

## Process expertise – the foundation for solutions in the discrete manufacturing and consumer sector

*In this issue of ABB Review we examine ABB's activities in the discrete manufacturing and consumer sector.*

**A**s an art and as a science, the manufacture of consumer goods is developing at breakneck speed.

Not so long ago, optimizing the production of goods in large lots – mass production – was the rule of the day. Now, the spotlight has shifted; fast and agile production of very small lots – mass customization – has become the focus of attention.

Projecting this trend into the future, we see a time in which an individual will order, as a matter of course, his or her *customized* product. Everything will be produced faster and at a lower cost than was possible before, even with the most highly developed mass production. Our customers, the manufacturers, will be able to closely track and follow changes they request, reducing the risk of a misplaced investment while increasing profitability.

Technology is the driving force that makes this step forward possible and ABB is right at the center of this development with innovative, state-of-the-art technology.

The key to realizing mass customization is having real-time information on optimized processes – from the raw materials supplier through the manufacturing sites to the end customer. The potential for improving quality and accuracy across the delivery chain is indeed remarkable. The automotive industry – one of the most advanced when it comes to manufacturing systems – estimates that having the right information available in the right place at the right time will yield a quite significant improvement.



At ABB we are making a huge effort to put our customers in this ideal position. A key enabler is our Industrial IT architecture. We develop solutions to seamlessly link production control systems with business systems like enterprise resource planning, closing an information gap that exists today in almost every manufacturing company. This gap is considered to be the greatest single barrier our customers face as they take the next big step toward increased productivity.

Other, more tangible tasks also need to be managed, however. The manufacturing processes themselves – bending sheet metal, spot-welding body parts, grinding castings, assembling windshields, and so on – can all be automated and run by robots. The robots are then combined in manufacturing cells and the cells are linked to form plants which are connected to the suppliers' systems.

Our researchers work on all the related aspects – the individual robot programming, the manufacturing logistics and the architecture for real-time enterprise solutions. We cooperate with some of the world's most respected universities, like the Massachusetts Institute of Technology (MIT) and Carnegie Mellon University, as well as many research institutes specializing in these fields. The Leaders for Manufacturing program of MIT provides us with a particularly valuable link

to the efforts being made by a large group of manufacturers and to their ideas for improving their business processes.

What is beneficial for our customers is also good for ABB. We apply the entire storehouse of knowledge we have built up working with customers to the processes in our own factories and facilities. For example, we automate our transformer factories according to our Industrial IT concept and even run our own office buildings with Industrial IT software to benefit from an efficient infrastructure. And, through our virtual engineering office, we contribute to the seamless, real-time operations that characterize the working environment of every cutting-edge company.

In this issue of *ABB Review* we focus on the technologies we develop for the manufacturing and consumer goods industries. In it, you will read articles giving examples of the steps we are taking toward the mass-customized, more productive and faster factory of the future.

Be inspired.

A handwritten signature in black ink that reads "H. Markus Bayegan". The signature is fluid and cursive.

Markus Bayegan  
Chief Technology Officer

## ABB serving industries

The challenges confronting the leading companies in industries are based on a common premise: to outperform competitors, it takes world-class processes, information systems and optimal management of the company's assets. Companies need flexible manufacturing lines that outlive the life of the products, even when that line manufactures several products. The complexity this implies, and the number of disciplines that have to be mastered, are remarkable.

ABB is proud of the capability it has built to help companies address these challenges. Our scope and expertise is broad – ranging from dedicated lines and systems for the automotive industry through batch control for breweries. Gluing it all together is a global organization dedicated to comprehensive asset management. This broad portfolio positions us as a partner in the areas our customers do business in, with capabilities that reach across a broad spectrum. This is a strong platform for a fruitful and long-lasting partnership.

Most of the sectors in which we are active are well-established ABB businesses, and have been for years. The transformation of the ABB Group that began last year has now brought them even closer together with the recent merging of ABB's process manufacturing and discrete manufacturing divisions. It is exciting for us, and for our customers, to see the synergies this yields. For many of our customers, process and discrete manufacturing is converging, with value being added from processing of raw material into finished form, such as sheet metal, and the value chain continuing through to a final manufactured product, such as an automobile. We are rapidly converging ABB to better meet this accelerating customer convergence.



Sharing best practices and common processes are obvious areas of convergence. In the technology and products areas it is even more far-reaching. Technology exchange presents tremendous opportunities. For example, technology used to trace goods in the food and beverage industry can also be used by an automotive subsupplier; software for scheduling in discrete manufacturing might be a solution for scheduling in process manufacturing; robotic solutions, used extensively in automotive and other discrete manufacturing, can be brought to bear in previously under-optimized converting and packaging areas for process manufacturers [for more information on ABB technology solutions for process manufacturing, please see *ABB Review Number 4/2001*].

Being predominantly a solutions provider, one of our core strengths is integration – the ability to unite technology and knowledge in a system that can be either standardized or customized for a specific task. Another is simultaneous engineering, in which, by integrating systems at the same time our customers are completing their product design, we cut the time to production to a third of what it was just four years ago. These are all part of our everyday business, but it takes the right skills and processes, and leading-edge technology, to be successful.

As we show in this issue of *ABB Review*, embedding our intimate knowledge of customers' business and manufacturing processes into our solutions; modularizing complex systems to reduce lead times, and innovation and ingenuity, are all themes important to us. With Industrial IT, we are taking another leap forward. Industrial IT allows optimum management of real-time information, allowing better, faster business decisions. Industrial IT allows our customers to work faster, more efficiently and with less risk – with solutions that keep track of material flows, run a press shop or take the right action in the supply chain if a faulty component is detected. The possibilities are broad and exciting, and they let us look to the future with confidence.

ABB is proud to take part in the shaping of that future, in which manufactured goods are delivered faster, at lower cost and built to users' individual tastes.

Articles in this issue of *ABB Review* give examples of areas in which we have helped customers, as well as real-life applications for capabilities I describe. Those of you active in these markets will hopefully be prompted by these articles to learn more about how ABB solutions can help you improve your companies' operations. Enjoy reading them!



Dinesh C. Paliwal  
Executive Vice President  
Member of Group Executive Committee of  
ABB Ltd  
Head of Industries Division