

# Chapter 92

## Integrated Business Process Designs and Current Applications of Workflow Systems in e-Business

**Mabel T. Kung**

*California State University at Fullerton, USA*

**Jenny Yi Zhang**

*California State University at Fullerton, USA*

### INTRODUCTION

To enable effective cross-departmental automations and global transactions, business processes modeling offer external views on their infrastructure processes to all partners in the enterprise, such as product data, quality, costs and delivery requirements, quantity quotations, process plan efficiency, and interactions for meta-, macro-, and micro- distributed process planning (Livari & Livari, 2006; McKendrick, 2006; Siller, Estruch, Vila, Abellan, & Romero, 2008; Kuechler & Vaishnzvi, 2008).

Business process modeling is significant as E-Business and enterprise integration drive the need to deploy activities online (Tagg, 2001; Aissi, Malu, & Srinivasan, 2002; Weiss & Amyot, 2005; Sew-

ing, Rosemann & Dumas, 2006; Chen, Zhang & Zhou, 2007). These management systems employ integrated productivity tools, specialized technical support systems, such as CAD systems, graphic packages, enterprise-wide integrated software applications, for example, ERP (Enterprise Resource Planning), CRM (Customer Relationship Management), mail and other communication systems. When the applications become more modulated and service oriented, stand-alone software will no longer be sufficient (Cimatti, Clarke, Giunchiglia & Roveri, 2000; Adner & Helfat, 2003; Andreescu, 2006).

The most common application for process modeling, control and management is Workflow Management Systems (WfMSs) (van der Aalst, Desel, & Oberwies, 2000; van der Aalst & van Hee, 2002; van der Aalst & Jablonski, 2000; Fischer, 2001; van

DOI: 10.4018/978-1-61520-611-7.ch092

der Aalst & van Dongen, 2002; Grigori, Casati, Dayal, & Shan, 2001; Herbst & Karagiannis, 2000; Cook & Wolf, 1999). Commercial WfMSs such as Staffware, IBM MQSeries, and COSA offer generic modeling and enactment capabilities. Besides stand-alone systems, WfMSs are becoming integral components of many enterprise-wide information systems (Leymann & Roller, 2000), for example, Enterprise Resource Planning (ERP) systems such as SAP, PeopleSoft, Baan and Oracle, Customer Relationship Management (CRM) software, Supply Chain Management (SCM) systems, Business to Business (B2B) applications embed workflow technology. These large scale systems enable collaborative customized computing using general-purpose scripting languages and platforms with tool-automation features (McPhillips, Bowers, Zinn, & Ludascher, 2008; Glatard, Montagnat, Emsellem & Lingrand, 2008).

Software are currently composed of heterogeneous components, some which involve having the user in the loop, some which deal with streaming data, while some which require high-performance resources for their execution (Talon, Kraemer & Gurbaxani, 2000; Harris, 2000; Powell & Moore, 2002; Helfat & Peteraf, 2003; Sutcliff & Mehandjiev, 2004). This chapter focuses on the performances of a series of E-Business using enterprise software applications coupled with merging management technology in workflow systems to provide service-oriented architecture and on-demand business. A comparative study of workflow models for intra- and inter-organizational process control is presented. The study provides a resource list of successful implementations for practitioners in organizational management highlighting the motivation of market facilitation, expert sharing and collaboration that enable commercial applications to support complex heterogeneous, autonomous and distributed information systems (Kung & Zhang, 2008). The objective of this research shows a comprehensive list of structural integration of workflow models and designs that are currently applied to E-Business.

## **BUSINESS PROCESS SYNTHESIS WITH WORKFLOW MODELS**

Workflow technology has been widely recognized as the leading process-oriented coordination tool (Workflow Management Coordination, 2006). Figure 1 shows the technology that offers effective coordination support by allocating the right task to the right person at the right point of time along with the resources needed to perform the assigned task.

In Figure 1, Interface 1 is used at build-time to define the workflow process. Interface 2 defines the standard mechanism for interacting with the user of the WfMSs – the worklists that appear on user screens. Interface 3 is the API through which the WfMS interacts with other user applications such as ERP or CRM systems. Interface 4 is the standard API through which WfMSs provided by different vendors can interoperate. Interface 5 is the API through which administrators gather information from the log maintained by the WfMSs. Facilities such as e-meetings with electronic white-boards, instant messaging, webcasts, and task-oriented community tools supplement the existing synchronous communication facilities, such as teleconferences. Asynchronous communication is supported by specialized team rooms, project databases, interactive team portals and forums, and e-mail (Basu & Kumar, 2002; Sewing, Rosemann, & Dumas, 2006). The users then create digital interface by means of a common platform, such as Java 2JEE, Java Servlets, or using JSP, a process that requires minimal development time (van der Aalst, Weske, & Grunbauer, 2005). Workflow management systems such as Ensemble (FileNet) and InConcert (InConcert) support workflows by the end-user of the system under unexpected undesirable events (van der Aalst & Jablonski, 2000). Many enterprises select standardized commercial workflow management systems, such as COSA, Visual Workflow, Forte Conductor, Lotus Domino Workflow, Meteor, Mobile, MQSeries/Workflow, Staffware, Verve Workflow, I-Flow,

13 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/integrated-business-process-designs-current/41254](http://www.igi-global.com/chapter/integrated-business-process-designs-current/41254)

## Related Content

---

### Access Control for Web Service Applications: An Example in Collaborative Auditing

Timon C. Du, Richard Hwang and Charles Ling-yu Chou (2007). *Advances in Electronic Business, Volume 2* (pp. 244-265).

[www.irma-international.org/chapter/access-control-web-service-applications/4768](http://www.irma-international.org/chapter/access-control-web-service-applications/4768)

### Concepts and Challenges of E-Leadership

Krista J. Crawford-Mathis (2009). *Electronic Business: Concepts, Methodologies, Tools, and Applications* (pp. 1748-1753).

[www.irma-international.org/chapter/concepts-challenges-leadership/9378](http://www.irma-international.org/chapter/concepts-challenges-leadership/9378)

### Examining the Beliefs, Attitudes, and Behavioural Responses of Indian Millennials Towards Social Media Advertisements: A Structural Equation Modelling Approach

Taanika Arora (2023). *International Journal of E-Business Research* (pp. 1-25).

[www.irma-international.org/article/examining-the-beliefs-attitudes-and-behavioural-responses-of-indian-millennials-towards-social-media-advertisements/317215](http://www.irma-international.org/article/examining-the-beliefs-attitudes-and-behavioural-responses-of-indian-millennials-towards-social-media-advertisements/317215)

### Differing Challenges and Different Achievements: The Case for a Separate Classification for Qualifications Undertaken by E-Learning

E. Blass, A. Ettinger and V. Holton (2007). *Social Implications and Challenges of E-Business* (pp. 1-14).

[www.irma-international.org/chapter/differing-challenges-different-achievements/29127](http://www.irma-international.org/chapter/differing-challenges-different-achievements/29127)

### Examining Social Commerce Intentions Through the Uses and Gratifications Theory

Gokhan Aydin (2019). *International Journal of E-Business Research* (pp. 44-70).

[www.irma-international.org/article/examining-social-commerce-intentions-through-the-uses-and-gratifications-theory/224966](http://www.irma-international.org/article/examining-social-commerce-intentions-through-the-uses-and-gratifications-theory/224966)