

4-2013


The Influence of Enterprise Systems on Business and Information Technology

D. Lance Revenaugh, Ph.D.

Montana Tech

Myles M. Muretta

Follow this and additional works at: http://digitalcommons.mtech.edu/business_info_tech

 Part of the [Business Administration, Management, and Operations Commons](#), [Business and Corporate Communications Commons](#), [Management Information Systems Commons](#), and the [Strategic Management Policy Commons](#)

Recommended Citation

Revenaugh, D. Lance Ph.D. and Muretta, Myles M., "The Influence of Enterprise Systems on Business and Information Technology" (2013). *Business & Information Technology*. Paper 1.

http://digitalcommons.mtech.edu/business_info_tech/1

This Conference Proceeding is brought to you for free and open access by the Faculty Scholarship at Digital Commons @ Montana Tech. It has been accepted for inclusion in Business & Information Technology by an authorized administrator of Digital Commons @ Montana Tech. For more information, please contact ccote@mtech.edu.

The Influence of Enterprise Systems on Business and Information Technology Strategic Alignment

D. Lance Revenaugh, PhD
Montana Tech University
LRevenaugh@mtech.edu

Myles M. Muretta
Montana Tech University
MMuretta@mtech.edu

Abstract

Business strategy is important to all organizations. Nearly all Fortune 500 firms are implementing Enterprise Resource Planning (ERP) systems to improve the execution of their business strategy and to improve integration with its information technology (IT) strategy. Successful implementation of these multi-million dollar software systems are requiring new emphasis on change management and on Business and IT strategic alignment. This paper examines business and IT strategic alignment and seeks to explore whether an ERP implementation can drive business process reengineering and business and IT strategic alignment. An overview of business strategy and strategic alignment are followed by an analysis of ERP. The “As-Is/To-Be” process model is then presented and explained as a simple, but vital tool for improving business strategy, strategic alignment, and ERP implementation success.

Keywords

Business strategy, Strategic alignment, Enterprise Resource Planning (ERP), Information strategy

Introduction

Business strategy is important to all organizations. Over the last 20 years there has been a growing interest in business strategy and how it is managed. Where does the company wish to go? Where is the company now? A good business strategy answers these questions. Business processes are defined by business strategies. Competitive advantages are gained through solid strategic management and business strategy objectives (Hakanson 2006).

In 1977, Bostrom and Heinen (1977) suggested that many of the social problems associated with the implementation of information systems (IS) were due to the frames of reference held by system designers. Information technology, and technology in general, has come a long way since then. Today technology is a core part of most every business. Most businesses cannot function without some sort of computer and some type of software to run on that computer. The larger the business, the more IT infrastructure is needed.

In recent years, many businesses have looked to Enterprise Resource Planning (ERP) to improve the implementation of their business strategy and to improve integration with its information technology (IT) strategy. An ERP system is application software designed to model and automate many of the basic processes of a company, from finance to the shop floor, with the goal of integrating information across the company and eliminating complex, expensive links between computer systems that were often never meant to talk to each other (Kimberling, 2006; ERP, 1999). These systems offer online real-time information, which reduces processing time and frees managers and analysts from taking time to gather decision-making information.

ERP is now being promoted as a desirable and critical link for enhancing integration between all functional areas within an enterprise, and between the enterprise and its trading partners (Kyung 2002). There is a large history of both successes and failures when it comes to these ERP systems. The upside is great, but the risk of failure is also great. The current ERP implementation effort at the Department of Defense (DOD), the world’s largest ERP system, makes this very clear (see Perera 2012).

The question now becomes, what are the critical components of a successful ERP implementation and how is this impacted by an organization’s business and IT strategy? Since both IT strategy and business strategy have proven to be important to the success of an organization, must the two strategies be aligned? And if so, how is this accomplished. To begin to answer these questions, we must first develop a clear understanding of what strategy and alignment is, and what it is not.

Business and IT Strategic Alignment

Strategy Overview

Current research on the modern Strategic alignment of information systems reveals that improvement methodologies are becoming increasingly popular while integrating new software in to their respective environments. Strategic

alignment is touted as the key to achieving the goals established by the CEO and the Board of Directors (Papp 2004). Strategic alignment is an ongoing process that has remained a major issue within companies in the United States and across the globe. When the Strategy of the business and IT department align, the organization seems to run more smoothly and sets the foundation for improvements in business processes and performance (Papp, 2004, Atkins 1994).

Business strategy is built upon three principles which include: business scope, distinctive competencies, and business governance (Kimberling 2006). "Scope" of business refers to the breadth of activities your business engages in. Business scope includes the markets, products, services, groups of customers and clients, and locations where a business competes as well as the buyers, competitors, suppliers and potential competitors that affect the competitive environment for a business.

Distinctive competencies are the success factors and the core competencies that give firms potential edges in a competitive market. Examples of distinctive competencies include: brand, research, manufacturing and product development, cost and pricing structure, and sales and distribution channels.

Business Governance is a set of policies and business processes that set the way that the organization's businesses are run. It is how companies create their relationship between the board of directors and management of stockholders. Also business governance is how the company is affected by government regulations, and how the firm manages their relationships with strategic partners (Papp 2001, Papp 2004, Kimberling 2006).

The business's organization infrastructure is divided into three groups as well, they include: Administrative structure, processes, and skills. The administrative structure of a business is the way that the company organizes its businesses within the firm. There are several examples of which include: functional, vertical, horizontal, geographic, central, and de-central components. "Processes" are how the operating strategy and business activities in a firm flow. Process improvement is a major issue within the process group, which are groups put together by the business to ensure the smooth running of the company, especially during an ERP implementation. Then lastly there are skills. The skills of a company's organization infrastructure are the strategies that a company takes when it comes to motivation of employees, hiring and firing, culture, and human resources consideration. These skills come in handy when the company may have weaknesses within itself. If a company does not feel they are comfortable with the groups they have, proper arrangement can turn that weakness into strengths. All of these things occur to make the business run effectively but how do they relate to information technology (Papp 2001, Papp 2004, Kimberling 2006)?

<p>Strategy: Technology scope is the most important applications and technologies that each company uses within their respective firms.</p>
<p>Systemic competencies: they are what the information system is capable of that distinguish the services that the IT department has to offer.</p>
<p>IT governance: The IT department assess the authority of risk, resources, and responsibility of the IT that is shared between business partners, IT management, and service providers.</p>

Figure 1. IT Strategy Components (Papp 2001, Papp 2004, Kimberling 2006, Barnes 1999)

Strategic Alignment

The Strategic Alignment Model (SAM) of Henderson and Venkatraman (1999) continues to be widely used as the basis of Business/IT Alignment theories. The model is shown in figure 2 though the details of the model will not be explained here. See Papp (2001) for a clear and comprehensive explanation of the model. The key message of this model, as well as that of many other studies, is that to become a successful company, one should make sure that the IT strategy is fully aligned with business strategy.

Enterprise Resource Planning

Overview of ERP

ERP systems are becoming ubiquitous in the corporate world. They also continue to penetrate the small- and medium-sized company as firms like SAP and Oracle go after these large markets. Although the benefits of these systems are many, businesses today seem to be moving toward this technology primarily because the systems are

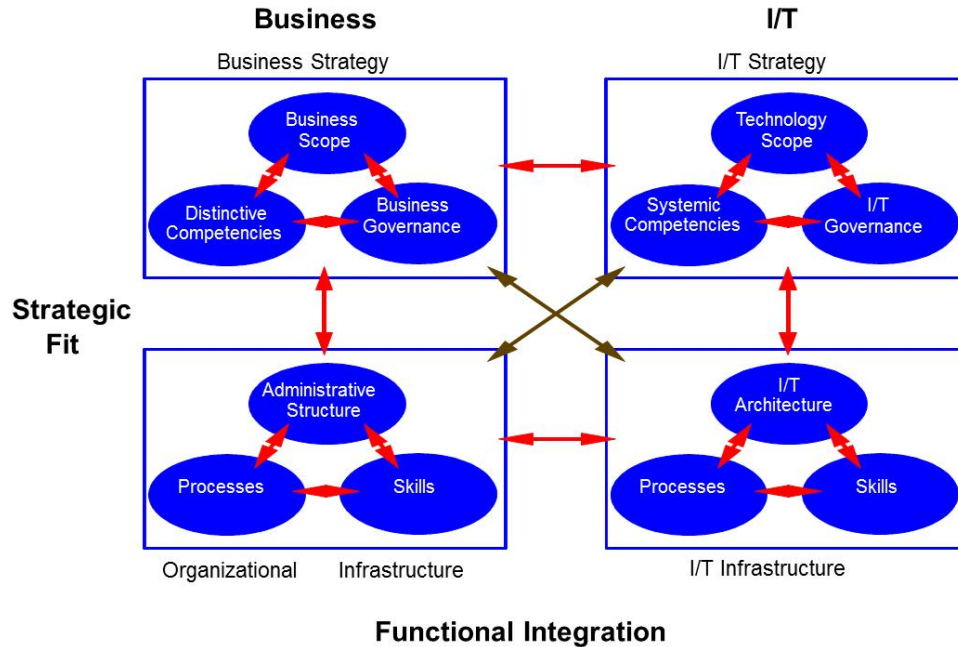


Figure 2. Strategic Alignment Model (Henderson and Venkatraman 1999)

considered to be a source of competitive advantage or at least a way to keep up with the competition. However, these systems bring with them their share of problems. Implementing these systems usually involves a significant amount of process change and often dictates changes in organizational structure. In fact, many ERP implementations are used as a means for re-engineering the firm. Management has a big role in the success and acceptance of these systems. As with the other technologies mentioned, the business process redesign inherent in ERP implementations requires major technical, organizational, and cultural change. The biggest associated challenge is fostering a new culture and managing the changes with consistency and coordination (Wen-Hsien, 2012; Cliffe, 1999).

When implementing information systems, there are usually two paths to take: adapting the inherent process to the people, or the people to the process. The former view stresses people as a firm’s fundamental resource, while the latter view emphasizes consistency and coordination of corporate-wide information. Neither path has been proven better, however. More frequently today, these large ERP systems, which are designed around best practices, are being used as a facilitator of change in companies. This point is supported by Dwight Klappich, vice president of industry marketing at Ross Systems Inc of Atlanta: “The key thing when you look at the success or failure of software implementation is whether the client is implementing software or are they implementing change within their business (Trommer, 1997).

Impact of ERP on Strategic Alignment

Enterprise Resource Planning (ERP) systems help organizations streamline processes, improve the flow of information between different business functions as well as other stakeholders, increase productivity, gain competitive advantage, allow the business to trade at a global level. To take full advantage of an ERP implementation, businesses will need to adopt the best practice processes that the ERP can provide. To do this, businesses will need to change their current processes either slightly or drastically, this change must be managed (Davis 2005).

When ERP systems are implemented, ERP implementations usually involve broad organizational transformation processes, with significant implications on the organization’s management model, structure, management style and culture, and particularly, on people. ERP systems do not just run their course and fade away. It is a long term major transformation and it can be daunting at times (Barnes, 1999). In order to be successful in implementing an ERP system, there must be a solid alignment between the business strategy, information technology strategies, and the company’s overall organizational processes. In order to deal with change effectively, a company has to establish the change vision in the given technical, social, and organizational context (Davis 2005).

Before implementing the actual software of an ERP system, companies should go over several success factors that must happen before starting such a large transformation:

- 1) Define the corporate strategy and objectives. Companies should challenge themselves to answer the question: "where do you want the company to be in 5 years?" Also, "what operational strategy is required to enable this higher-level corporate strategy?"
- 2) Once you have clearly articulated the company strategy, then you need to define your "to be" business processes that will enable this corporate and operational strategy.
- 3) Then, establish the performance measures at the corporate, operational, and business process levels. These measures should help you identify how successful you have been in executing against your defined strategy. They should also align with reports that come out of your ERP system.
- 4) Finally, a company can begin designing, configuring, and testing the system to ensure that it is aligned with #1-3 (Sabberwhal, Papp 2001, Papp 2004, Barnes 1999).

Critical Role of Business Process Analysis

Since the early 1990’s there has been an increasing trend of organizations moving from developing in-house information systems to purchasing them from proven vendors (Kyung 2002). Prior to purchasing any long-term software application, companies need to assess the direction their company is currently going now and what is the direction they want it to go in in the future. Specific to ERP, organizations need to first assess the organizational fit of an ERP followed by the implementation contingencies (Brown 1999). While assessing direction and organizational fit can be a daunting task for any business, the following model is proposed as a simple but vital tool to assist in this process. Some of the concepts of the model come from Kyung’s (2002) work and is based on assessing the organization’s As-Is and To-Be processes.

The graphical model is presented in figure 3. It illustrates the key components of the As-Is and To-Be and the linkage between them. The As-Is processes are an order of operations method while the To-Be processes are critical components that derive from the As-Is processes. The As-Is processes are to be assessed and completed before moving on to the To-Be processes.

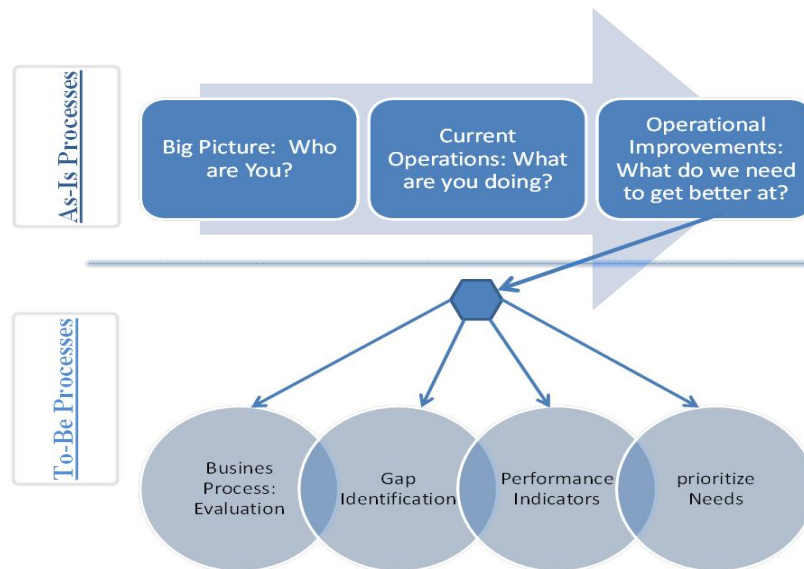


Figure 3: Moving from As-Is to To-Be processes

In figuring out one’s “To-Be” processes, companies must align them and distinguish them from their “As-Is” processes. The As-Is processes need to be defined by the company. They must know who they are before they can change themselves for the better, especially when a large scale software system is to be installed. The three main reasons are listed below:

- 1) **Big Picture:** It helps achieve alignment and understanding among various business units and geographies on how things currently operate. More often than not, especially in very large organizations, many managers and key stakeholders do not have a big-picture view of what other parts

- of the organization are doing. Documenting as-is business processes helps develop clarity on what is working well and what is broken with the current business processes.
- 2) **Current Operations:** It helps define how employees are doing their work now, which will help define the gaps between the current and future states. This is critical when it comes to organizational change management and training initiatives later on in the project.
 - 3) **Operational Improvements:** It helps determine the key operational pain points, and therefore the to-be processes and business requirements during the software selection process. (Kim, 2006)

This brings us to the “To-Be” processes. Once the As-Is processes are established and noted throughout all phases and divisions of the company, the company can then move on to To-Be processes. This is what the company must

do before they evaluate any software vendor or major software application that may be implemented in their company. The To-Be processes must be carefully thought through and evaluated by all departments of the company to ensure that the processes align with each other. Both Kim (2006) and Davis (2005) advocate going about the To-Be assessment using following critical components.

- **Business Processes:** Business processes are what help companies define their future operational models and business processes independent of software. This allows you to think out of the box and look for opportunities to score big wins by leveraging IT as a tool to enable measurable business improvements. If companies skip this step, they are more likely to be influenced by sales messages instead of functional fit.
- **Gap Identification:** In conjunction with the as-is processes, Gap Identification helps you identify the gaps between the current and future jobs, roles, and responsibilities. This is critical from an organizational change management perspective.
- **Performance Indicators:** It helps define key performance indicators to help drive business improvements and accountability. With new processes come new responsibilities and opportunities for improvement, so you need performance measures to enable this.
- **Prioritize Needs:** They help prioritize customization, integration, and report-writing needs after the software is selected. Without this understanding of where you want your organization to go from an operational perspective, it is very difficult to determine where customization and additional development is appropriate.

Conclusion

Business strategy is important to all organizations. According to Forbes (Columbus, 2013), nearly all Fortune 500 firms are implementing ERP systems to improve the execution of their business strategy and to improve integration with its information technology (IT) strategy. Successful implementation of these multi-million dollar software systems are requiring new emphasis on change management and on Business and IT strategic alignment. Technology is evolving and so is the business world. IT and business strategies are no longer separate entities; they tie together in one way or another. Involving IT management in the overall company strategy is now a must in a technological world. Formally establishing or improving alignment between the strategies is part of successful change management, especially during an ERP implementation. The process to combining the strategies is not something that is done overnight, however. The “As-Is/To-Be” model presented in this paper provides a clear foundation for successful alignment and successful ERP implementation.

Author Biographies

D. Lance Revenaugh serves as a professor of Business and Information Technology at Montana Tech University in Butte, MT. Education includes a PhD in Decision and Information Systems from Arizona State University and BBA-Management and MBA degrees from Baylor University. He has been in full-time higher education since 1985, having served at the Air Force Institute of Technology, Wilberforce University, Thunderbird--The American Graduate School of International Management, City University of Hong Kong, and Biola University. His consulting and research is focused on the areas of business systems analysis, IS strategy implementation, information overload, and global information management.

Myles Muretta is a senior research student at Montana Tech University in Butte, MT. His major is in Business: Information Technology. He will be graduating in May 2013 and has accepted a position at a global staffing agency in Denver, CO. For the last year, he has worked on two major research projects with Montana Tech. His research is focused on Business analysis, Enterprise Systems (ERP) and Business strategy alignment.

References

Available upon request.