

Introduction

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This handbook comprises three sections, the first of which, **The World of Workflow**, covers a wide spectrum of viewpoints and observations of our industry. Papers range from an introduction to workflow, by way of a primer through to a peek into the future of workflow. The second section, **Workflow Standards**, deals with the importance of standards, and details the Wf-XML 1.0 standard that was recently published by the Coalition. The WfMC Glossary, an explanation of the structure of the Workflow Management Coalition and references comprise the last section, **Directory and Appendices**, including a listing of members in good standing.

THE WORLD OF WORKFLOW

- *Workflow: An Introduction*
It has taken the Workflow Management Coalition (WfMC) some five years of constant collaboration and education to achieve a common appreciation of workflow. In those five years, the technology and deployment practice have developed and matured substantially, such that we may have difficulty in recognizing five-year-old workflow products. In *Workflow: An Introduction*, Rob Allen, WfMC Chair of the External Relations Committee, describes the current understanding of workflow with the assumption that the reader has no prior knowledge of the topic. It is designed as a basic primer that will help with the appreciation of the more advanced topics described in later articles.
- In *Workflow for the Information Worker*, Keith Swenson, a WfMC Fellow, explores the issues of non-routine work, often an organization's most important and most costly. While more and more of routine work is becoming automated, we find more people doing less routine activities; organizations are finding an increasing part of their workforce performing information work. This paper considers the needs and requirements of information workers in order to best support, if not automate, their daily activities, and how these requirements differ from those for production workflow.
- Workflow, under whatever label you wish to give it, is a critical enabler in today's hot technologies, such as portals and e-business. Workflow is still thriving under the auspices of e-process modules, process portals and change state engines. In *The Many Generations of Workflow*, Carl Frappaolo traces workflow's history and how different approaches and applications have allowed the automation and management of optimized process using best-of-breed simulation and modeling tools.

- In *Workflow-based Process Controlling—Or: What You Can Measure You Can Control*, Michael zur Muehlen outlines the economic aspects of workflow-based process monitoring and controlling and the current state of the art in monitoring facilities provided by current workflow management systems and existing standards. After a discussion of the three evaluation perspectives, sample evaluation methods for each perspective are discussed. The integration of workflow audit trail data into existing controlling environments and implementation issues are outlined before an outlook on further research is given.
- Mike Marin shows how the enterprise portal presents the organization with an opportunity to have a bi-directional communication media aligned with the organization goals that are easily and quickly modified to adjust to new business practices. The portal will become the focus point between the organization and its partners, customers, and prospects. *The Role of Workflow in Portal Environments*, describes how organizations must put in place business processes to ensure that portal information is accurate and consistent.
- *A Supply Chain Management Framework using the TINA-C Business Model and a jFlow Workflow Prototype*, by co-authors Benito T. Giordani and Manuel de J. Mendes describe how supply chain management is the management of the materials and information flows both in and between facilities across the supply chain. This paper describes an architectural model supporting the development of a framework that can be used to give support to supply chain management. This architecture is been conceived by the fusion of the OMG jFlow and TINA-C Business Model.
- Johann Eder and Euthimios Panagos in *Managing Time in Workflow Systems* describe how structural (i.e. execution order dependent) and explicit (i.e. fixed-date, periodic, upper- and lower-bound) time constraints can be modeled during process definition, validated during modeling and instantiation-times and, finally, monitored and managed during execution time. Together they address the crucial role of time management in the lifecycle of workflow processes
- In *The Birth of m-Commerce*, Robert Haxne explains why workflow functionality must be built into e-commerce and wireless m-Commerce. m-Commerce was conceived as a concept based on the exponential growth in the number of both mobile phone users and Internet. e-Commerce becomes m-Commerce when users start to use the mobile hand held sets to conduct e-Commerce activities.
- Interworkflow is anticipated as a supporting mechanism for Business-to-Business Electronic Commerce. Co-authors Haruo Hayami, Masashi Katsumata and Ken-ichi Okada, in *Interworkflow: A Challenge for Business-to-Business Electronic Commerce* describe this management mechanism having con-

firmed its realization with a prototype. At the same time, the interface and the protocol for interconnecting heterogeneous workflow management systems have been standardized by the WfMC.

- *Applying Intelligent Workflow Management in the Chemicals Industries* by Jussi Stader, Jonathan Moore, Paul Chung, Ian MacBriar, Mohan Ravinranathan, and Ann Macintosh describes the Task-Based Process Management project (TBPM) which investigates the provision of knowledge-based support for workflow management in the area of new product development within the chemicals industries. It is intended that such support shall contribute to the speed and effectiveness of the product development process in the chemicals industries.
- Seven years ago, the National Performance Review mandated change in the way the United States government did business. The American citizen was to be considered a customer and agencies were to be held accountable for their responsiveness and fiscal responsibility. In *Workflow in the Public Sector*, Kathy Billie shows how many federal and state and local agencies have made great strides toward more streamlined business processes yielding a more efficient government.
- In *Building Complex Workflow Applications: How to Overcome the Limitations of the Waterfall Model*, co-authors Stefan Junginger, Harald Kühn, Mark Heidenfeld, and Dimitris Karagiannis argue that a single right methodology for developing workflow applications does not exist. Three general methodologies—named Top-Down, Bottom-Up, and Prototyping Methodology—are presented. Additionally, indicators that influence the choice of methodology are discussed.
- Dave Hollingsworth, chair of the WfMC Technical Committee, traces the evolution of workflow in *From Workflow to e-Process Automation* and discusses some of the emerging trends within the industry at large while commenting on how workflow software is evolving into full process automation capability within this future e-world. He shows how the integration of workflow, XML and messaging also opens the door to much more effective interoperability between organizations.
- Martin Ader, author of *Three Fundamental Trends: Application Integration, Development Tools, and Workflow Engine Cooperation* describes how workflow products are rapidly evolving as workflow applicability is progressively extending its scope to almost any possible application under the pressure of Internet-based services developments. Three major trends in technology available on the market are triggering workflow vendors' investments: application integration technologies, easier development tools, and workflow engines' loosely coupled cooperation. Those trends are explained and illustrated through the most recent products enhancements by major vendors.

WORKFLOW STANDARDS

- In *The Value of Standards*, Betsy Fanning provides an overview of standardization and explains that industry standards and specifications are developed as the result of members of a given industry identifying a need for standardization and then developing the standard or specification to fill that need. She shows specifically why workflow standards make sure the essential criteria the users ask for has been met, which reduces the risk in implementing the workflow software in their enterprises.
- *Workflow Interoperability Standards for the Internet* by Effat Peyrovian, Sunil Sarin, Marc-Thomas Schmidt, Keith Swenson and Rainer Weber, describes the efforts toward defining a standard for workflow interoperability that began in 1994 with the Workflow Reference Model from the Workflow Management Coalition (WfMC). From that model, other standardization efforts have evolved—from OMG's jointFlow specification to the Simple Workflow Access Protocol. The WfMC's Wf-XML focuses on a simple subset of SWAP for a first version of a standard, with the aim of future extension. They include details of which operations are defined in the current version of the Wf-XML interoperability specification and a reference list of business-to-business protocols that are being defined and standardized for capturing different business models and processes.
- *Workflow Standard-Interoperability Wf-XML Binding (Document Number WfMC-TC-1023)*. Edited and coordinated on behalf of the WfMC by Program Manager, Joint Computer-aided Acquisition and Logistic Support (JCALS) with technical support from Computer Sciences Corporation (CSC), this document represents a specification for an XML language designed to model the data transfer requirements set forth in the Workflow Management Coalition's Interoperability Abstract specification (WfMC-TC-1012). This language will be used as the basis for concrete implementations of the functionality described in the abstract in order to support the WfMC's Interface 4 (as defined by the workflow reference model).

DIRECTORY AND APPENDICES

- *The WfMC Glossary, Document Status—Issue 3.0, Feb 99*, compiled by Dave Hollingsworth, chair of the WfMC Technical Committee, contains technical definitions for terms used in the workflow management coalition specifications and discussions. The definitions themselves will help in establishing a consistency in the use of terminology across the industry.
- The chapter on the *WfMC Structure and Membership* describes the Coalition's background, achievements and membership structure and sets out the contractual rights and obligations between members and the Coalition

- *WfMC Member Directory*. All members in good standing as of June 2000 are listed here. Funding members' listings are permitted to include details on their products or services.
- The *Authors' Appendix* provides the contact details and biographies of the contributors to this book. You may contact them if you wish to pursue a discussion on their topic.
- *References* includes additional sources of information, such as related associations and industry events.

The WfMC invites you to delve into the information presented in whatever manner suits your reading or research style and knowledge level.

Our thanks and acknowledgements extend to not only the authors whose works are published in this Handbook, but also to the many more that could not be published due to lack of space. We will be making selected papers available for download from our web site at www.wfmc.org if you wish to continue your reading on this topic.