

Chapter 10

Leveraging Enterprise Resource Planning Systems to Digitize Business Functions

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ABSTRACT

The successful implementation of Enterprise Resource Planning (ERP) system is a challenge to many organizations. Though an intervention, ERP brings in large scale tangible and intangible benefits to an organization. It poses significant intervention on firm level endogenous dimensions; internal stakeholders, internal organization, business processes and technology. Though literature recognizes that ERP intervention brings about technological change during ERP implementation, hardly any article has conceptualized these interventions in evaluating its performance. Drawing on the Socio Technical system perspective the objective of this article is to conceptualize the ERP intervention on the endogenous dimensions of the organization and develop a comprehensive conceptual model to assess the success or failure of ERP system implementation. The conceptual model, Process-Variance and Adapted Socio-Technical (PVASt), proposed in this article will enable decision makers and practitioners to measure ERP project performance at every stage of its life cycle in a coherent method and adopt corrective measures.

INTRODUCTION

Information Systems (IS) of organizations have evolved from disjointed business processes to a boundary-less and cross functional structure by transforming functional enterprises and organizing their independent functions into process value chains. ERP system software, an Information Technology (IT) driven initiative enables a value chain (Shehab, Sharp, Supramaniam & Spedding, 2004) based organization

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structure by allowing seamless flow of real time information across functional processes of the organization and empowering organizational stakeholders with precise decision making (Arnold, 2006). External indicators like globalization of markets and operations (Gunasekaran, 2005) and competitive pressure; internal indicators such as increasing costs in inventory, administration and so forth, resulted in Hammer & Stanton (1999) claiming that organizations have to inevitably restructure into process enterprises by strategically orienting themselves in this manner to stay competitive. Henderson and Mitchell (2007) emphasize that while organizations develop their strategy and align resources for implementing strategy it is very pertinent that decision makers identify key dimensions internal to the organization. They further state that this will enable the organizations to develop organizational capabilities and the capabilities can be leveraged to shape the environment and match the organizational performance necessitated by the competitive business environment. A technological resource such as ERP is a strategic tool that results in organizational change while bringing about tangible and in-tangible benefits to the organization. Hence successful ERP intervention is therefore an outcome of high investments and organizations have achieved operational efficiencies, yet a large group of organizations have been unable to translate ERP implementations into a success (Nwankpa, 2015).

ERP as an application software is distinguished from other general software due to the tangible and intangible benefits it can bring about by its organizational impact. Review of literature of over a decade clearly points that even though ERP is an application software its implementation should not only consider technical perspective but interactions with social factors in an organizational context (see Figure 1). Therefore, organization stakeholders can consider internal factors like organizational context, stakeholders, culture, processes and external factors like globalization, competitiveness and customer requirements for successful implementation of ERP. Organizational change that occurs with ERP project necessitates organization stakeholders to implement ERP successfully and evaluate its performance. ERP intervention requires managing change brought about by implementing IS and the mutual interaction it has with the organization's socio-technical context, which is intertwined of technology, people (Davis & Olson, 1985), organizational context and processes (Uzoka, Abiola & Nyangeresi, 2008).

ERP systems are vendor developed software applications necessitating enormous monetary investment by the organizations for its implementation. Costs of ERP project constitute a larger amount (Janssens, Kusters, & Heemstra, 2008) which many organizations find difficult to estimate compared to the ERP software itself. Symons (2006) claims organizations are under increasing pressure from top management to demonstrate and improve the business value of their investments made for IT. The risk associated (Grant & Tu, 2005) with the intervention of ERP system monetarily as well as the organizational changes it brings about, implies that practice of only *post facto* performance evaluation in itself is inadequate. Emphasizing importance of evaluating IS, Beynon-Davies, Owens, & Williams (2004) claim organizations need to evaluate the IS during the life cycle of the IS development process and develop a framework to accommodate the evaluation process during every stage of development. Though the author's research question is contextual to IS development, this question is valid for ERP systems as well. Contemporary literature categorizes ERP implementation as either a process approach; performance of the system is evaluated through a series of phases or variance approach; identifies *a priori* Critical Success Factors (CSF) essential for success of ERP project. ERP implementation frameworks based on either approach defeats the purpose of mitigating risk because the former approach necessitates rigor in evaluation as ERP project transitions from antecedent to consequent phase. In the latter perspective, a CSF based framework is insufficient in addressing the performance of ERP implementation in each phase and taking appropriate corrective measures. The objective of the research is to address this conceptual gap in

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