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Prithvi Jyoti Bhattacharya
University of Melbourne, pjbh@unimelb.edu.au

Peter B Seddon
University of Melbourne, peterbseddon@gmail.com

Rens Scheepers
Deakin University, rens.scheepers@deakin.edu.au

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Prithvi Jyoti Bhattacharya
Department of Computing and Information Systems
University of Melbourne
Australia
Email: pjbh@unimelb.edu.au

Peter B. Seddon
Department of Computing and Information Systems
University of Melbourne
Australia
Email: p.seddon@unimelb.edu.au

Rens Scheepers
School of Information Systems
Deakin University
Australia
Email: rens.scheepers@deakin.edu.au

Abstract

It has been widely accepted now in industry and academia that Enterprise Systems (ES) can create value for adopting organizations by enabling operational efficiency. However, given the enormous investments they warrant, the potential of such systems to deliver more than improving operations is emerging as a popular area of investigation. This paper reports a research-in-progress that proposes innovation as a means of creating business value with Enterprise Systems. The primary contribution of this paper is a process model that proposes that Enterprise Systems can enable innovation - in products and processes, and supports it with empirical evidence using three case studies. The intention is to test this model further with more case studies and a survey.

Keywords

Enterprise Systems, Innovation, Business Value.

INTRODUCTION

Enterprise Systems (ES) can be defined as large-scale software packages that can be used to streamline the business processes of a firm and improve information and knowledge levels within the firm as well as beyond it. In modern times, this term includes several systems like Enterprise Resource Planning (ERP), Customer Relationship Management (CRM) and Supply Chain Management (SCM). There are two key players who dominate this market at present - SAP and Oracle.

Enterprise Systems, when implemented effectively, have been reported to enable benefits like faster transaction processing, error reduction, and improved productivity for the adopting organizations (Davenport 2000; Markus and Tanis 2000; Hendricks et. al 2007; Motiwalla and Thomson 2009). This results in increased operational efficiency of these organizations. However, putting these systems in place requires massive monetary investments and significant periods of time and human effort. Given the highly complex nature of such systems, they require substantial and continuous involvement from the adopting organizations.

This raises the most fundamental questions of business organizations -   'is this all worth it?' or 'what is the value added?' 'Business Value', or the value from a business organization's perspective, include several things like improving efficiency of operations and cost savings thereof, improved service, strategic positioning, and improved decision making (Smith and McKeen 2003).

All organizations who have already adopted Enterprise Systems or are planning to do so expect to maximize their 'business value' from such enormous investments. In other words, they expect to get more than improved operations from these systems. Despite several claims by vendors and consultants of Enterprise Systems, there is limited empirical research that explores the potential of such systems to create business value beyond operational efficiency. This leads to the research question:

Do Enterprise Systems enable business value creation, beyond operational efficiency, for adopting organizations?

The remainder of this paper presents a literature review, which then leads to a proposed model intended to answer the research question. The paper then presents the details of how this model was tested empirically and the results of such testing. The paper concludes with a discussion of results and implications for further research.

INNOVATION AS A MEANS OF CREATING BUSINESS VALUE WITH IT

From the days of Manufacturing Resource Planning (MRP) systems, the predecessor of Enterprise Systems, the purpose of such systems has been to provide operational efficiency. Only recently are such systems being explored for other ways of creating business value, like strategic positioning, growth etc.. Therefore there is not much prior research in this area. So, a step back was taken to look at the role of IT in general to create business value beyond improving operations. A detailed systematic literature review was done to discover the means (in addition to operational efficiency) in which IT, in general, can create business value.

Such a review uncovered 'Innovation' as one of the key means through which IT creates business value, supported by the studies of Moore and Benbasat (1991), Sambamurthy and Zmud (1994), Barrett and Walsham (1995), Barua et. al. (1995), Harkness et al. (1996), Mooney et. al. (1996), Weill and Broadbent (1998), Tallon et. al. (2000), Applegate et al. (2003), Melville et. al. (2004), Kohli and Grover (2008), Weill and Ross (2009). Other means are strategic decision making and undertaking Mergers and Acquisitions; these will be discussed in a forthcoming paper. For this paper, the focus is innovation and so a review of studies on Innovation and the role of IT in general in enabling it is presented below.

Innovation explained

The term 'innovation', made widely popular by J. Schumpeter (1943) can be defined as a set of tools that can be learnt and practiced to create new business, add unique value for the customers, enable competitive advantage, and generate value for shareholders (Drucker 1985; Snyder and Duarte 2003). Innovations may be products (such as mechanical tools or scanning machines) or techniques or processes (such as the Bessemer steel refining process). The two most common dimensions of Innovation are (a) Product and (b) Process, as suggested by Schumpeter (1943), King et al (1994), Licht and Moch (1999), Govindarajan and Trimble (2005), Andriopolulos and Dawson (2009), and O'Sullivan and Dooley (2009). There may be other dimensions of innovation, but they are not as commonly proposed in literature, and are therefore not explored in this research.

Role of IT in innovation

Several researchers like Sambamurthy and Zmud (1994), Weill and Broadbent (1998), Tallon et al (2000), Applegate et al. (2003), Kohli and Grover (2008), Weill and Ross (2009) have identified innovation as one of the means by which IT can create business value. Several researchers have found that IT has the ability to support innovation in the form of new products and processes (Moore and Benbasat 1991; Barrett and Walsham 1995). Information Technology enables innovation in products like materials and devices, and in processes like design and manufacturing techniques (King et. al 1994). Licht and Moch (1999) found that, in the service sector, IT investments lead to better capacity to adjust products that customers want. IT provides organization with unique opportunities for product innovation in several industries, from automotive to consumer electronics. Information Technology is being built into existing products to enhance their value or being used as a platform for new service-based products. IT can also help to differentiate existing products and developing new products (Bakos and Treacy 1986; Barua et. al. 1995). This suggests the use of IT for product innovation. Again, IT-based tools have been suggested to assist in developing new processes, i.e., leading to process innovation (Permings and Buitendam 1987; Kelley 1994). Harkness et. al. (1996) studied how IT can become the source of process innovation in large organizations. New IT applications are likely to accompany the implementation of new or redesigned streamlined processes (Davenport 2004).

For Enterprise Systems in particular, a few authors like Rajagopal (2002), Bradford and Florin (2003), Swanson and Pang (2005) and King (2006) have studied innovating with Enterprise Systems. But they have studied implementing such systems as an innovation by themselves and identified critical success factors to 'go-live' successfully; they do not address the new opportunities these systems can create, post-adoption, through new products and processes. However, Shang and Seddon (2002) developed a useful classification system of the benefits derived from Enterprise Systems; the benefits in the 'Strategic' category include building business innovations and generating product differentiation. Srivardhana and Pawlowski (2007) also studied the role of

ES in innovation and reported that Enterprise Systems can both enable and hinder process innovation- a rather interesting finding. So there is an opportunity to explore this further.

TOWARDS A NEW MODEL

As discussed above, innovation is a key means of creating business value with IT in general, but there is little empirical research to explore the potential of Enterprise Systems, in particular, to enable innovation. So a model is proposed to answer the research question by showing how Enterprise Systems can create business value beyond operational efficiency by enabling Innovation in products and/or processes. Before delving into the model, a discussion and critique of the key models that this new model is built upon is necessary.

Foundations for the new Model

The proposed model is based on the synthesis of two models – one about realising benefits from Enterprise Systems by Davenport (2004) and the other about the process of undertaking innovation by Tushman (1977). Both these models have been widely cited by researchers in IT and management literature.

Davenport et. al. (2004) suggest a process proposing that organizations invest in Enterprise Systems, implement extensively, and use them to do the following: (a) Integrate – unify and harmonize their data and systems with an organization's unique environment, and use the systems to better connect organizational units and processes, as well as customers and suppliers (b) Optimize – standardize most processes using best practices embodied in ES software, shape processes to fit the unique or strategic needs of the business and (c) Informate – transform data into context-rich information and knowledge that supports the unique business analysis and decision-making needs of multiple workforces. This process results in the realization of organizational benefits. However, in this model, 'benefits' is used as a generic term, not referring to any particular kind of benefits.

On the other hand, Tushman (1977) argues that the development and diffusion of innovations can be seen as a process of three phases: Idea Generation, Problem Solving and Implementation. During the Idea Generation phase, information pertaining to new approaches or ideas to technological or marketing problems is found. In the Problem Solving phase, there is focused problem solving exercise involving information exchange within the R&D, manufacturing and marketing departments. The last phase, implementation, involves effective coordination among all functional areas to implement and deliver the new product, service or process. This model is based o an original model by Myers and Marquis(1969).

A New Process Model

A process model is proposed to explain how Enterprise Systems create business value, in addition to operational efficiency. Process models focus on the dynamics of social change by a series of events over a period of time and use this to elucidate how and why particular results are reached. A process involves events or occurrences that are said to be the result of certain input states leading to a certain outcome state, following a set process (Mohr 1982; Van de Ven and Huber 1990; Newman and Robey 1992). Process models provide an explanation for 'how' something happens (Mohr 1982). It is necessary to execute each step in a process model to execute the next step and ultimately achieve the outcome of the process (Soh and Markus 1995). Examples of a process can be food processing, which typically takes clean, harvested crops and uses these to produce marketable and long shelf-life food products. A process model, as shown in Figure 1 below, is presented as a series of steps to explain how Enterprise Systems can enable innovation in adopting organizations.
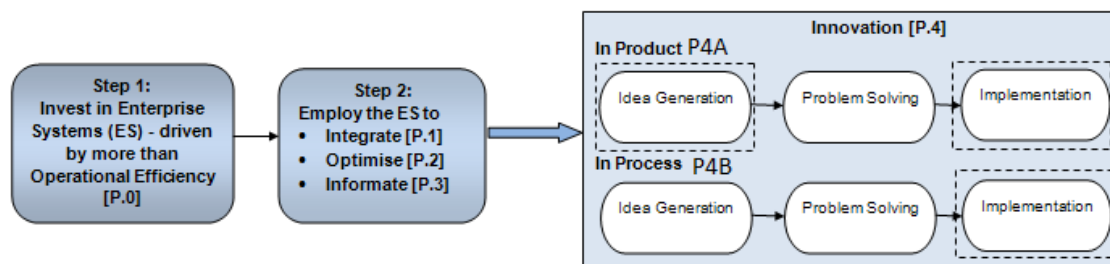

Figure1. Process Model to show how Enterprise Systems enable Innovation

Step 1: Invest in Enterprise Systems (ES), driven by more than Operational Efficiency

The first step suggests that the organizations invest in Enterprise Systems, driven by more than operational efficiency. An appropriate Enterprise System is selected, purchased and licensed from an appropriate vendor. This choice is governed by several factors like the direction of the business, strategic and operational requirements, and the completeness of functionality of the package as well as the reputation of the vendor. Most often, investments in such systems are driven by the overall business strategy of the organization. Holland and Light (2001), Hayes et. al. (2001) and Ragowsky et. al. (2005) argued that that adopting organizations ultimately aim to use ERP for strategic purposes by adding value to its primary activities to attain the strategic goals. Several case studies done on large organizations like Kodak, Bay Network, Airbus and UPS revealed that they had implemented ERP Systems to realize their strategies like gaining better market share and going global in mind (Al-Mashari 2003; Motiwalla and Thomson 2009). This leads to the following proposition:

P0. Organizations adopt an Enterprise System with the objective of creating business value beyond operational efficiency

Step 2: Employ the Enterprise Systems to Integrate, Optimise and Informate

With the Enterprise System licensed, the organization embarks on one or more implementation project(s) to employ this Enterprise System software to build a platform. Davenport et. al. (2004) suggest three high-level actions(Integrate, Optimise and Informate) that the implementing organization takes to build such a platform. Subsequently, these constructs are discussed in detail.

Integration of information systems aims at unification of systems to enable people and systems to easily access information that was previously stored in a number of different computer-based systems. Overall, in the literature about Enterprise Systems, integration of systems and data has been identified as an important concept that is enabled by Enterprise Systems (Davenport 2000; Markus and Tanis 2000; Al-Mashari 2003; Grant 2003; Spathis and Constantinides 2003; Gattiker and Goodhue 2004). Enterprise Systems promise to enable integration by centralizing operational information in a single place so that it can be shared by different application systems of the organization. Having an integrated system enhances the information "visibility" and leads to discovering valuable insightful information, with less time and effort devoted to the activity (Kohli 2007). In addition, integration enables "one version of the truth"; this removes the inconsistency of data in different systems and also eliminates the need for updates of the same information in different systems. It is also considerably less painful to link customers to suppliers with integrated systems, using built-in middleware technologies like in SAP Netweaver and Oracle Fusion (Tapscott et. al., 2000). This leads us to the following proposition:

P1. Organizations seeking to create business value from an Enterprise System must employ it to 'Integrate'

Process optimization is any effort to improve the efficiency and effectiveness of the processes in an organization. Organizations have always looked at re-designing or re-engineering their processes to achieve better outcomes (Al-Mashari 2003). These systems have the so-called 'best practice' processes built into them that are already 'optimised' and can be fitted to run the processes of the organization in an efficient manner. (Davenport 2000; Al-Mashari 2003; Spathis and Constantinides 2003 ; Siau and Messersmith 2003; Botta-Genoulaz and Millet 2005; Chand et al. 2005; Rikhardsson and Krammergaard 2006). Process optimization was listed as the top ranked "business priority" in Gartner's (2008) global surveys of 1000 CIOs for the prior 4 years. Organizations that spend heavily in redesigning business processes when adopting IT systems achieve greater productivity and business performance than those that don't (Davenport 1993; Hammer and Champy 1993; Brynjolfsson and Hitt 1995; Hammer 1996). Optimised business processes contribute to better inventory management and lower stock-in hand in these organizations (Davenport 2000; Al-Mashari 2003; Spathis and Constantinides 2003; Siau and Messersmith 2003; Botta-Genoulaz and Millet 2005; Chand et al. 2005; Rikhardsson and Krammergaard 2006; Motiwalla and Thomson 2009). This leads us to the following proposition:

P2. Organizations seeking to create business value from Enterprise System must employ it to 'Optimise'

According to Davenport et. al. (2004), "Informate" can be defined as transforming data into context-rich information and applying it to support business analysis and decision making. In other words, to informate is to attempt to improve the provision of accurate, relevant information to decision makers. Senior managers and executives can manage their organizations better with real-time, cross-functional data. Availability of good quality information in real time is identified to be a key product of ERP systems by several studies in several countries (Davenport 2000; Spathis and Constantinides 2003; Botta-Genoulaz and Millet 2005; Rikhardsson and Krammergaard 2006). This capability has led to better operational control and decision making. In addition, most contemporary Enterprise Systems, like the ones from SAP and Oracle, come equipped with analytics

functionality like data warehouses, Online Analytical Processing (OLAP) and data mining tools to analyse such information (Davenport 2006). This leads us to the following proposition:

P3. Organizations seeking to create business value from an Enterprise System must employ it to 'Informate'

The outcome: Innovation
This model proposes that the investment in Enterprise Systems followed by employing it to integrate, optimise and informate (post the 'shakedown' phase, as defined by Markus and Tanis 2000) will lead to creating business value through innovation. Innovation is a set of tools that can be learnt and practiced to create new business, add unique value for the customers enable competitive advantage and generate value for shareholders (Drucker 1985; Snyder and Duarte 2003). As discussed earlier, Tushman (1977) suggests Innovation can be undertaken in 3 phases: a) Idea Generation, b) Problem Solving and c) Implementation. In this research, it is proposed that Enterprise Systems can enable innovation by supporting the first and third phases of the innovation process: (a) Idea Generation and (b) Implementation. Innovation can be in the following dimensions: a) product or b) process.

Innovation – in Product
Product innovation can be defined as the development of new products (i.e. anything that can be offered to a market that might satisfy a want or need), or modifying the design of existing products, or using of new materials or components in making existing products (Kotler et. al 2006). The term product is used for both tangibles (e.g. a vehicle, a gadget) and intangibles, commonly referred to as services (e.g. an insurance policy, an electricity supply plan). Product innovation is a key enabler of one of the core business strategies suggested by Porter (1980) - product differentiation.

It is argued that the integrated, optimised and informating ES platform enables the organization to identify new areas where new product or service can be offered thus supporting the 'Idea Generation' phase of innovation. Enterprise Systems have built-in processes for managing customer interaction lifecycles from enquiry to post-sales. The availability of information can be used to identify customer needs – the basis for new products or services. CRM system have the potential for increasing market share through new and better product/service designs by understanding customer needs better (Bligh and Turk 2004). Volvo, the car manufacturer uses their system to innovate their car; an example is the analysis of charging data from the electrical system to develop a new product that optimises recharging the car battery without overcharging it (Teradata 2012). An example could be the idea of offering customised food and accommodation packages in hotels that would draw more customers. This can be done by analysing the integrated information in the ES, using the analysis tools (like OLAP and data mining) provided by the ES, to find out what kind of a package would be most sought after by customers. Thus the ES enables in the 'Idea Generation' phase of innovation.

It is also argued that the integrated, optimised and informating ES platform enables the organization to implement the new product or service and offer it to customers, thus supporting the 'Implementation' phase of innovation. Often, the new product is an ES-enabled product/service that is developed using the Enterprise System. It is possible to offer a new service by integrating the organization with its value-chain members, backward or forward to develop a new service. UPS, the parcel delivery giant, implemented Oracle Enterprise Systems to provide a range of services to customers in addition to transportation of goods, including tracking deliveries as a means of product/service differentiation (Motiwalla and Thomson 2009). An example could be offering a new service of obtaining bank loans online to the customers of a bank. This is done based on the availability of integrated real-time data, inter-organizational systems integration and optimised processes for electronic approvals through workflows - all enabled by an Enterprise System. Thus the ES enables the 'Implementation' phase of innovation. So it can be argued that Enterprise Systems can enable two phases of undertaking innovation– 'Idea Generation' and 'Implementation', as shown by dotted boxes in Figure 1.

Innovation – in Process
Process innovation can be defined as 'the *critical* analysis and *radical* redesign of work flows and business processes to achieve improvements in important measures of performance' (Martinsons 1995). In a competitive market, all organizations aim to differentiate themselves from their competitors. One way of doing so is to 'do things differently'. In other words, to run their business processes in a way that is unique to their organization and different from others. New processes could be put in place for a) operational/back-end processes by using the 'best practices' of the Reference Models in ERP systems, and (b) front-end/customer-facing processes by implementing the marketing-sales-service cycle of CRM systems. Often these new processes contribute to better customer service and hence customer retention and expansion.

It is argued that the integrated, optimised and informating ES platform enables the organization to implement the new processes, thus supporting the 'Implementation' phase of innovation in process. Reengineering business

processes radically to build new processes can be made possible using Enterprise Systems. For example, in Geneva Pharmaceuticals, business processes were categorized into supply and demand groups, and processes in each of the two group's reengineered and then the two groups were integrated (Bhattacherjee, 1999) . Again, in Textiles PLC, business processes were revamped to fit the strategy of one global organization using the Enterprise System (Holland & Light, 2001). Wipro Consulting adopted ERP to implement Human Resource Self Service – a new model for managing their strategic resources, i.e., employees (Motiwalla and Thomson 2009). Such new processes were enabled by the integrated, cross functional data and optimised processes available from the Enterprise System. So it can be argued that Enterprise Systems can enable the 'Implementation' phase of undertaking innovation in process, as shown by dotted boxes in Figure 1.

From the above discussion, it can be argued that Enterprise Systems, when employed to integrate, optimise and informate, can enable undertaking innovation (in product and/or process) in the adopting organization by supporting the 'Idea Generation' and 'Implementation' phases of the process of undertaking innovation. This leads us to the following proposition:

> *P4. Enterprise Systems enable adopting organizations to undertake Innovation (in product and/or process) Or,*
> *P4A. Enterprise Systems enable adopting organizations to undertake Innovation in product*
> *P4B. Enterprise Systems enable adopting organizations to undertake Innovation in process*

TESTING THE MODEL: USING THREE CASE STUDIES

Methodology
The research methodology was based on multi-site case studies. Case Studies have been widely used for answering 'how' and 'why' questions in general ; they have also been used a lot as a research method in Enterprise Systems researc (Hitt et. al 2002; McAfee 2002; Motwani et. al. 2002; Grant 2003; Chand et. al 2005; Botta-Genoulaz and Millet 2005). The unit of analysis for this study are large organizations who ahve adopted ES. For this study, the authors gained access to three large Australian organizations using personal contacts through previous engagements. The real names of these organizations are concealed for confidentiality purposes. Instead they are identified as (a) ServiceCo: A leading delivery service provider in Australia (b) UniCo: A leading world class University based in Australia and (c) UtilityCo: A leading utilities service provider in Australia. The three organizations were chosen for several reasons. All three organizations are large organizations with 1 billion plus annual revenue, have successfully 'gone-live' with ERP and/or CRM, and are 6-12 months after a major release. They are in three different industries. Two of them have adopted the system from the vendor SAP, while the other adopted the one from Oracle. All three organizations were approachable and prepared to share their perceptions. After gaining initial access to the organizations, data was collected by identifying and interviewing members of the mid-level and senior management team, on a referral basis. Semi-structured interviews were conducted using open-ended questions in an initial questionnaire. A total of twenty five one on one interviews, with at least five candidates from each organization were conducted. Interviews took about one hour on an average. All interviews were tape-recorded and additional notes were taken. Subsequently, the interviews were transcribed. Data was also collected from policies, reports, presentations, and published documents in the internet. All data collected was analysed by searching for evidence of the constructs of the model and annotating them in the source. Such annotated text was revisited to write up the case studies for each site.

Summary of Findings
This section presents the propositions of the model and the evidence from the three case studies, to support them.

P0. Organizations adopt an Enterprise System with the objective of creating business value beyond operational efficiency

The analysis reveals that all three cases, ServiceCo, UniCo and UtilityCo made a decision to invest in Enterprise Systems driven by their objective to create business value, beyond operational efficiency. ServiceCo and UtilityCo adopted the software from the market leading vendor, SAP, while UniCo chose to implement the rival product from Oracle. ServiceCo was looking for identifying and increasing revenue opportunities in times of decreasing demand for their core services, in addition to driving down costs of operation. UniCo, in addition to driving down operational costs, was aiming to introduce new services and new ways of doing things to support their strategy of becoming the top research-intensive university in Australia and among the best in the world. UtilityCo's decision to adopt Enterprise Systems was driven by their need to have an integrated platform to support their inorganic growth through mergers and acquisitions, in addition to lowering operational costs.

"The initiative was aimed at achieving the ability to use IT as an enabler and as a
differentiator, the flexibility to quickly adapt to new business models, to compete and react to
competitor moves" *(IT Relationship Manager, ServiceCo)*

P1. Organizations seeking to create business value from Enterprise System must employ it to 'Integrate'

It was found that all three cases- ServiceCo, UniCo and UtilityCo have employed their Enterprise System to integrate data and systems. Prior to adoption, ServiceCo had about 700 applications, serving its different lines of business. It had 60 applications as 'Point-Of Sale' systems alone and 43 customer databases. Using SAP Enterprise Systems, ServiceCo consolidated all its financials, plant maintenance, fleet maintenance, asset management, sales and distribution systems. UniCo used Oracle E-Business suite to integrate its Finance, Human Resource (HR) and Research systems, which were three isolated, standalone systems, prior to the adoption of the Enterprise Systems. In addition, its Enterprise System allows UniCo to consolidate the different faculties, departments and its affiliate organizations. UtilityCo, prior to the implementation of Enterprise Systems, had different systems for different jurisdictions (like Victoria, South Australia) and fuel types (like gas, electricity). These systems ranged from IBM mainframe systems to Adabas databases to Oracle-based systems. With the adoption of the Enterprise Systems, all these were being consolidated into the SAP system.

"Basically, what it does is that the new system allows us to consolidate the different divisions, different
departments, and then we can have a look at a consolidated view, or we can just dive into the more
detailed view." (*Finance and Planning Manager, UniCo*)

P2. Organizations seeking to create business value from Enterprise System must employ it to 'Optimise'

The analysis reveals that all three cases - ServiceCo, UniCo and UtilityCo have employed their Enterprise System to optimise its business processes. ServiceCo decided to optimise its processes by aligning their own processes to the 'best practices' built into the SAP Enterprise Systems. UniCo, equipped with their Enterprise System optimized their business processes in three key areas- HR, Finance and Research. UtilityCo, after a rigorous exercise of matching their processes and what SAP offers, got a set process to be re-engineered; the aim was to use SAP processes mainly.

"There was intent to looking at simplifying things as we changed to the SAP platform." (*General
Manager-Retail Operations, UtilityCo*)

P3. Organizations seeking to create business value from Enterprise System must employ it to 'Informate'

It was found that all three cases - ServiceCo, UniCo and UtilityCo have employed their Enterprise System to 'informate'. ServiceCo uses built-in reports in the SAP systems across all facets of their business, ranging from retail to H.R to finance, and has a very rich data warehouse – the SAP Business Warehouse (BW). UniCo uses the Oracle Enterprise E-Business Suite as its backbone for capturing and disseminating information to create an 'informating' platform along with the Oracle Data Warehouse, which feeds data from the E-Business suite. It enables reporting using the Oracle-based 'Discoverer' application. For UtilityCo, one of the things that SAP ERP and SAP BW has given is the ability to consolidate all of the customers into one place so that there is better information; UtilityCo knows significantly more about what the customer base is doing than what they did before.

"We bought the Business Warehouse because we wanted to increase our analytical capability and
reporting." (*CIO, UtilityCo*)

P4 .Enterprise Systems enable adopting organizations to undertake Innovation (in product and/or process)

The analysis reveals that all three cases - ServiceCo, UniCo and UtilityCo through the use of their ES platform have been able to undertake innovation in product and/or process. One new product/service that ServiceCo has introduced is 'Parcel Tracking', enabled by the integrated data and processes in the Enterprise Systems. With this service, the customers will be able to track and trace a package or parcel from pickup to point of delivery. In addition, ServiceCo, equipped with the ES- enabled integrated database of all addresses in the country, processes and sell this information as a product: 'Address Database'. UniCo, using its integrated data and informating capabilities enabled by the ES, launched a new product called 'Find an Expert'. It is an interactive online tool to prospective researchers, industry partners and the community in general to find researchers involved with UniCo or its affiliates based on research interests or field of study. Thus it was found that Enterprise Systems enabled the organizations to undertake the 'Idea Generation' phase, and/or the 'Implementation' phase of undertaking Innovation, as proposed by Tushman (1977). The table below summarizes how ES enabled Innovation in product in the organizations.

Table 1. How ES enabled Innovation in Product (Proposition P4A)		
Organization	**ES- enabled Innovation in Product**	**Phase of Innovation supported by ES**
ServiceCo	• Parcel Tracking	Implementation
	• Address Database	Idea Generation
UniCo	• Find an Expert	Idea Generation, Implementation

ServiceCo, with its optimised business processes using the ES has developed a new process for procurement, called 'E-procurement'. It allows employees to order supplies online, generates all necessary documents like Purchase Orders and handles all approvals through electronic workflows. ServiceCo has also introduced 'Employee Self-Service', allowing all employees to access and update their details, request for leave, training and so on. In UniCo, two very similar process innovations were enabled by their ES: one for online procurement called 'I-Procurement' and the other being 'Employee Self- Service'. UtilityCo radically revamped the 'Meter to Cash' process by implementing the SAP IS-U solution. The SAP enabled platform, through the Advanced Metering Infrastructure (AMI) bundle, automated the transmission of usage data from the 'smart meters' all the way to the Enterprise Systems at the offices of UtilityCo. Thus it was found that Enterprise Systems enabled these organizations to undertake the 'Implementation' task of undertaking Innovation, as proposed by Tushman(1977). The table below summarizes how ES enabled Innovation in process in the organizations.

Table 2. How ES enabled Innovation in Process (Proposition P4B)		
Organization	**ES- enabled Innovation in Process**	**Phase of Innovation supported by ES**
ServiceCo	• E-Procurement	Implementation
	• Employee Self Service	Implementation
UniCo	• I-Procurement	Implementation
	• Employee Self Service	Implementation
UtilityCo	• Smart Metering	Implementation

DISCUSSION AND CONCLUSION

Evidence was found in the case studies to support all the 4 propositions of the model. So it can be said that Enterprise systems are adopted with more than operational efficiency in mind (P0). They are used to integrate data and systems (P1), optimise processes (P2), enable access to real time data and ability to analyse it (P3). These findings are in line with earlier studies done by Davenport et al (2004) and Seddon et. al.(2010). Therefore the contribution of this paper here is that it reinforced the findings of earlier researchers to be valid. The proposition that Enterprise Systems can create business value by enabling Innovation –in product and/or process (P4), is based on intuition, as not much research has been done on this. The contribution of the paper here is to support emerging claims from vendors and consultants, that Enterprise Systems deliver more than operational efficiency, with empirical data.

However, the limitation of this study is that it uses organizations from a single country, Australia, to study a global phenomenon. Therefore, there is scope for further research by testing the model using organizations around the world.

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