Chapter 5.10
Patterns for Organizational Modeling

Manuel Kolp
Université catholique de Louvain, Belgium

Stéphane Faulkner
University of Namur, Belgium

ABSTRACT

Business needs have driven the design, development, and use of Enterprise Resource Planning (ERP) systems. Intra-enterprise integration was a driving force in the design, development, and use of early ERP systems, but increased globalization, intense competition, and technological change have shifted to focus to inter-enterprise integration. Current and evolving ERP systems thus reflect the expanded scope of integration, with greater emphasis on things like supply chain management and customer relationship management. This manuscript explores the evolution of ERP, the current status of ERP, and the future of ERP, with the objective of promoting relevant future research in this important area. If researchers hope to play a significant role in the design, development, and use of suitable ERP systems to meet evolving business needs, then their research should focus, at least in part, on the changing business environment, its impact on business needs, and the requirements for enterprise systems that meet those needs.

INTRODUCTION

Twenty years ago supplier relationship management was unique to the Japanese (those firms who embraced the JIT philosophy), China was still a slumbering economic giant, the Internet was largely for academics and scientists, and certainly not a consideration in business strategy; the very idea of a network of businesses working together as a virtual enterprise was almost like science fiction, and hardly anyone had a cell phone. The world has changed. The cold war is over and economic war is on. We have moved rapidly toward an intensely competitive, global

economic environment. Countries like China and India are fast positioning themselves as key players and threatening the economic order that has existed for decades. Information technology (IT) is more sophisticated than ever, yet we still struggle with how to best use it in business, and on a personal level as well. E-commerce (B2B, B2C, C2C, G2C, and B2G) has become commonplace and M-commerce is not far behind, especially in Europe and Japan. This is the backdrop against which we will discuss the evolving enterprise information system. At this point we will call it ERP, but is should become evident in the course of reading this manuscript that ERP is a label that may no longer be appropriate.

In this article we define ERP and discuss the evolution of ERP, the current state of ERP, and the future of ERP. We will emphasize how the evolution of ERP was influenced by changing business needs and by evolving technology. We present a simple framework to explain that evolution. Some general directions for future research are indicated by our look at the past, present, and particularly the future of ERP.

ERP DEFINED

The ERP system is an information system that integrates business processes, with the aim of creating value and reducing costs by making the right information available to the right people at the right time to help them make good decisions in managing resources productively and proactively. An ERP is comprised of multi-module application software packages that serve and support multiple business functions (Sane, 2005). These large automated cross-functional systems are designed to bring about improved operational efficiency and effectiveness through integrating, streamlining, and improving fundamental back-office business processes. Traditional ERP systems were called back-office systems because they involved activities and processes in which the

customer and general public were not typically involved, at least not directly. Functions supported by ERP typically included accounting, manufacturing, human resource management, purchasing, inventory management, inbound and outbound logistics, marketing, finance, and, to some extent, engineering. The objective of traditional ERP systems in general was greater efficiency, and to a lesser extent effectiveness. Contemporary ERP systems have been designed to streamline and integrate operation processes and information flows within a company to promote synergy (Nikolopoulos, Metaxiotis, Lekatis, & Assimakopoulos, 2003) and greater organizational effectiveness. Many new ERP systems have moved beyond the backoffice to support front-office processes and activities. The goal of most firms implementing ERP is to replace diverse functional systems with a single integrated system that does it all faster, better, and cheaper. Unfortunately, the "business and technology integration technology in a box" has not entirely met expectations (Koch, 2005). While there are some success stories, many companies devote significant resources to their ERP effort only to find the payoff disappointing (Dalal, Kamath, Kolarik,& Sivaraman, 2003; Koch, 2005). Let us examine briefly how we have come to this point.

The Evolution of ERP

The origin of ERP can be traced back to materials requirement planning (MRP). While the concept of MRP was understood conceptually and discussed in the 1960s, it was not practical for commercial use. It was the availability of computing power (processing capability and storage capacity) that made commercial use of MRP possible and practical. While many early MRP systems were built in-house, often at great expense, MRP became one of the first off-the-shelf business applications (Orlicky, 1975). In essence, MRP involves taking a master production schedule, inventory records, and a bill of materials and

11 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/enterprise-resource-planning-erp/36782

Related Content

Enterprise Resource Planning Under Open Source Software
Ashley Davis (2010). *Strategic Information Systems: Concepts, Methodologies, Tools, and Applications (pp. 2410-2430).*
www.irma-international.org/chapter/enterprise-resource-planning-under-open/36826

Becoming a Learning Organization in the Software Industry: Is CMM the Silver Bullet?
Dev K. Dutta (2006). *IT-Enabled Strategic Management: Increasing Returns for the Organization (pp. 104-120).*
www.irma-international.org/chapter/becoming-learning-organization-software-industry/24808

Electronic Payment Systems Evaluation: A Case Study to Examine System Selection Criteria and Impacts
Derek Petersonand Caroline Howard (2012). *International Journal of Strategic Information Technology and Applications (pp. 66-80).*
www.irma-international.org/article/electronic-payment-systems-evaluation/63007

Detecting Behavioral Biases in Mixed Human-Proxy Online Auction Markets
Roumen Vragov (2013). *International Journal of Strategic Information Technology and Applications (pp. 60-79).*
www.irma-international.org/article/detecting-behavioral-biases-in-mixed-human-proxy-online-auction-markets/103867

A Bidder Strategy System for Online Auctions Trust Measurement
El-Sayed M. Towfek El-Kenawy, Ali Ibraheem El-Desokyand Amany M. Sarhan (2014). *International Journal of Strategic Information Technology and Applications (pp. 37-47).*
www.irma-international.org/article/a-bidder-strategy-system-for-online-auctions-trust-measurement/125560