

# **"DYNAMIC WORKFLOW: EFFECTIVE TECHNIQUES & TECHNOLOGIES FOR CHANGE"**

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## **OVERVIEW**

In the 1990s, and continuing into the 21st century, change has and will continue to be the norm in both the private (business) and public (government) sectors. Change is one of the foremost, if not THE most important business topic today. To address these rapidly changing critical organizational, management, and technology issues, business executives, managers and all employees must be able to understand, consider, cost, analyze, and improve business processes. Many business processes, particularly large complex processes, present special challenges with a multitude of details. To undertake successful analysis of these processes requires detailed business modeling techniques, emphasizing discipline and structure.

The use of workflow techniques and technologies can help you visualize and understand how business processes operate currently, how they are inextricably linked, and how they could more effectively operate in the future. As Thomas Koulopoulos from the Delphi Consulting Group has stated, "workflow bridges the enterprise from manufacturing to the office, from technology to organizational culture. It is this unifying force that ultimately binds an organization, its people and processes together. Managing the flow of work is perhaps the single most important element of competitive advantage in mature markets."

## **WORKFLOW CONCEPTS**

Workflow is more than just an approach to managing. It is also a specific set of techniques, methods, technologies and tools used to support a business process. The fundamental concepts of workflow are used in all aspects of industry. A customer initiates a request; work then goes through many stages towards completion until the request is satisfied. The problem is that this request involves many different people and activities resulting in an ill-managed process. No one has responsibility for the entire process and no one knows the exact status of activities in the process.

Many organizations recognize that automating and streamlining business processes is critical for success in today's business environment. Effective management of workflow presents an opportunity for organizations to automate, manage and control business processes. The control of business processes enables increased efficiency, productivity, and customer satisfaction leading to increased business profits. An effective workflow environment also delivers significant benefits through its capability to analyze the flow of work, allowing organizations to identify areas for improvement and accelerate process times, eliminate bottlenecks and identify resource surpluses and deficits. Organizations can then address new markets and competitive situations more successfully.

Workflow is that set of techniques, methods, technologies and tools in an organization's "toolbox" for the effective and efficient proactive analysis, development and automation of information-based activities and tasks within a business process. One of the most important aspects of workflow is the focus on and use of information, not just

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data, within the context of business processes, with the underlying theme that information should be treated as an organizational asset, more specifically as a strategic resource for the organization. Thus managing information effectively becomes a critical component of workflow. Also in the context of workflow, the business tasks, activities and processes form a value chain, not only within the organization, but also externally with customers and suppliers which must be effectively managed.

The implementation of workflow concepts helps to orchestrate the fundamental components of a business process – people, communications and technologies, helping to create a single environment to manage the complexity of multiple office automation environments. Workflow concepts focus on eliminating unnecessary tasks within the business processes, thereby saving time, effort and money, and automating as much as possible the remaining business tasks necessary to the business process. Workflow becomes the conductor of data, documents, applications, communications, and user interfaces within the business process. Workflow thus becomes a critical link between people and technology within the business process.

The effective management of workflow allows organizations to stop battling with uncontrolled business processes, to start managing the flow of work and to focus on their core business activities. Organizations can effectively focus on continuous business process improvement, resource optimization, implementation of effective standards, and reduction of duplicative work, documentation and paperwork.

## **WORKFLOW TECHNIQUES**

An objective methodology, suggested by Michael Howard from the Xerox Corporation, which could be used to evaluate your business environment, to determine the proper workflow applications to implement, and to execute an effective workflow systems environment includes four distinct components: workflow method and analysis services; prototyping and development; execution and end users; and management control and administration. Most importantly, you want to get the end users actively involved in your workflow development efforts. Their understanding and approval of the ultimate workflow systems environment within the organization is crucial to its success.

Overall goals and objectives for the workflow effort must be clearly established and communicated. An effective workflow development team must be established. The existing business processes, activities and tasks and information technology infrastructure must be identified, including the flow of data and information. Inhibitors to effective work must be identified, including business cycle weaknesses and inefficiencies. Alternative workflow solutions must be assessed to determine if the inhibitors can be eliminated. The specific workflow system must be developed in the context of modeling the enterprise, focusing on the removal of rigid organizational boundaries, the timing of each business cycle to target areas of potential productivity improvement within various workflows; and instituting an effective enterprise-wide communications plan. A team action plan must be established in order to effectively implement the newly –designed workflow systems environment. Finally, effective management monitoring tools must be implemented to ensure control of the workflow environment and its long-term success.

Identifying the proper workflow application for a given use within an organization requires the evaluation of four workflow development methods -- ad-hoc workflow, production or transaction-based workflow, object-oriented workflow and knowledge-based workflow -- in contrast with three process models – mail/message, document and process based. The combination of these four development methods and three process models produced three areas for the use of specific workflow applications, including groupware, document management, and artificial intelligence which must then be evaluated in the context of the organization's future requirements.

Stowe Boyd from Work Media has developed a dimensional analysis in order to help assess workflow environments and workflow applications. He primarily focuses on the richness of the representation of information within the workflow environment. In his analysis, he considers the following issues: the primary forms of information, the completeness of the workflow tool or methodology, the scalability of the representation for both decomposition and composition of the flow of work, the time and movement of information within the workflow, the distribution of processes and related process components, and the level of knowledge, education and training required to use various workflow methods and technologies.

In order to categorize the organization of information management activities within a workflow environment, a workflow architecture can also be used, as outline by Thomas Koulopoulos, which consists of five layers: processes, cases, folders, rules, and documents. The process layer provides the necessary business tasks and rules that define each business process in the organization. The case layer provides the single or individual occurrence of the process model. The folders layer provides the logical group of documents, including text, image and data from multiple sources. The rules layer provides the business rules associated with the specific activities to process documents. The rules layer also includes reference to the established roles of each individual in the workflow and routing controls – sequential, parallel and conditional – used to define the flow of documents from one point to another within the workflow. Finally, the documents layer provides the data within the workflow represented by a single document or multiple documents. The documents are then contained in a folder that is then controlled by a case.

## **WORKFLOW TECHNOLOGIES**

Although many current workflow technologies have their roots in forms management, document management or document imaging, the most effective workflow technologies should have, at least, four major components, including a tool set, a processor, templates, and an interface to allow the organization to examine, define, redefine and test existing and future business processes.

Within the development environment, the tool set would be used to design and build workflow processes, allowing the organization to create and change business rules, individual & organizational roles, routing of work & paper, business processes, activities, events and tasks. The processor would be used to access, monitor, execute, analyze, and control workflow processes, including sub-components that would help initiate and manage message-based workflow processes, data/information-based workflow activities, rules-based processes, workflow applications, and overall workflow activity, efficiency and productivity. Pre-defined templates for workflow processes, which can be easily modified to accommodate an individual organization's unique needs, would be used to automate common business activities and tasks. An open systems interface would be used to allow integration with other technology solutions, allowing the organization to choose the best workflow solution/product (s) to meet their requirements.

There are many software products on the market today that can be used by organizations in designing, automating and managing their workflow activities and processes. In choosing the right workflow product (s) to use within its own environment, each organization must assess and compare these various workflow products in relationship to specific organizational requirements. Effective workflow technology products should offer enhanced flexibility by operating independently from hardware platforms and other software applications, thus optimizing the organization's existing investment. Workflow products should offer a long-term approach for managing the flow of work both inter and intra organization, having the capacity to respond to future, changing demands both externally and within the organization and the various workflow processes.

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Workflow products should provide an easy-to-use graphical user interface environment, rapid modeling and prototyping, flexibility, reusability, and scalability, to support constant and continuous business improvement and faster implementation of enhancements and modifications to the business processes. Workflow products should allow for the proper allocation and delegation, reallocation and reassignment and optimization of work and human and technical resources within the organization. Finally, workflow products should capture all the data and information requirements throughout each business process and provide an appropriate audit trail with effective reporting tools for analysis; validate the individual activities in a business process; check on the proper assignment of people, applications and data flow; and document all workflow activities and resources within each business process.

To assist their evaluation, an organization could use one or more of the following criteria, developed by Martin Adler at Workflow & Groupware Strategies, to help measure and evaluate the cost of ownership for development, deployment and maintenance of workflow applications: throughput rate of the application and efficiency of the engine, power of the application development environment to determine complexity of the workflow procedures; programming diverse workflow activities; properly representing organizational roles and access rights for each workflow activity; effective collection and interpretation of system statistics, cost-effective and efficient support for telecommuting; intra-organizational support and integration of various workflow applications; Internet support; changing collaborative and ad-hoc workflow procedures dynamically; shortened workflow procedure implementation time through graphical tools and enhanced engine features; defining workflow activities through embedded support, libraries, and forms generation tools; and ready-to-use workflow agents top run defined procedures.

## **KEY ISSUES**

In reviewing the various approaches, techniques and technologies for workflow, we must understand that the nature of future business is unfolding and changing at a phenomenal, unpredictable rate in the information age. To be effective at managing the business environment and their organization, executives and managers must be able to quickly adapt to the major changes affecting them on a daily basis, if they are to succeed. Certainly, workflow techniques and technologies can help all individuals in an organization gain a better understanding as to how the organization operates at a detailed level, focusing on the flow of work, processes, activities, rules and costs which produce the products and/or services or support the operations of the organization.

But organizational success will take more than just focusing on workflow techniques and technologies. Managers must continually focus on their most important organizational resource, their people. They need to focus on the skills, experiences, competencies, knowledge and attitude of each individual in the organization. They need to develop and provide the proper cultural setting within the organization for individuals and teams to succeed at their work. Effective communications must be promoted, as well as a strong, dynamic education and training environment. To make a "positive and successful difference" in workflow design efforts in their organizations, executives and managers must encourage all individuals to understand, actively participate in and positively contribute to the workflow efforts. Only in this way can executives and managers expect to succeed in their constantly changing environment.