Information technology has made major strides this past decade, improving significantly the process of doing business. These changes have permeated every aspect of our lives from grocery shopping to banking to manufacturing to managing a profitable business. And the trend is expected to accelerate as we move into the new millennium.

Over the past decade, many industries have completely transformed their business processes—in terms of how they conduct business both internally and externally. This special issue is intended to show just how far we have come in silencing the naysayers of the early ‘90s. At that time, industry expressed much disappointment regarding IT’s effectiveness. In 1995, Tom Landauer wrote: “The bottom line, it has been variously asserted, is that while there are exceptions, most business investments in computers have yielded significantly lower returns than investments in bonds at market interest rates.”

These articles from a cross section of industries portray a quite different picture. IT has had a dramatic impact on our economy and has spurred innovation in industry. The early ‘90s were simply a period of long-term investment, and we are now beginning to reap the benefits.

The four articles assembled here provide a glimpse into our dynamic era and generally represent the evolving industrial environment.

ABOUT THE ARTICLES

In “The Changing Role of Information Technology in Manufacturing,” Krishnamurthy Srinivasan and Sundaresan Jayaraman describe how IT’s role in a manufacturing enterprise evolved from a support tool to a catalyst for change and the creator of new business paradigms, which gives rise to discontinuous innovation. Discontinuous innovation has led to the entirely new industry of individualized, massproduction. The best example of this is the personalized jeans offered by Levi Strauss. After taking your measurements, Levi Strauss can send them to factories throughout the world, where they are used to produce jeans just for you. In the short term, it’s difficult to calculate the return on this kind of investment; how
can you measure the productivity of IT when customers pay more, there is no inventory, and the customer is bonded to the manufacturer by virtue of personal measurements? This discontinuous innovation has changed the very nature of the retail apparel business through the use of IT.

The article illustrates the critical role of IT in a dynamic and agile manufacturing enterprise. It also discusses how the Enterprise Modeling Framework—a framework for modeling the function, information, and dynamic aspects of an enterprise—was used to arrive at the solutions involving a shared, underlying model.

In “Reinventing GTE with Information Technology,” Richard Brandau and his colleagues describe the interactions between changes in IT and the telecommunications industry. Advances and restructurings in telecommunications have driven requirements for IT infrastructures. Conversely, developments in IT have influenced business processes in the telecommunications industry. As a result of these closed-loop interactions, IT has evolved from a business support function similar to HR or finance, to an enabler of change in the way the business is operated, to a driver of new business opportunities. The authors illustrate this evolution with a case study of network management in GTE.

In “The BT Intranet: Information by Design,” Mark Norris and his colleagues explain how British Telecom used a structured approach to information delivered via an enterprise intranet to transform the way people work and do business. The authors argue that to have efficient business communication, the information should be structured and designed as a product for application. It is the basic idea of treating information as a product that differentiates the successful BT experience from many others and has helped them to function efficiently as a global operator. Similar examples appear across the industry.

Capping the issue, Dawn Jutla and her colleagues’ “Making Business Sense of Electronic Commerce” explores an alternative marketing, order collection, and procurement channel for businesses. The specialization in areas of expertise (for example, marketing and delivery) across the supply chain from manufacturer to consumer allows for optimization of profit, improved customer satisfaction and service, and a competitive advantage. It also makes it possible to adapt rapidly to changing marketing conditions and strategies.

While it is widely acknowledged that e-commerce infrastructure is still in its infancy, the authors nevertheless recognize that the existing technology is sufficiently sophisticated to transform current business processes. The authors also discuss distributed object models, distributed transactional middleware, deployment platforms, and other evolving infrastructure components of e-commerce that will likely form the basis of this growing industry.

These articles address the impact of IT on some key industry segments. However, IT has had an equally visible and widespread impact throughout other important industries, most notably transportation (airlines, FedEx), finance (online trading), banking (online banking), and medicine.

The PC is now just a blip in a networked universe—an interface between you and the world. Knowledge is power, and IT now provides the focused information needed to use knowledge effectively. Optimists— or should we call them realists—still believe that this is only the beginning of the information revolution. Time will tell.

Enjoy the issue, and watch how IT positively affects us all.

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Reference


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