

Information technology (IT) deployed in support of business has arrived at a natural step in its evolution toward increasing automation. It has "moved up the stack," first having improved manufacturing processes, then clearly defined business processes (such as payroll and accounting) and discrete personal productivity applications (such as word processors, spreadsheets, and mail applications), and finally, business transactions (online buying and selling). Now automation is ready to move into higher-level business functions, with an important caveat; it will no longer be sufficient to automate single processes in isolation.

To reap the benefit of this move—in fact, to make this approach work at all—a new level of integration must be achieved among technologies and business processes. And a further step must be taken: no longer can automated functions simply replace human actions, especially in the realm of decision making and judgment, but integration must include processes, technologies, and the humans managing and acting upon them.

Services are central to this evolution, though in a form more intertwined with IT than the now established emergence of a "services economy" might imply. In fact, the development of new business models, processes, strategies, and workforce management methods can itself be viewed as comprising a series of services. Hence IBM describes this new area collectively as Business Process Transformation Services (BPTS), and views it as at least a \$500 billion dollar potential market—in effect, a chance to use technology to wrest greater efficiencies from the world's economic structure.

Due to the importance of growth and the innovation necessary to drive it, companies are trying to become more agile, flexible, and adaptive. At the same time, the nature of work is changing. Boundaries between organizations are blurring as companies strengthen interactions with suppliers, partners, and customers and as they decide which processes to perform and which to outsource. Improvements in connectivity, automation, and technology integration have enabled extensible enterprises whose business relationships are dynamically reconfigured in response to changes in markets, resources, and skills.

To use innovation for business transformation, companies need to have deep industry expertise paired with strong technical skills. For that reason we now have researchers aligned by industry teaming with IBM's industry experts to better understand client priorities and challenges. The powerful combination of technical expertise and industry knowledge is a key differentiator for IBM and is likely to spur innovation.

This issue provides a window on the innovative application of technology in a wide range of business settings, in areas such as business process integration and supply chain management. These innovations include the application of mathematical modeling to business strategy and the use of these models to industrialize scientific discovery. The expertise and experience presented here motivate our belief in the importance of such applications for the future of IT and IT services.

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