

## Systems Thinking: The "Core" Core Competency for BPM

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In our book, *Business Process Management: The Third Wave*, Howard Smith and I proclaimed, "Don't bridge the business-IT divide, obliterate it." Unfortunately, some IT professionals had a knee-jerk reaction and took offense, interpreting what we wrote to mean "obliterate IT." What we actually said was to obliterate the *divide*, not IT! So let's set the record straight.

Contemplating any company's transition to business process management, the implications for IT professionals are profound, for companies don't want more IT; they want business results. If companies are to embrace business process management, they will need a far greater contribution from IT than ever before, but that contribution will be of a substantially different nature. For enterprise business process management to come about, a *system-wide* view of the company is needed, and IT professionals have such a view, far more than the marketing, legal, financial, and other specialists in the firm. Building the process-managed, real-time enterprise will demand innovation and the discipline of 'general systems thinking' from a new generation of IT professionals, stressing some to their limits as the process paradigm shift takes hold. It is not your father's IT shop any more, and business process management skills now outweigh yesterday's technical skills.

It is basically a matter of upping the level of abstraction that IT professionals will have to embrace and master. For example, programming early computers was a task of wiring plug boards. Then along came symbolic programming systems and, later, assembly languages. Then came COBOL, and, later, the C++/Java object-oriented paradigm. Then came software components, followed by Internet-centric components, Web services. Each step along the way gave rise to new job titles: programmers, systems analysts, programmer analysts, architects, and engineers. At each step along the way, some IT professionals were not suited to the new levels of abstraction, and faded away.

Each step represented a climb from a machine abstraction to a business abstraction, and business process management represents a quantum leap to the business domain as *the* central abstraction of software development. To quote a Microsoft technology expert, David Chappell, from his article in *Applications Development Trends* magazine, "My guess is that over the next few years, many people working in IT will face a simple choice. One option is to get involved with business processes in a much more explicit way. The other? Pack your bags and move to Bangalore, India, because that is where your job is going to go."

Perhaps the highest level of abstraction for business process management – and required domain knowledge – is that of "general system thinking." As W. Edwards Deming, the father of the quality movement, pointed out, it is "the system" that is the problem. End-to-end business processes are dynamic systems, but today's business professionals are generally not trained in general systems thinking. Too often constrained by a perspective limited to ingrained business practices, rigid scripts, and structured input-output work, few professionals have a wide-angle view of, or experience dealing with, end-to-end business processes.

The worlds of business and technology are growing more complex, however, and managing that complexity is the goal of systems thinking. It focuses on the whole, not the parts, of a complex system. It concentrates on the interfaces and boundaries of components, on their connections and arrangement, and on the potential for holistic systems to achieve results that are greater than the sum of their parts. Mastering systems thinking means overcoming the major obstacles to building the process-managed enterprise – for every enterprise business process is a whole

system.

Systems thinking provides a new perspective on business process analysis and redesign. Imagine holding your hand at arm's length in front of your face and blocking your view of the earth, the entire earth? Astronauts can do that. The world below them looks drastically different from their perspective: They see the whole earth. Workers, however, only see bits and pieces of their company and their industry in the course of their earthbound daily work. Within individual specialties, workers lose sight of the overall business. They are deprived of knowing the results of their individual actions. They do not get to see outcomes in cause and effect relationships, and, therefore, learning stops. Feedback, specifically knowledge of *effects*, is absolutely required if workers are to learn from daily experience. Today's workers need an astronaut's perspective of end-to-end business processes. Systems thinking is a formal discipline of management science that deals with whole systems and in terms of the interconnections and interactions of their parts. But because today's business rests on automation, practitioners of building lasting, growing, profitable businesses are going to need tools to help them take the holistic systems thinking perspective. As we have explained in our book, *Business Process Management: The Third Wave* ([www.bpm3.com](http://www.bpm3.com)), BPM provides those tools.

The hard part of process engineering is understanding the interconnections and the interactions of business processes and subprocesses (human and machine-oriented), the variables affecting processes, and the overall effects of decisions made by process designers. Systems thinking provides a basis for understanding the environment under study, and long-term effects are revealed by running simulations of the models.

Such business simulations have been termed *management flight simulators* and *management practice fields*. Mistakes and erroneous design assumptions can be discovered in the laboratory rather than in live operations. If reengineered business processes are tested in the real world, the very real results can be disastrous. What avionics engineer would introduce a new airplane without testing it in a real or digital wind tunnel? Simulation is one of the foundations of the business process management system. Hands-on process simulation also provides a learning tool for reinforcing systems thinking. Process designers can make assumptions about improved business processes and test those assumptions. Feedback closes the loop and facilitates learning.

Clearly, process conception, analysis, and development represent a different set of animals than in traditional software development. In his recent book, *Business Process Management: A Rigorous Approach*, Martyn Ould explains, "Today's dedicated follower of fashion in information system development is likely to be speaking UML and using one of the various development approaches based on the UML. [But] we cannot view business process management systems as just another sort of information system." Information-oriented languages and information-oriented methods have evolved around a world of storing, retrieving, and updating information, not the dynamic world of process. Ould elaborates, "We're moving from the Information Age to the Process Age. We need purpose-built methods for working with processes to replace our methods for working with information." The process-managed enterprise demands that the center of automation be shifted from *information processing* to *process processing*, for it is the actual real-time operation of the business – the *doing, the work itself*, not just the information processing—that is the object.

The process-managed enterprise represents a management strategy – not a new killer-app technology – that places the *business process* center stage as the critical technology abstraction. That means that IT itself must rise to a new level of abstraction to meet the needs of the process-managed enterprise. Indeed, IT must move from the Information Age to the Process Age if it is to enable a company to become a process-based competitor and set the pace of innovation in its

industry. It is indeed prime time for process management to supersede information management as the ultimate goal in the world of business technology. Is your company – and are you – ready for the Process Age?

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