assessing the success of IT projects has been developed and employed. Justification of the pilot study was provided and an abundance of information to understand the complexity of government IT projects was obtained from archival records as well as information being obtained through participation and observation in real context of a local government. The overall findings of this study are provided in the following paragraphs.

The Successful alignment between business and IT strategy is evident where both IT and business strategy can demonstrate a planned alliance which then leads to tangible, successful, business-focused outcomes (Gartlan & Shanks, 2007). This case study supports the view that emphasizing isolated components of ICT strategy without links to corporate objectives can be misleading. Council, with its emphasis on Strategic Alignment seems to be a better performing agency with improved levels of IT projects delivery. Moreover, putting formal structures and processes in place does not guarantee success. By examining these structures and processes with respect to the IT strategy, public value, management portfolio and corporate activity, decision makers can improve the success of government IT projects.

Secondly, sharing knowledge and responsibility is a key element of SA with Executive Leadership Team (ELT), Corporate Governance Committee, ICT Portfolio management Committee, Office of the Chief Information Officer, Technical Representative Group and Business Solution Representative Group. However, other relevant stakeholders such as Customer Account Representative and Chief Executive Officer were not involved in a local government. Their participation would improve the effect of context and planning behaviours on end-users and vice versa.

Thirdly, Corporate Activity process and prioritization does not distinguish between minor and major projects. As major projects require more IT related activities and longer process, the Corporate Activity Framework has to categorise as well as prioritise these differently from minor projects.

In the fourth instance, COBIT, a necessary framework, measures the process maturity in a local government, but it is an inadequate tool to measure how the capability is used and deployed. Instead, the conceptual strategic alignment model was utilized in this research to provide improved visibility and possible solutions to potential problems encountered in Council’s present structures. By using this
model we were able to see that various aspects of IT projects and Council business can be improved. The overall strategy, archetypes and mechanisms of IT governance are all harmonized in such a way that the overall direction is moving smoothly to desirable IT behaviours. In addition, the study provides guidance on how public sectors can reduce their redundant IT investments and the rate of IT project’s failure by implementing strategic alignment perspectives in their whole organizational process. This contribution advances an understanding of government policy-makers on how public sectors optimize the value of their IT projects.

Fifth, since strategic alignment perspectives can occur anywhere in the process, an implication from the study is that it is essential to consider the perspectives that can be deployed in order to practically contribute to the success of IT projects regardless of the standards and mechanisms that are already available. Hence the importance of a holistic approach of SA perspectives was proposed to in order to improve the government’s ability to assess public returns on IT investments. The criteria presented in this model identify attributes that affect each maturity level of strategic alignment. For example, the absence of these attributes will put an organization into an ad-hoc maturity level. A local government in Australia provides an opportunity to better understand the impact of alignment perspectives on IT projects in public organizations and is both applicable and can be used to as guide to other public organizations. Hence, the importance of implementing SA perspectives within a government agency is one of the main contributions of this paper.

Finally, the scope of the research was limited to a pilot study in a local council based on observation and government documents. These findings provide the potential to conduct future studies in multi government agencies and therefore demonstrate the opportunity for further research. The study concluded that the concept of strategic alignment was and still will be a complex system consisting of interdependent subsystems that produce a purposeful whole (Peterson, 2001).
References


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