Handbook of Research in Enterprise Systems

Edited by
Sanjay Kumar
Jose Esteves
Elliot Bendoly

SAGE
Response Business Books

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Edited by

SANJAY KUMAR, JOSE ESTEVES,
and ELLIOT BENDOLY

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The SAGE Team: Rekha Natarajan, Swati Sengupta and Vijay Sah

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Detailed Contents

1

THE ENTERPRISE SYSTEMS INDUSTRY LANDSCAPE

Sachin B. Modi and *Vincent A. Mabert*

The objective of this chapter is to provide a description of the enterprise systems industry landscape for the interested reader. Towards that end, first, a brief description of the main components of enterprise systems and the primary organizations involved in the implementation of enterprise systems is provided. Second, a discussion of the enterprise system ecosystem with a focus on application product providers in the industry is presented. Third, a review of the various architectural components of the enterprise system and major organizations which provide these components. The final section speculates the future direction of the industry.

2

ENTERPRISE INTEROPERABILITY AND ENTERPRISE SYSTEMS

Peter Loos, *Dirk Werth*, *Silke Balzert*, *Thomas Burkhart*, and *Sebastian Kämper*

The objective of this chapter is to investigate on the nature of enterprise interoperability and to assess the way it directs the implementation of enterprise systems. The chapter deals with the origin of the term interoperability, namely the technical disciplines. It expands this property of a technical object to the business-orientated domain, resulting in the concept of enterprise interoperability. The chapter then describes the special characteristics of enterprise interoperability. It decomposes the concept into partial relationships, namely the interoperability between businesses, processes, and information systems. At the end of this chapter, the authors consolidate these partial concepts into the Enterprise Interoperability Framework.

3

SERVICE-ORIENTED COMPOSITE APPLICATIONS: ENABLING ENTERPRISE AGILITY AND REUSE

Sudeep Mallick

Composite applications development built on the foundation of sound principles of service orientation and agile methodologies enables rapid marketing of new IT systems, by reusing

pieces of logic from the pre-existing IT system portfolio within an enterprise. This has implications for speed and degree of flexibility of an enterprise to respond to new business context and trends and remain competitive. Being able to roll out new automation systems by rapidly assembling together pre-built, pre-tested, and re-configurable IT assets can prove to a game changer for a business, by enabling it in the quick capitalization of new business opportunities in a reliable manner. In addition to this, composite applications present a business case for the reuse of IT assets resulting into enhanced ROI and TCO of the existing IT architecture of an enterprise.

4

ES AS INFRASTRUCTURE FOR ANALYTICS AND KNOWLEDGE MANAGEMENT

Gita A. Kumta

This chapter discusses the evolution of Enterprise Systems to the role infrastructure for Knowledge Management (KM) and analytics. The use of IT in organizations has therefore moved from mere problem-solving to enterprise-wide IT strategies. IT is redefining the business model, and creating major opportunities for companies positioned to take advantage. No longer is it adequate to simply get the system to run. Now, we must see the enterprise holistically as the implementation itself so it can be dynamically reshaped and redefined as the environmental change and complexity escalate.

5

TOWARDS SERVICE-ORIENTED ENTERPRISE SYSTEMS: A BUSINESS INTELLIGENCE PERSPECTIVE

Jayanthi Ranjan and *B.S. Sahay*

Service orientation in enterprises is a business-centric IT enabled architectural plan that supports integrating all the businesses as linked, repeatable business tasks, or services. A Service Oriented Architecture (SOA) is essentially a collection of services. The communication can involve either simple data passing or it could involve two or more services coordinating some activity. Service orientation starts as a powerful technical idea to operationalize the goal of rapid enterprise change by allowing business processes to negotiate diverse systems. This is a technical advantage as it becomes easier to integrate systems in enterprises and to reposition existing capabilities for new purposes. In this chapter service-oriented enterprise systems are explained with respect to business intelligence perspective. SOA for business intelligence in enterprises has been explained to make it possible the integration of technologies into a coherent

business intelligence environment, which automatically enables simplified data delivery and low-latency analytics.

6

ENTERPRISE TOMOGRAPHY: AN EFFICIENT APPLICATION LIFECYCLE MANAGEMENT APPROACH SUPPORTING SEMI-AUTOMATIC LOCALIZATION, DELTA-TRACKING, AND VISUALIZATION OF INTEGRATION ONTOLOGIES IN VLBAs
Jorge Marx Gómez and *Jan Aalmink*

Enterprise Tomography, a new methodology in software diagnostics, enables efficient application lifecycle management of enterprise platforms and Very Large Business Applications (VLBA). Enterprise Tomography semi-automatically identifies and localizes semantic integration concepts and visualizes integration ontologies categorized in semantic genres. Especially delta determination of integration concepts is performed in dimensions of space and time. Enterprise Tomography supports root cause analysis as well as software and data comprehension. Visualization of integration ontologies from Enterprise Systems streamlines the communication flow between the parties—enterprise, consulting industry, and Enterprise Software supplier. Large-scale development and maintenance and implementation organizations can benefit from this new approach.

7

THE PARADOXICAL IMPACT OF ENTERPRISE-WIDE INTEGRATION ON FLEXIBILITY
Judy E. Scott

Enterprise-wide Integration (EWI) is a recent phenomenon made feasible by technologies such as Enterprise Resource Planning (ERP) systems, Enterprise Application Integration, and web services. While EWI facilitates flexibility, which is critical in hypercompetitive markets, it also introduces constraints under certain conditions. Conflicting reports suggests an EWI flexibility paradox. The objective of this research is to investigate the paradox with an in-depth analysis of the EWI and flexibility constructs and relationship between them. We study integration dimensions: reach, range and modularity, and dimensions of flexibility—versatility, responsiveness, and adaptability at the strategic and operational level. This study sheds light on contradictory findings in prior research by synthesizing information processing, coordination, dynamic capabilities, organizational learning, and institutional theories to support a research model and eight propositions which future research can convert into testable hypotheses.

8

BUILDING KNOWLEDGE-INTENSIVE CUSTOMER-CENTRIC SUPPLY CHAIN ORGANIZATIONS

Minwir Al-Shammari

This chapter proposes the development of customer knowledge management (CKM) as a strategic change model for supply chain (SC) organizations in changing business environments. The basic premise of the chapter is that business organizations need to strive to adapt to opportunities as well as challenges brought by constant, complex, rapid, and discontinuous environmental changes. In their quest for sustainable competitive advantage, organizations need to leverage their distinctive core competencies and craft knowledge-intensive customer-centric SC organizations.

The chapter proposes a knowledge-intensive customer-centric SCM model based on four components: customer relationship management (CRM), enterprise resource planning (ERP), supplier relationship management (SRM), and business process re-engineering (BPR).

9

THE 'SIX IMPERATIVES' FRAMEWORK FOR THE EVALUATION OF AN ERP PROJECT

Maria Argyropoulou, *George Ioannou*, *Dimitrios N. Koufopoulos*, and *Jaideep Motwani*

This chapter analyzes and tests a novel framework for the evaluation of an ERP project. The framework incorporates specific performance measures, which are linked to a previously developed model (the 'six-imperatives' framework), and are relevant to ERP implementation. A case study illustrates the use of the framework in a Greek company. The main results indicate that the 'six-imperatives' framework provides a comprehensive methodology based on the profound exploration and understanding of specific business processes and objectives that should be met in order to assess an ERP project.

10

ENTERPRISE RESOURCE PLANNING SYSTEMS IMPLEMENTATION: A PRACTICAL APPROACH

Manoj Jha

This chapter attempts to view Enterprise Solution from different perspectives right from the Enterprise Solution Vendors to Management Consultant and ES Implementation Consultants. A new Enterprise Systems Adoption Model is proposed. The Model has been analyzed with simple examples and has been presented in an easy-to-comprehend format. In the last segment of this chapter, the 'Seven Stage Enterprise Systems Adoption Model' has been applied on a

real-life case of a successful adoption. The chapter provides an overview of implementation of Oracle HRMS solution for a reputed airlines organization. The examples used in this chapter are from large and reputed organizations. They represent live examples for the sole purpose of learning.

11

A MODEL FOR ERP SYSTEMS MANAGEMENT: AN EXPLORATORY STUDY IN COMPANIES USING SAP R/3

Cesar Alexandre de Souza and *Ronaldo Zwicker*

Enterprise Resource Planning (ERP) systems are now an important component of IT architecture. Activities undertaken to align this component to business requirements conduct its evolution and ensure its performance and availability to become increasingly important to companies' IT areas. Success of these activities relies upon knowledge and participation of various actors inside and outside the IT area, imposing challenges not observed in internally developed systems. Many authors have researched the implementation processes of ERP systems with diverse approaches and stressing the benefits achieved by its application. However, few have analyzed the management of already implemented ERP systems. This work proposes a model for the analysis of ERP systems management, including the activities and actors engaged in this effort. An exploratory survey has been conducted with 85 Brazilian companies whose results also comprise this text.

12

CRITICAL SUCCESS FACTORS FOR THE ACQUISITION OF ENTERPRISE RESOURCE PLANNING (ERP): EMPIRICAL VALIDATION

Tariq Bhatti and *Veerappan Jayaraman*

Enterprise Systems are high cost propositions as they place tremendous demands on the organization's time and resources. Successful investments in ERP require a sound understanding of the acquisition and implementation processes of these enterprise-wide systems. The ERP implementation literature contains many examples of organizations that have implemented it successfully. However, there have been cases where organizations did not achieve success due to wrong acquisition of ERP systems. Few studies have scientifically developed and tested constructs that represent critical success factors of ERP acquisition projects. Based on a survey of 53 organizations in Australia, the results suggest 60-item instrument measures 10 dimensions of CSFs of ERP acquisition is well-validated. It is argued that the model proposed in the chapter is valuable to researchers and practitioners interested in acquiring Enterprise Resource Planning systems.

13

INTEGRATING ENTERPRISE RESOURCE PLANNING SYSTEMS AND THE BALANCED SCORECARD IN PERFORMANCE MANAGEMENT

Noorhayati Mansor and *Asniati Bahari*

This chapter reviews the existing literature of Enterprise Resource Planning (ERP) and Balanced Scorecard (BSC) systems. Two major objectives of this study are: *(a)* to examine the current practice of performance management, and *(b)* to determine managers' perception of the combined effect of ERP and BSC. A framework to examine the effects of integrating the two systems on organizational performance is proposed.

14

UPGRADE YOUR 'RENOVATION CYCLES' TO 'INNOVATION WAVES' USING KNOWLEDGE MANAGEMENT AND ENTERPRISE SYSTEM CAPABILITIES

Rakesh Kumar Mishra

Innovation and knowledge management are going to be key differentiators in tomorrow's enterprise. And hence enterprises must understand the complete anatomy of innovation such as what is return that enterprise can expect from innovation, how does innovation process work, what nurtures the innovation, what hinders the innovation, what are the human factors involved, etc. This chapter will discuss some of these issues in detail and also share a case study of real-life experiment that author has successfully delivered combining knowledge management and innovation.

15

BALANCED SCORECARD AND ITS ROLE IN STRATEGIC MANAGEMENT OF INFORMATION: A REVIEW OF PRACTICE

D.P. Sinha

The chapter discusses the evolution of the use of balanced scorecard (BSC) in managing organizations. The authors have traced the use of the BSC by a number of industries and present the zones of effectiveness in this usage. The use of enterprise systems in this process for strategic management of the enterprise is then discussed.