Introduction

Layna Fischer, Executive Director
Workflow Management Coalition

The WfMC provides an important forum for the adoption of standards throughout the industry. Standards provide an infrastructure for inter-organizational business process automation and management. In this book, industry experts and thought leaders present significant new ideas and concepts to help you plan a successful future for your organization.

- **SECTION 1: World of Workflow and BPM** covers a wide spectrum of viewpoints and discussions by experts in their respective fields. Papers range putting Business Process Management in context for non-technical readers, case studies on manufacturing and healthcare through to Web Services workflow architectures with special spotlight on BPM and workflow in Greater China.
- **SECTION 2: Standards** deals with the importance of interoperability of standards, including technical instructions on Integrating Process Interchange (XPDL) and BPMN, and a chapter on Programming in XPDL.
- **SECTION 3: Directory and Appendices**—an explanation of the structure of the Workflow Management Coalition and references comprise the last section including a membership directory.

Section 1—World of Workflow and BPM

**PUTTING BPM IN CONTEXT: NOW AND IN THE FUTURE** 17

*Jon Pyke, WfMC Chair, United Kingdom*

This paper looks at the various technologies that make up the burgeoning Business Process Management (BPM) market explores the impact new methods of deployment and design will have on products and how those changes could affect end users. The paper also provides non-technical readers with a better understanding of what the all encompassing term “Business Process Management” means by explaining several BPM-related terms in detail.

**PRACTICAL LESSONS IN MANAGING REAL BPM INNOVATION** 29

*Fred van Leeuwen, DCE Consultants, Netherlands*

Companies are paying lip service to the most essential prerequisites for innovation of work. After 15 years of process engineering, many of them are still not ready to cut across their functional silos. And they rarely initiate the innovation process from within the hearts of their process workers, without whom it will not happen. The author responds to the question, “Why has the idea of real-time steering information, placed in the hands of process workers, not materialized as quickly and fully as it could have, and what can we do to make it more successful?”

**WORKFLOW—THE COMPLIANCE PROJECT ENGINE** 33

*Arnaud Bezancon, Advantys, France*

Businesses today are required by law to comply with a vast range of regulations and standards. They have to implement new procedures to ensure full accountability, maintain records of all decisions taken and analyze any deviation through the use of audits. An organization’s ability to manage compliance and governance projects efficiently has become key issue which impacts directly on their business.
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performance. This chapter highlights a number of processes required by legislation such as Sarbanes Oxley, HIPAA & BALE 2, IT governance standards such as COBIT, ITIL & ISO 17799, as well as corporate project management.

BUSINESS PROCESS MANAGEMENT FOR SIX SIGMA PROJECTS

Dr. Setrag Khoshafian, Pegasystems Inc., USA

Often Business Process Management (BPM) and Six Sigma are positioned as competing alternatives for process optimization. Some analysts have proposed that companies don’t need both but can choose one depending upon individual objectives. However, this premise is false. A modern Business Process Management Suite (BPMS) can provide an ideal platform for implementing successful Six Sigma projects. BPMS and Six Sigma are complementary approaches, interwoven in the continuous improvement cycle of digitized and automated processes.

EMPLOYING WORKFLOW TO DRIVE A COMPREHENSIVE AUDIT OF ENTERPRISE IDENTITY MANAGEMENT

Rami Elron, BMC Software, Israel

Workflow plays a key role in the implementation of a comprehensive approach to auditing required to accommodate regulatory compliance requirements. Workflow offers powerful methods that enable enterprises to effectively reduce potential threats to the business, and to facilitate attestation. This chapter illuminates key aspects pertaining to the role of workflow within a comprehensive auditing approach. This chapter highlights key business conditions and requirements that drive the need for auditing, explains how identity management auditing addresses these requirements, and examines how workflow contributes to the effectiveness of an identity-management audit process.

USING BPM TO MANAGE RISKS IN FINANCIAL SERVICES FIRMS

Sheila Donohue, CRIF Decision Solutions, Italy

The consequences of uncontrolled risk can result in large monetary losses, negative impact on share price, loss of jobs, closure of companies and even court prosecution, as seen in current events especially over the past five years. Spurring on the use of modern risk management techniques are regulatory bodies, and even investors, that now require companies to demonstrate solid risk management practices. This paper will focus on two types of risks which financial firms manage and how Business Process Management, BPM, can be applied to manage these risks.

EXCEPTION-BASED DYNAMIC SERVICE COORDINATION FRAMEWORK FOR WEB SERVICES

Dr Dongsoo Han and Sungjoon Park, Information and Communications University, Korea

Web services on the Internet are not always reliable in terms of service availability and performance. Dynamic service coordination capability of a system or application which invokes Web services is an essential feature to cope with such unreliable situations. In dynamic service coordination, if a Web service does not respond within a specific time constraint, it is replaced with another Web service at run time. For that, we develop a dynamic service coordination framework for Web services. In the framework, all necessary information for dynamic service coordination is explicitly specified and summarized as a set of attributes. Classes and workflows supporting dynamic service coordination and invoking Web services are then automatically created based on these attributes. Developers of Web service client programs can make the invocations of Web services reliable by calling the methods of the classes. Some performance loss has been observed in the indi-
rect invocation of a Web service. However, when we consider the flexibility and reliability gained from the method, the performance loss would be acceptable in many cases.

**APPLYING KNOWLEDGE MANAGEMENT TO EXPLOIT THE POTENTIAL OF INFORMATION STORED IN A BUSINESS PROCESS MANAGEMENT SYSTEM (BPMS)**

Juan J. Moreno, Lithium Software/Universidad Católica Uruguay; Luis Joyanes, Universidad Pontificia de Salamanca, Spain

An important part of the organizational knowledge needed to operate and grow is embedded in business processes automated via Workflow Management Systems (WMS) and BPMS. Organizations own this knowledge, but they are often unable to use it in the best way, mainly because it is extremely difficult to retrieve and interpret that information. This paper proposes a model that allows extraction and modelling of generated knowledge, stored in a Business Process Management System. With this knowledge available, we can make recommendations to human participants about good and bad decisions, to improve performance, reduce mistakes and shorten learning times. These recommendations are based on successful and unsuccessful cases in the past. We also can recommend the most suitable participant for each process instance, based on its characteristics and the participant's expertise and experience.

**USE AND DISCARD OF WORKFLOW SYSTEMS**

Tadeu Cruz, TRCR Knowledge, Brazil

This chapter discusses the implementation and use of Workflow systems to automate business processes in organizations of all types and economic sectors and how/why some of these organizations give up to use the software, even after hefty investments in such implementation projects. Use and Discard were the words chosen to characterize the adoption and abandonment of Workflow systems by part of the various organizations that after implementing it had stopped its use; as well as explaining the behavior of those that never installed it in any machine. The author's intention was to discover the causes of such situations, to understand and to explain, for those interested in Workflow systems, the reasons that drive the organizations to have these types of behaviors.

**A WORKFLOW IMPLEMENTATION SUPPORTING THE COMMERCIAL SHIP DESIGN PROCESS**

Ole Christian Astrup and Espen Wøien, DNV Software, Korea

The marine and offshore industry is faced with the same fierce competition as the rest of the business world and must also continually improve performance. But, best practices from other industry verticals are not readily adapted to this industry segment. The workforce of the marine and offshore industries consists of highly qualified knowledge workers undertaking complex design work spanning a long time frame. Their business processes are typically concurrent, multidiscipline, iterative and highly complex. Such organizations pose severe challenges to process management and workflow implementation supporting their best practices.

**BRIDGING PAPER AND DIGITAL WORKFLOWS (A CASE STUDY)**

Steve Rotter, Adobe Systems Inc. USA

Although streamlining of system-to-system interactions is beneficial, it overlooks a major opportunity: one that comes from effectively bridging paper and digital workflows to encompass people and documents more fully in the BMP equation. Most humans are still accustomed to working with paper documents at certain points during a business process, yet computer systems require information in
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digital form. This has necessitated a flood of data entry and re-entry—an activity that is costly, time-consuming, and error-prone. The key to increased efficiency is to integrate both paper- and digital-based workflows into BPM. By doing so, enterprises can take full advantage of the potential of BPM systems in the enterprise.

THE POSSIBILITY AND REALITY OF MASSIVELY PARALLEL WORKFLOW IMPLEMENTATIONS 139

Kevin Erickson, Noridian Administrative Services, LLC and Michael Hurley, Green Square, Inc. USA

This case study will describe the enterprise-wide, massively parallel implementation approach used by Noridian Administrative Services, LLC (NAS), showing the implications of the approach, the challenges that the NAS team faced, and the benefits gained by the approach. The reader will also see first hand how workflow automation addresses key issues in the healthcare and insurance industries.

GROWTH IN BUSINESS PROCESS MANAGEMENT SUITES IN GREATER CHINA 145

Linus K. Chow; Charles Choy Wing-Chiu and Carrine Wong

China continues to play an increasingly larger role in the world’s economy. Companies in China, including local Small Medium Enterprises (SMEs) as well as Multi-Nationals are increasingly interested in modernizing their Information Systems. The drive to move up the global value chain, and build quality and compliance credibility has taken heightened priority due to political as well as market forces. This chapter describes the Chinese government’s drive to modernize and open the financial markets places increasing focus on the transparency and compliance of processes that BPM suites provide.

THE KEYS TO BPM PROJECT SUCCESS 157

Derek Miers, Enix Consulting Ltd., United Kingdom

This paper focuses on the best practices associated with Business Process Management (BPM) project success. It describes a recipe for success, from the creation of a governance-oriented Steering Group, Project Selection, through Business Case Development and on to gaining Executive Sponsorship. With business commitment to the project, the approach focuses on gaining a deep understanding of business processes, before identifying improvement opportunities and eventual implementation on a BPM Suite. Along the way, the paper highlights a wide range of best practice approaches and pitfalls to avoid.

Section 2—Standards

XPDL 2.0: INTEGRATING PROCESS INTERCHANGE AND BPMN 183

Robert M. Shapiro, Global 360, USA

The Business Process Management Notation (BPMN) was developed by individuals working together in the Business Process Management Initiative to take the techniques employed in flowcharting tools, unify and extend the graphics to express the semantics required in workflow and EAI processes. BPMN 1.0 was released in May 2004. In addition to the graphical notation, BPMN incorporated a number of specific mechanisms for process modeling that had not yet been included in XPDL; among these in particular events and message passing between processes. XPDL 2.0 incorporates these mechanisms as well as the graphics and offers an extended meta-model that unifies XPDL and BPMN.

PROGRAMMING IN XPDL 195

Saša Bojanić, Vladimir Puškaš, Zoran Milaković, Together Teamlösungen, Austria
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The authors elaborate the possibility of using XPDL (XML Process Definition Language defined by WfMC) to completely define event driven applications, that we call XPDL Applications. XPDL application is a normal XPDL process definition that complies only with few additional rules and restrictions. This definition, when being interpreted by an XPDL engine, and from an engine’s point of view, results in an execution of a normal workflow process. The framework we will describe makes a difference. It also interprets XPDL in its own way and presents to the user an interface based on process definition and current state of the process instance.

FROM BPMN DIRECTLY TO IMPLEMENTATION—THE GRAPHICAL WAY

Heinz Lienhard and Bruno Büttler, ivyTeam-SORECOGroup, Switzerland

The authors state that BPMN process description must become what the name (Business Process Modeling Notation) actually implies: a true model that can be simulated, validated and immediately turned into a real-time application. Hence, the truly important step is implementing the process just as transparently and comprehensively as modeling of the process in the first place. This means using graphical objects as much as possible, right up to implementation. It will be shown how this can be done.

WORKFLOW MINING: DEFINITIONS, TECHNIQUES, AND FUTURE DIRECTIONS

Clarence A. Ellis, University of Colorado, Boulder, USA; Kwang-Hoon Kim, Kyonggi University, Korea; Aubrey J. Rembert, University of Colorado, Boulder, USA

Workflow Management Systems help to execute, monitor and manage work process flow and execution. These systems, as they are executing, keep a record of who does what and when (e.g. log of events). The activity of using computer software to examine these records, and deriving various structural data results is called workflow mining. This chapter defines, illustrates, and extends the concepts of workflow mining. The authors also present typical techniques for mining.

BUSINESS INTEGRATION USING STATE BASED ASYNCHRONOUS SERVICES

Alan McNamara, Badja Consulting and Dr. M. Ali Chishti, Defence Housing Authority, Australia

Architectural principles promote the use of interfaces—a facade behind which the implementation can be hidden. Current Service Oriented Service (SOA) analysis methods are based on providing synchronous services to expose transactional processes. However, this analysis method does not give a robust model for services implemented through workflow. The service model presented in the OASIS ASAP [1] standard provides a good basis for the business integration interface, but the state based service model is not fully defined. This paper provides an analysis of the requirements for business integration services for long running processes, and proposes how the service model presented in the ASAP standard can be extended to satisfy these requirements. Practical examples from industry are used to illustrate these points.

TOWARD WORKFLOW BLOCK ACTIVITY PATTERNS FOR REUSE IN WORKFLOW DESIGN

Lucinéia Heloisa Thom, Cirano Iochpe; Federal University of Rio Grande do Sul, Brazil; Vinicius Amaral, Daniel Viero, iProcess, Brazil

Research on workflow patterns has attracted increasing attention mainly because of the advantages of reusing patterns. The most extensively studied are in the field of control/data flow patterns as well as resource and application–oriented patterns. Such patterns are being used not only in business/workflow process
modeling but also in critical evaluations of workflow languages and workflow tools. However, a lot less research can be found relating workflow design to a set of recurrent business process “pieces” or “parts” that must be atomically executed by the workflow process (e.g., an activity request execution and a notification activity). Although one can precisely characterize the semantics of such business process “pieces” and they have to be recurrently re-designed in practically every workflow modeling process, there is no known research relating these business process structures to workflow patterns.

**Using Process Execution Data in Application Support**

*Udhai Reddy, Infosys Technologies, India*

This paper is based on research and prototyping on using process execution data for assessing the priority and impact of system or application incidents (Trouble Tickets) to strategic business goals in application support. The research has been aimed at identifying the impact of the incident on the strategic business objectives using the business process execution data and process definition. The research is still in progress with respect to refinement of the models. This paper is a reflection of the status at a point where the first pilot was conducted.

**Constructing a Workflow Application System to Conduct CMMI Processes in Software Development Teams**

*Dr. Yang Chi-Tsai, Flowring, Taiwan*

The paper describes the software architecture, supporting software components and the analysis methodology to map the processes in CMMI (Capability Maturity Model Integration) PAs (process areas) to WfMS (workflow management system) process definition. The work described in the article is motivated by the idea to automate the software processes and provide sufficient tool support for the operations of CMMI ML3 software organizations. It demonstrates the capability of WfMS to enhance the whole lifecycle quality of product development and project delivery in software development organizations. In terms of contribution to the information technology, it gives several workflow integration scenarios with external application systems such as document management system (DMS) for document revision control, CASE (computer-aided software engineering) tools for issue tracking, and configuration management.

**Section 3—Directory and Appendices**

- The *Authors’ Appendix* provides the contact details and biographies of the valuable contributors to this book. Each is a recognized expert in his or her respective field. You may contact them if you wish to pursue a discussion on their particular topics.
- The chapters on the *WfMC Structure and Membership* describe the Coalition’s background, achievements and membership structure and sets out the obligations between members and the Coalition
- *WfMC Membership Directory*: WfMC members in good standing as of January 2006 are listed here. Full Members have the membership benefit of optionally including details on their products or services.

Our thanks and acknowledgements extend to not only the authors whose works are published in this Handbook, but also to the many more excellent submissions that could not be published due to lack of space.

*Layna Fischer, Editor and Publisher, Future Strategies Inc.*

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