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Negotiating Strategic Business Value of BPM Systems: A Balanced Scorecard Approach

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ABSTRACT

There has been a growing interest in how Business Process Management (BPM) initiatives can be used to improve competitive advantage of organizations. Discussion in the current literature is often centered on how operational efficiencies can be gained by the implementation of BPM initiatives. However, to fully realize the strategic opportunities made possible with BPM, it is necessary to take an approach that evaluates BPM not only on the financial aspects, but also on other intangible/ non-financial aspects. In this paper, we demonstrate how the balanced scorecard approach can be used for negotiating strategic business value of business process management initiatives to gain support from the various stakeholders.

Keywords  
Business process management, BPMS evaluation, balanced scorecard, QFD, IS value negotiation

INTRODUCTION

The strategic importance of information technology and its role in shaping industries substantially has been widely accepted (and debated!) (Carr 2003). Undoubtedly, IT has become an essential element of the business and the processes that support the businesses; as a result any IT implementation should reflect the intricate interdependencies between business strategies and IT capabilities. Successfully mastering the change and building upon it depends heavily on the harmony of business strategy, IT strategy, organizational structure and processes, and IT infrastructure and processes (Huang and Hu 2004; Luftman, Lewis, and Oldach 1993). Paying too much attention to just any one of these areas, namely, technology, business, management, and organizational issues is not enough (Luftman et al. 1993). Managers need to take a balanced approach to handling all these areas in concert rather than in isolation. This could help explain why some organizations may not fully realize the benefits of new IT investments. Since technology benefits are primarily intangible and non-financial, it complicates their evaluation (Irani 2002). While there is a plethora of techniques available for evaluation of IT investment, many of these techniques are unsuitable for evaluation of complex IT systems that provide comprehensive set of functionalities affecting organizations in various ways (Irani, Themistocleous, and Love 2003). Many of these techniques focus heavily on financial measures, while others do not take into consideration the evolving and future potential (Martinsons, Davison, and Tse 1999) of the complex IT systems such as BPM systems. To demonstrate the value of their IT investments, managers need to make a business case by considering various aspects of impacts brought forth by BPM. In this article, we show how balanced scorecard can be used by IT managers as a technique for negotiating strategic importance of BPM systems by considering various aspects of evaluation.

The balanced scorecard approach put forth by Kaplan and Norton in the 90’s (Kaplan and Norton 1992; Kaplan and Norton 2000) provides a convincing, disciplined, and well-communicated framework for establishing and negotiating strategic business value of BPM. It provides a mechanism to gather and present a variety of information of interest/concern to these various participants from four different perspectives: customer, process, internal, and shareholders. It can enhance IT managers’ ability to help align these interdependent objectives of various stakeholders involved (CSC 1998) and sub-goals towards one common goal during the negotiation of BPM’s strategic business value.

The paper is organized as follows. In the next section, we present brief overview of BPM. In section 3, we briefly compare and contrast various techniques and methods commonly used for IT investment evaluation. In section 4, we describe the
proposed approach and discuss how this differs from the prior research work. To highlight research gap identifies in this article, we provide a detailed review of IS evaluation literature. We then build BPM scorecard from the customer, growth and learning (innovation), internal business, and financial perspective for negotiation purposes. Finally, we conclude with the research contributions and present issues for future research.

OVERVIEW OF BUSINESS PROCESS MANAGEMENT (BPM)

Business Process Management or BPM has evolved in four main steps: business process reengineering (BPR), ERP and workflow management systems (WiMS), development of tools for capturing, modeling, and simulating business processes, and finally the current state-of-the-art BPM solutions (Sarasevic 2004). Even though earlier enterprise systems such as CRM, ERP have enabled digitization of certain parts of the organization, there remain several hundreds of business processes that are in the dire need of digitization (Horwitz 2002). These prior integration efforts have resulted into isolated islands of information systems that cannot be integrated easily, leaving a lot more to be desired. BPM promises to bring this new level of business automation and integration to the forefront by providing process owners with a systemic overview of the business process that permeates throughout the organization and its value chain.

Comprehensive BPM methodology comprises of eight capabilities (Smith and Fingar 2003): business process discovery, design, deployment, execution, interaction, control, and optimization and analysis. These capabilities also represent the various phases in a process lifecycle similar to system development lifecycle. Discovery phase focuses on developing the clear picture of the existing business processes as-is and synchronizing the knowledge about systems and activities. During design phase, tasks of modeling, manipulating, and redesigning the process are addressed. This involves process composition, decomposition, combination, restructuring, and transformation while achieving reuse, adaptation, and repurposing of process templates. Deployment phase involves ‘rolling out’ new processes to all the process participants. Execution phase involves ensuring that the process is carried out. It manages the states of the processes as they get executed. Existing applications are woven into the process execution as fragments of larger processes. Interaction phase ensures integration of process desktops and process portals that allow people to interact with business processes. Monitoring and control activities such as resource allocation and utilization, exception handling focus on processes as well as process management systems upon which processes are executed. Optimization phase, which can be automated or manual, involves continuously making enhancements to the process for ensuring closer alignment with the process design. Process analysis involves measuring process performance to provide metrics and business intelligence needed to identify the process exploitation and exploration opportunities.

The leading BPM products offer both the tools and architecture for rapid process design, integration, and execution. They provide highly intuitive tools that enable both IT and business professionals to collaborate in the design and delivery of automated solutions. Such strong integration capabilities enable IT professionals to leverage their strengths and focus on integration, while letting business professionals leverage their process knowledge. This reduces the time an organization spends on redesigning their business processes, thus improving their ability to quickly respond to the changing environment.

OVERVIEW OF THE IT EVALUATION TECHNIQUES

In the following subsections we compare and contrast various methods to evaluation of IT/IS investments and build an argument for the use of the balanced scorecard approach for negotiation.

Balanced scorecard

Kaplan and Norton (1992; 1993) proposed balanced scorecard as a means to measuring the corporate performance from not only the financial perspective, but also from other non-financial perspectives. Balanced scorecard has been put to use by several organizations as a means of executing their strategy from top to bottom, in enabling them to make the strategy part of everyone’s job moving away from cost reduction and towards growth opportunities based on more customized, value-adding products and services (Martinsons et al. 1999). Martinsons et al (1999) suggest that strategic management systems should emphasize the importance of future-oriented, process-centered metrics for driving performance improvement.

Kaplan and Norton promote taking into consideration customer satisfaction perspective, internal business perspective, and growth or internal learning perspective in addition to financial perspective. Financial perspective has to do more with addressing shareholder’s expectations and asks questions of nature “how do shareholders see us?” This perspective addresses the financial bottom-line of any business. Customer perspective helps address questions of nature such as “How do the customers see us as a supplier of the solution to their problem?” Internal business perspective helps address questions such as
“How can we excel at doing things to achieve financial and customer objectives?” Finally, innovation or growth perspective focuses on exploring and exploiting the opportunities from the learning that occurs continuously in an organization. It attempts to address the question such as “What new products/services can we offer?” or “how can we innovate our processes to add value to other perspectives?” This perspective is basic in nature in the sense that it supports an organization on an ongoing basis to innovate and thus survive. Kaplan and Norton (1996) also recommend incorporating the complex set of cause-and-effect relationships among the critical variables in a scorecard. This causal chain should pervade through all the four perspectives to make the relationships among the objectives explicit. The set of performance drivers should be uniquely identified by each organization to reflect its strategy.

Single most important issue that IT/IS managers in today’s turbulent environment are facing is the need for a compelling and well-communicated framework for IT investment during the negotiation process. In the negotiation process, the essential tactic for IS/IT managers is to persuade all the other participants that their current offer is the best available option (Barkhi 2002). Kersten (2003) suggests decision-making aspect and communication aspect as two major components of a negotiation process. While the communication aspect involves exchange of offers, arguments and counter-arguments, the decision-making aspect of the negotiation process suggests that the participants collect and process various types of information to determine alternatives, and to formulate offers and arguments. This indicates that negotiation support system must provide support for aforementioned activities of persuasion, decision-making, and communication. A typical BPM project involves various participants including business process owners, process analysts, IT professionals such as designers, developers, and administrators, customers, and partners such as the suppliers of the organization. This broad nature of a BPM project implies interdependency among the objectives and sub-goals of these participants. Due to this wide variation in participants and the information systems involved, alignment of these participant’s objectives is necessary for the successful negotiation of the various measures of BPM’s strategic value. This alignment can help reduce the degree of information asymmetry among these participants. Such alignment towards a common objective and a reduction in the degree of information asymmetry are seen as a key towards resolving conflicts and reaching an agreement in the negotiation process (Edmondson, Roberto, and Watkins 2003; Fisher, Frederickson, and Peffer 2002). By combining different perspectives offered by balanced scorecard, BSC helps managers understand the interrelationships and tradeoffs between alternative performance dimensions and leads to improved decision making and problem solving (Banker, Chang, Janakiraman, and Konstans 2004). BPM balanced scorecard can take advantage of synergies and opportunities for potential cooperation and collaboration by viewing organization holistically. Another issue in justifying the IT investment has been attributed to inability to link IT investment with the firm’s strategic direction (Love and Irani 2004). Strategy driven nature of balanced scorecard can provide IT managers with such ability to provide this linkage.

Other IT evaluation techniques

With the ever growing importance and reliance on IT for achieving strategic advantage, organizations invest in various IT projects. Since many such implementations have failed to demonstrate their true potential, there is increasingly acute need to perform IT investment evaluation to assess intangible benefits and risks (Berghout and Renkema 2001). Several methods and techniques have been proposed to assist in such evaluations that fall under the four broad categories: financial methods, multi-criteria methods, ratio methods, and portfolio methods.

Focus of financial methods as the name suggests primarily considers monetary impact of the investment in terms of the payback period, the return on investment (ROI), the net present value (NPV), the average accounting rate of return (ARR), and the internal rate of return (IRR) (Berghout and Renkema 2001). However, such financial methods fall short of capturing benefits and risks that are intangible in nature, inherent in the most IS implementations (Berghout and Renkema 2001; Martinsons et al. 1999). Also it is far more difficult to estimate benefits and opportunity costs related to BPM implementation. This makes them quite unsuitable for evaluating new-generation information technologies such as BPM systems. BPM systems possess set of comprehensive functionalities that have a potential to enable organizations to exploit their current capabilities and explore with new opportunities while affecting the organization on several fronts.

Return on management (ROM), and Nolans’s IT assessment method evaluate IT investment effectiveness by means of ratios. ROM method has broader application area in that it tries to measure the IT investment efforts at the level of entire organization, while IT assessment method is specifically targeted for evaluating IT effectiveness from the strategic viewpoint. However, both of these methods fail to adequately capture the risks involved in IT project implementations (Berghout and Renkema 2001). Multi-criteria methods such as information economics are well known for their strength to combine quantitative and qualitative decision-making criteria (Berghout and Renkema 2001; Martinsons et al. 1999). Though the principles of information economics are useful in determining the business value of an IS project, Martinsons et al. (1999) suggest that it fails to account for other perspectives important to IS measurement and evaluation. For example, it does not adequately assess the efficiency, effectiveness and transformative potential, both at present and in the future of an IS project.
As pointed out by Berghout and Renkema (2001), hardly any of these methods currently provide clear support for the decision-making process of investment appraisal, which is one of the two major components of a negotiation process. Other researchers have taken much more comprehensive approach to IS evaluation. For example, Irani et al (2002) highlight use fuzzy cognitive mapping (FCM) as a technique to model each IT/IS evaluation factor: strategic, tactical, operational and investment considerations. However they do not take into account customer view in such evaluation.

**BSC APPROACH TO EVALUATION OF BPM SYSTEM**

Most of the current evaluations of BPM appear in numerous trade/press articles or in claims made by the BPM systems vendors. Focus of these evaluations has primarily been the on the operational excellence rather than on the strategic value brought by BPM implementations. Based on this, we argue that such evaluation of BPM from these four perspectives can enable stakeholders to negotiate various aspects of strategic value offered by BPM.

**Review of prior BSC approaches for IS/IT evaluation**

Many researchers have applied the balanced scorecard framework for evaluating various IT packages and implementation efforts (Grembergen and Saull 2001; Martinsons et al. 1999; Meyerson 2001; Milis and Mercken 2004). Grembergen and Saull (2001) introduce an IT-BSC maturity model and recommend implementing a cascade of balanced scorecards to support the IT governance process and its related business/IT alignment process. Rosemann (2001) adapts the balanced scorecard approach by adding a new fifth project perspective for the evaluation of enterprise systems software to cover individual project requirements. Huang and Hu (2004) apply BSC framework to demonstrate the strategic value of web services. However, in their discussion, they do not address the cause-and-effect relationships among these four interrelated perspectives. Martinsons et al. (1999) apply BSC to evaluate IS function rather than just the IT/IS project. One of their assumption that the IS departments are typically internal service supplier, needs to be restated given the growing attractiveness in the various IT outsourcing projects.

In this article, we take a different approach by addressing the issue of how a BPM balanced scorecard can be built for the purposes of negotiation. In the next subsections, we identify benefits and risks of BPM on these four perspectives: customer, learning or growth (innovation), internal business process, and financial perspective and build a cause-and-effect relationship chain. Figure 1 summarizes the BPM balanced scorecard while highlighting various objectives to be achieved and measures for the same. In the next subsections, we present how BPM systems can enable organizations to perform adequately on these four perspectives.

**Learning and growth (innovation) perspective**

This perspective emphasizes on how organizations can improve their learning capabilities, leading consequently to innovation and its growth. Need for learning and new products for the long-term profitability and survivability of the organization has been emphasized in the literature strongly (Kalakota and Robinson 2003). To foster innovative environment, organizations need to be able to manage their product lifecycle, right from the inception of the idea to the shipment of the product. There exist various complex and collaborative processes at the core of any product innovations that must be managed (Kalakota and Robinson 2003). This requires effective information flow around the entire process and ability to realize the impact of doing something on the overall process. Ability to realize the overall impact is crucial as the deficiencies in a employee’s representations of the process and subordination to collective goals can limit the value of their potential contributions (Crowston and Kammerer 1998). To sustain the pace of innovation intra- and inter-firm collaborative model is crucial for sharing/reusing the knowledge and coordinating various activities. Finally, the IT infrastructure developed as a result of BPM implementations should be capable of supporting emerging technologies, for example, web services.

**BPMS evaluation**

BPM process lifecycle provides for process optimization, analysis, and simulation capabilities. Process analysis capabilities allow process owners to run various metrics and identify the opportunities for process optimization. Similarly process simulation activities can enhance process owners’ learning by allowing them to experiment with various ‘what-if’ scenarios, which could potentially lead to the identification of new processes/products/services. To measure how well organizations are performing on this perspective various measures such as number new processes identified and implemented, number of new products and/or services, are valuable. Another measure would be to see whether the availability of process knowledge has had any effect on employees’ overall productivity. It is essential to measure the performance on this perspective by keeping track of the efficiencies gained and revenue generated with the help of new processes and products/services respectively.
Internal business perspective

Objectives and measures of this perspective enable organizations to focus and improve performance of those processes that impact customer expectations, which in turn impact the financial bottom-line. High-quality business processes promote efficient communication and collaboration among various organizational participants including employees, partners, suppliers, and customers to improve response time and reliability of the business process (Kalakota and Robinson 2003). This leads to the effective and efficient use of organizational resources and assets. Improved internal business processes that exhibit above characteristics are seen as an essential step towards making the organizations agile and responsive.

There is growing recognition in organizations to collaborate with various participants such as suppliers, partners, and customers especially in the arena of value chain management. It is crucial that organizations be able to effortlessly share their process information to accelerate the nature of collaboration. Organizations should be swiftly able to reconfigure their business processes to respond to the changing needs of the customer or meet the varying requirements from a set of customers. Such reconfigurations should have minimal impact on the underlying IT infrastructure. This suggests that complexity in the process management should be reduced. Another important issue is whether BPM implementations can enhance the ability to integrate existing systems and identify the opportunities to automate various inefficient tasks.

BPMS evaluation

Internal business processes can be improved only when the organization is explicitly aware of them. Process participants are more likely to be effective when they are aware of the context in which their work fits. Not many organizations have explicit documentation of how their business processes actually work. The discovery and design capabilities of BPM can help develop a clear picture and model of how business processes function. With such a picture, organization and its process participants have an overall process knowledge, what their responsibilities are and their fit in the overall process picture. As a result of this exercise, organizations can identify the processes and activities that touch customers, and other external participants who might potentially affect how well the organization fulfills its customers’ needs. This can reveal potential process integration opportunities across various business units and external organizations such as partners and suppliers. It can also help uncover various dependencies among various process participants, activities, resources, and information systems and identify the needs for critical technological capabilities to ensure continued competitive advantage. Enhanced knowledge of overall operation of the business process and various dependencies is valuable when organizations need to redesign their business processes or customize them for delivering custom-configured products/services. Process analysis plays an important role in identifying entirely new processes, services and products, in addition to optimization of current business processes. Business activity monitoring and control capabilities allow for handling unexpected errors and exceptions either manually or automatically which otherwise could stagger operation of the business process. Measures that can be used for tracking how implementations of BPM systems are enhancing organizations to transform their internal business processes are along three dimensions: degree of digitization, scope of process integration, and the type of interaction with various participants (uni-channel to multi-channel) (Kalakota and Robinson 2003).

Customer perspective

This perspective emphasizes how the customers of an organization see it. Here we first need to identify the types of “customer” for this system: the internal customers who are the employees of the organization and the external customers. The needs of the internal customer are likely to be addressed by the internal business perspective. However, the external customer may demand for the custom-built products/services at lower prices. This demand is likely to be accompanied with the desire for reliable service response and delivery time, and high-quality of delivered products/services. Throughout this process, customers will expect the consistent service that meets or exceeds their expectations.

BPMS evaluation

With the implementation of BPM organizations are likely to have better control over their business processes. With the process-centered nature of BPM, organizations can better track the progress of their customers orders, thus have reliable information on the customers order status. BPM systems allow isolated islands of various systems to be integrated, resulting in availability of consistent information to support customer queries. The generic outcome measures include customer satisfaction, loyalty, referral, new customer acquisition, and customer profitability (Kaplan and Norton 1996). Quality Function Deployment (QFD) (Chan and Wu 2002) can be applied to convert the customer demands and suggestion into the actual product/service requirements and/or improvements. It provides a systematic way of linking the two.
Figure 1: Balanced scorecard for strategic business value negotiation of BPM

**Financial perspective**

All the three perspectives discussed earlier ultimately contribute toward realizing the financial bottom-line of an organization. This perspective focuses on applying various financial criteria to evaluate the monetary impacts of such BPM investments. Many organizations are currently facing an issue of the compliance with various regulatory mandates such as Sarbanes-Oxley Act, HIPAA Act. Failure to comply with such regulations can not only result in hefty financial penalties, but may also lead to imprisonment (Turocy et al. 2004). Precondition to such compliance initiatives is the effective management of information and a better understanding of business processes (Delphi 2003; Turocy et al. 2004).

**BPMS evaluation**

With BPM initiatives, organizations’ business processes and policies are not only documented but can also be accompanied by transaction audit trails. This allows business managers to not only make well-informed decisions but also provides
improved support for in the event of litigation (Turocy et al. 2004). These are the necessary capabilities in order to be able to answer the shareholders. Such an analysis can focus on expenses, revenues, and the extent of compliance. One example of a measure that can be applied to evaluate BPM from this perspective is a continuous increase in external IT-BPM consulting expenses (Rosemann 2001).

**Cause-and-effect relationships across four perspectives**

Kaplan and Norton (1996; 2000) suggest that simply identifying various financial and non-financial measures is not enough. It is crucial that various casual links be identified in order to visualize how different variables interact with each other and link to financial measures. Such chain of cause-and-effect relationships should pervade through all the four different perspectives. Figure 2 shows such cause-and-effect relationships for how BPM initiative can help an organization achieve its various objectives. This figure highlights the need for availability of explicit documentation of business process, which can achieve various objectives such as being able to modify the business process and enhancing business process analysis and optimization. It also suggests the need to increase awareness of business process knowledge among the employees as it could potentially enhance communication and collaboration across different business units, leading to improved availability and reliability of information. This will definitely result in improved customer service as customers can get the right information about their orders or the products/services. This leads to improved customer satisfaction resulting in increased customer loyalty and new customer acquisition which eventually translates to financial performance.

**CONCLUSION AND FUTURE WORK**

Current scholarly works on IT and IS evaluation studies in organizations recognize the need for much comprehensive techniques for IS evaluation to encompass various organizational dimensions affected by IT implementation. For example, such evaluations need to account for organizational change processes (Serafeimidis and Smithson 2000) as a result of new systems introduction. Use of BPM balanced scorecard can help managers not only to negotiate BPM systems investments but also to identify and facilitate the change processes associated with its implementation. For example, causal map shown in Figure 2 below illustrates how various activities are linked, thereby helping managers to better cope with changes associated with implementation of new BPM systems. In this process we also highlight various benefits that can be achieved and how enterprise integration issues can be addressed with BPM systems. We are currently extending BSC framework for business process management by linking it to SWOT analysis (strengths, weaknesses, opportunities, and threats) and quality function deployment (QFD) as promoted by Lee (2000) to systemically identify various measures in these different perspectives. This framework will then be incorporated in a negotiation support system tool that can be used by IT managers as a basis for arguing strategic value of business project management initiatives.
Figure 2: Cause-and-effect relationships across four perspectives of BPM balanced scorecard

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