

IT pushes productivity

The Process Factor



It's not just what you make and what you do, but how you do it that matters. For many companies today, process outweighs product on the ledger sheet.

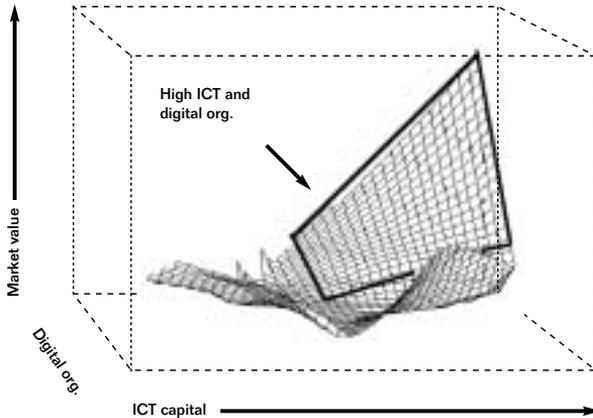
An agile organization that can manage its business processes has become more and more important – more important than the classic marketing mix of a strong brand and a great product. A lot of the innovation happening today is not so much in the products as in the processes – the way that the businesses are run. The CEO of Nokia says, “In the future, Nokia will compete not so much through what we do as how we do it.” According to Dell, the supply chain is “the

biggest leverage point we have.” At Spanish clothing manufacturer and retailer Zara, “The supply chain is the business model.” For the Chinese appliances and electronics producer Haier Group, “Competition among enterprises is not only based on price and quality, but more importantly, on the speed and efficiency of the supply chain.”

These are all companies that have been very innovative in their business processes. Their above-average busi-

ness performance is the consequence of the organization of the enterprise, generally referred to as “organization capital.” This resource is often the only production factor that is unique to the company and is thus capable of yielding above the cost of capital returns. A study at the Massachusetts Institute of Technology (MIT) suggests that productivity increases with investment in IT. However, the results show a strong dispersion of the productivity increase with IT spending. The extent to which

Interactions between ICT and digital organization



Source: Center for eBusiness, MIT Sloan School

▶ a company also invests in its organization explains the variation across the companies.

In the diagram above, we see that those companies that invest in IT and also have adopted a high degree of digital organization have the highest market value. The digital organization shows itself in a distinct corporate culture and organizational practices. Among the work practices of the digital organization are a broader distribution of decision-making responsibilities, a greater use of performance-based incentive pay, significantly larger investments in training and education, and more aggressive recruiting practices focused on hiring the very best individuals. These companies also tended to focus much more effort on converting traditional paper-based analog business processes into digital computer-based business processes.

Performance growth mirrors IT support

Interestingly, a recent supply chain benchmarking study conducted by SAP

and consulting company PRTM shows a similar result. In the table on the next page, we see some of the results. A four-by-four matrix shows the performance of companies depending on the maturity of their business processes and IT systems support.

In the chart on the next page, box A represents companies that are characterized by immature business processes and IT systems. The data suggests that these supply chains suffer from below average business performance: high inventory levels, high cash-to-cash cycle time, and low profitability.

On the other hand, companies with mature business processes and immature systems (see box B) perform significantly better than those who do not invest in either processes or systems, but they leave a lot on the table. Specifically, the data suggests that these supply chains can increase profit (measured as a percentage of revenue) by, on average, 27 percent by investing in mature IT systems.

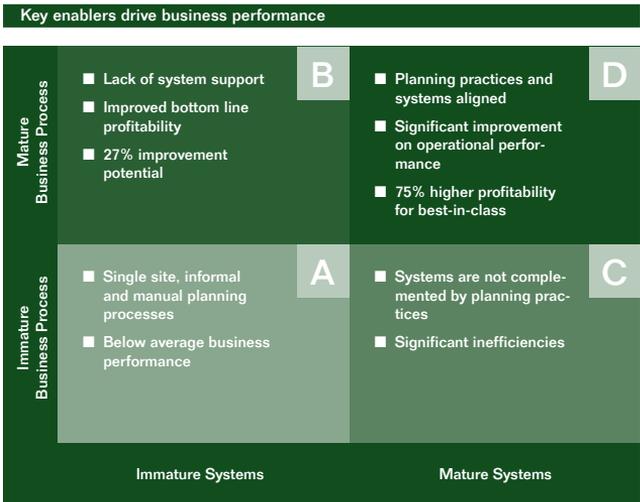
Box C represents supply chains with mature IT systems but immature processes. Surprisingly, the data shows

that these companies perform even worse than those with immature systems and processes. It seems that it is important to have a balanced system – a set of practices that fit with each other and with the supporting IT system. IT provides only information; without a process that can effectively transform information into knowledge and decisions, the supply chain will react to this vast amount of data greedily, generating an ineffective strategy.

Although the traditional organization is not as effective as the digital organization, at least the traditional organization is coherent – all the pieces fit together and work. The worst thing seems to be to take some pieces of the new system and some pieces of the old system and try to have a mongrel system where the pieces do not fit together very well.

Maturity wins

Box D represents supply chains with mature systems and processes. These supply chains enjoy the strongest improvements in operational perfor-



Source: SAP/PRTM Supply Chain Benchmarking Studie

▶ mance. Companies with mature business processes and best-in-class IT systems have on average 75 percent higher profitability than the market average. This result agrees with another benchmarking study by Deloitte&Touche (Deloitte, 2003. “Mastering Complexity in Global Manufacturing.” A Deloitte Research Global Manufacturing Study). This underlines the importance of investments both in business processes and IT systems for the financial performance of a company.

When companies make investments in information systems, like large ERP systems, about five times as many dollars are spent on new business processes and training and education of the workers as are spent on the software and hardware

– as the study at MIT shows. Often, these investments are not recorded as investments but are treated as expenses.

The study also shows that when companies make these business process changes, it is as if they are building invisible factories. The process changes create intangible organizational assets. The total value of these assets is about U.S.\$2 trillion in additional productive capacity in the United States, which has not previously been measured in the GDP statistics or on the balance sheets of these companies.

Dell for example, had to ramp up its production while gaining market share. They had installed new software and had re-sourced their inventory policies and flow of materials. As a result, they could

produce 20 percent more computers while using 40 percent less floor space.

One thing they changed was to have the suppliers deliver materials every four hours. If they had not improved their business processes, they would have had to build new factories to keep up with demand. Instead, they were able to use the existing factory more efficiently, so essentially they built a factory within a factory – a factory made of software and business processes instead of bricks and mortar. Thousands of these invisible factories are being built all over the United States and other countries.

*Prof. Erik Brynjolfsson, MIT,
Paul Hofmann, SAP AG ■*



Erik Brynjolfsson is the Schussel Professor of Management at the MIT Sloan School of Management and the Director of the Center for E-Business at MIT. His research analyzes how businesses can effectively use the Internet and other information technologies. Erik graduated from Harvard University, his Ph.D. is from MIT. From 1996–1998, he was a visiting associate professor at the Stanford Graduate School of Business.

MIT on the Web: <http://ebusiness.mit.edu>