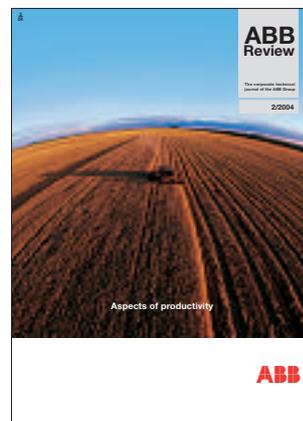


Less than a century ago ninety percent of US workers were still employed in agriculture. Today, that figure has dropped to three percent! And these three percent put more food on the table, and for many more people, than in the past.

In manufacturing, as in agriculture, productivity has shot through the roof. But what drives productivity growth? While hardware technology, machines and robots are definitely playing their part, there can be no doubt that today it is information technology that is the main driver of efficiency in manufacturing and in offices.

This issue looks at technologies developed by ABB to secure higher productivity for customers in the cement, paper, petrochemical and utility industries, as well as for our own operations, in today's challenging economic environment.



## Surfing the surge in productivity



Just two decades ago, the manufacturing sector's share of the job market in Western economies was in excess of 20%. Today it is closer to 10%. In the offices, too, efficiency has surged. And with 50% average efficiency increases every few years the norm there, this trend is likely to continue for some time.

In agriculture, and also initially in manufacturing, hardware technology, machines and robots have been the main driving forces behind productivity growth. More recently, the prime efficiency booster in manufacturing, and especially in offices, has been information technology (IT).

This is having a direct impact on company performance. One major US car manufacturer reported a 13% increase in efficiency in one year in its factories as well as engineering cost savings of 44% as a result of installing modern IT – all in all, a saving of billions of dollars.

ABB has committed to building the 'surfboards' that industry will need to

'ride', and so take advantage of, this productivity surge.

With no more 'easy pickings' – like automating simple operations, taking advantage of low labor costs by outsourcing work, or simply improving the supply chain – in sight, manufacturers are having to maintain high growth rates in productivity by other means.

The answer lies in a synthesis of effective automation equipment, real-time data management, and a profound knowledge of the processes involved. This is especially important since manufacturing is no longer seen as an isolated process; instead it has to operate within societal constraints that can make the economic optimization of a plant a complex challenge.

In this issue of *ABB Review*, we look at some of these different aspects of productivity. ABB, with its broad knowledge and globally installed equipment base, is developing technologies aimed at securing higher productivity for its customers in today's challenging environment.

Examples are taken from a wide range of industries, such as cement, paper, petrochemical and utility, and show where the combination of ABB automation systems and process know-how can drive productivity growth. Lessons learned in each of these industries are shared across the ABB Group, and facilitate the transfer of productivity benefits from one industry to the other.

Researchers in our engineering teams and global research centers combine this customer-generated experience with

the knowledge gained through numerous collaborations with world-leading universities, like Stanford in California.

Technologies under development include advanced process control, real-time scheduling, dynamic, non-linear optimization, predictive maintenance, as well as cutting-edge augmented reality applications.

These better ways of handling the vast amounts of data generated in an industrial plant or utility, consistently and in real time, will bring our customers closer to the 'best in class' manufacturers. But it's not only our customers who profit. We at ABB put the same tools to use to boost the productivity of our own operations.

Enjoy reading about them.

Markus Bayegan  
Chief technology officer  
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