



ERP's Automated Workflows
Deploy Advanced Business
Processes

Abstract

A company's sustainable competitive advantage derives, in part, from its capacity to act on new information quickly. Workflow technology makes acting on business events and information simpler, faster and easier to follow. It gives employees, suppliers, and customers access to all the information they need, at the exact time they need it, and it guides them through the correct courses of action.

The result is that speed and responsiveness are increased in all areas, defects in products and processes are eliminated, and costs are dramatically reduced.

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Workflow Overview

What if employees could work 24 hours a day, 7 days a week, make decisions consistently according to established business rules, and do it for free? Shipping products on time, under cost, with the highest possible quality would be a cinch, customers would be happier and profits would soar. While this may be an unrealistic scenario given the constraints of time, economics, resources and human limitations, workflow technology eliminates these constraints by automating business processes that would otherwise require an impractical level of time, money, resources and capacity to execute.

The Workflow Management Coalition defines workflow simply as “the computerized facilitation or automation of a business process.” Developing an automated business process is similar to building any structure in the sense that it requires both tools and materials. The workflow system is the tool that is used to easily assemble an automated business process. Specified events, business rules, conditional routings, predetermined tasks and data from the enterprise resource planning (ERP) system are the materials it uses to seamlessly integrate that business process “structure.”

ERP workflow tools can be used to automate internal processes, as well as customer and supplier interactions. It enables event management in various forms such as supply chain management, customer interactions, quality initiatives, inventory reduction programs, faster new product introduction, and reduction of outstanding accounts receivable, just to name a few. The application of workflow tools depends on a company’s business strategies and objectives.

Consider the following scenarios to understand the potential uses of ERP workflow technology.

- To improve customer service, a workflow could detect and track new customer service requests through to completion. To resolve each issue, such an advanced process would automatically route the request to the most appropriate customer service representative (CSR) along with the current and historical customer data that may be required. Reminders would be sent to the CSR when issues are not closed in a timely manner, they could be escalated to higher levels of management if needed, and customers could be notified of changes in the status of their service requests.
- To accelerate the introduction of new and revised product designs, workflow could automate the process of notifying the broad range of departments typically affected by such a change. Inventory, purchasing, production, sales and cost accounting would all be able to more quickly determine the impact of the change on their areas. Based on the completion of previous tasks, such as initiating an engineering change order (ECO) to change a part on a bill of materials (BOM), such an intelligent routing system would identify the tasks to be completed by each of these areas, enabling them to provide feedback or approvals as needed in order to complete the process in a timely and consistent manner.

These types of advances are possible due to five advantages of workflow over manually-based processes. First, an automated workflow is always active and vigilant in monitoring and detecting business events in the ERP system. Second, it possesses a larger capacity for event handling, and the ability to handle a higher level of event complexity than humans. Third, workflow is consistent and disciplined in its reactions to events. Fourth, automated processes move at extraordinarily fast machine speeds. Fifth, workflow facilitates the synchronization that is necessary for smooth procedural hand-offs between individuals, departments and companies. Collectively, these capabilities enable workflow to make the impossible possible.

New Processes Require New Technologies

Workflow can be thought of as one of the links between the strategic vision of a company, the specific techniques to execute that vision, and the company's ERP system. Workflow holds the potential to improve how an ERP system is used, and the benefits it produces, by tailoring the system more closely to support a company's unique business processes.

Workflow automates business procedures where documents, information or tasks are passed between participants according to a defined set of rules to achieve, or contribute to, an overall business goal. Workflow assists a company in accelerating and synchronizing business processes by compensating for limited human capacity to consistently detect and react to every event, and by more fully utilizing the information that is stored in a company's ERP system.

A workflow system may be used to either initiate a regular process or a corrective action. To enable either of these types of tasks, the three basic elements of a workflow system must include; 1) monitoring and detecting business events (e.g., deviation from quality standards, late customer shipments, engineering changes, etc.), 2) evaluating what conditional business rules may apply and, 3) initiating the correct course of action. Using this framework, nonprogrammers can create automated workflows by following these five steps.

1. Document existing processes
2. Identify, eliminate or reduce non-value-added activities
3. Describe the event, or combination of events, that will trigger an action
4. Define the conditional business logic that will dictate the appropriate types of actions
5. Identify recipients, how they will be notified (i.e., e-mail, internet, fax, system alarm, etc.), and what data they require to make the correct decisions and complete their tasks

Deployment of properly designed workflows can have immediate, positive impacts on company performance. When fully integrated to an ERP system, this technology decreases defects in products and processes, reduces costs and lead-times, accelerates product introductions and revisions, improves quality, increases responsiveness to customers, and more. It is a highly effective method of transforming business vision into reality.

New Business Challenges Call for Innovative Uses of Technology

Companies are using ERP-based workflow in many types of manufacturing environments to automate a variety of processes. The common denominator for all these applications is their ability to change slow, fragmented activities into real-time, synchronized processes that create real value for the company, its customers and suppliers.

Customer Order Processing

Klipsch Audio Technologies, a global manufacturer of loudspeakers based in Indianapolis, Ind., developed a workflow notification to be sent via e-mail to a salesperson whenever a customer places an order. As a result, salespeople are able to quickly check order accuracy, taking into consideration the products, quantity, pricing, and terms. "What we started out using as an alternative to the traditional fax, we now realize has far-reaching potential and value," says Joe Patterson, the company's IT director. "We've been able to proactively correct errors before customers have time to react, which has improved our corporate image, our ability to manage customer relationships, and overall customer satisfaction.

"It's no longer sufficient or effective to run our business by waiting for reports to tell us what needs attention. We're moving toward an exception-management environment where members of our value chain are notified immediately," says Klipsch's Patterson. "In the future, we see huge potential for using workflows and notifications to automate, accelerate, and shorten other processes in our business. Our biggest problem is prioritizing which processes to workflow-enable."

Engineering Change Orders

At Triumph Controls, a North Wales, Pa.-based designer and manufacturer of mechanical and electromechanical cable controls for the aviation industry, systems administrator Dan Vedral creates workflows even though he has no programming background. Workflows provide immediate and significant benefits for this manufacturer, according to Vedral. He says the company has been able to increase productivity, rapidly improve its corporate image among customers, reduce the time between events and notification to customers and employees, and improve relationships with customers and salespeople.

The appropriate Triumph personnel are notified immediately when changes are made to an engineering status or drawing. Previously, those changes were communicated the following day via reports or hand-delivered copies of drawings. Also, changes in promise dates and order shipment notifications are now sent to customers and salespeople when they happen, not two days later. "This has had a big effect on our customers because they now receive these notifications automatically and make adjustments in their business plans without calling or tracking down their sales rep to determine order status," Vedral says.

"Today, it's all about timing and the speed at which you get to the next step – improving delivery dates, price, and quality – and then quickly communicating that information," Vedral continues. "Automated event management enables us to react quickly to the needs of customers and employees."

Inventory Control and Order Fulfillment

SPEX CertiPrep, Inc., based in Metuchen, N.J., was founded in 1954 to provide sample preparation equipment and certified reference materials for analytical spectroscopy. "We've eliminated more than 80 percent of the paper in order processing, and average turnaround time for in-stock products has been slashed from three days or more to just 24 hours," explains Lisa Petro, the MIS manager. "In the past, we had a seven part order form with copies that were distributed throughout the building. Now everything is done electronically." When order processing enters an order, the workflow system automatically allocates existing stock to that order and prints out a packing slip in the stock room. After the order is picked, packaged and the bar code is scanned, a UPS shipping label automatically prints. Depending on what customer the order is destined for, the system either transmits an invoice using Electronic Data Interchange (EDI), or prints an invoice. An email is then sent to the customer to let them know the order is on its way.

When custom orders come in for certified reference material or laboratory equipment, a workflow automatically checks the company's inventory to identify any parts or chemical materials that are needed before manufacturing can begin. The system can email or fax rush purchase orders for missing parts or materials. For custom reference material orders, the design has to be approved before it can be manufactured. Using the ERP system's workflow tools, the quote form becomes the conduit for moving that information electronically to design review. Once it is approved, it goes directly to manufacturing.

Prior to the introduction of workflow, event management technology, these improvements would have been impractical, if not impossible to achieve. Now that the technology is available, the results are meeting and exceeding expectations.

The Impossible Becomes Possible

A company's sustainable competitive advantage derives, in part, from its capacity to act on new information quickly. Workflow technology makes acting on business events and information simpler, faster and easier to follow. It gives employees, suppliers, and customers access to all the information they need, at the exact time they need it, and it guides them through the correct courses of action. The result is that speed and responsiveness are increased in all areas, defects in products and processes are eliminated, and costs are dramatically reduced.

Using workflow accelerates processes, yet reduces errors and delays. It improves collaboration and communication while overcoming both organizational and time barriers. Workflow capitalizes on a company's ERP investment by transforming data into information that users are able to put into action. In this way, it's the realization of the promise of an ERP solution's capability to integrate the complete spectrum of business processes and functions.

Manufacturing companies are faced with increasing business complexities and workflow is revolutionizing the ways they do business. Processes that seemed impossible to get under control can now be automated and improved with workflow, event management technology. Workflow is like having pseudo employees that are always aware of every business event, have all the information they need, and are able to make decisions that conform to company business rules. It initiates regular processes and corrective action without exception or error. It performs its functions more quickly than a manual process. It carries out its responsibilities without sentiment and at almost no cost. This is not fiction, but a new reality for manufacturers.

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