



When companies invest in plant equipment, they want to feel assured that these newly acquired assets will be productive for many years. Naturally, the probability of component or system failure occurring increases after several years in operation, and the consequences of this vary depending on the type of failure. Whatever the outcome, managers inevitably ask themselves if such events could have been prevented, and can be prevented from happening in the future.

Maximum asset utilization is best served by providing preventive maintenance for products and systems at a certain point in their lifecycle. To this end, ABB has created lifecycle management programs that ensure customers get the best possible return on their assets, and benefit from a smooth transition to new generations of products.

# Lifecycle management for improved product and system availability

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Without proper servicing, the probability of mechanical components in rotating machines failing after a certain time is high. Therefore it is accepted practice to perform preventive maintenance on rotating machinery to significantly reduce the risk of this happening. Unfortunately, the same cannot be said for products with electronic components. There is still a commonly held belief that these products do not require specific maintenance.

Based on ABB's experience, however, the probability of failure of many products with electronic components increases after several years in operation. In many cases, the main reason for this is aging electronic components, which can have serious consequences. This is why ABB recommends preventive maintenance for products and systems at a certain point in their lifecycle.

ABB's lifecycle management programs for its products and systems exist to provide customers with the best possible return on their assets. A comprehensive set of standardized service packages, such as preventive maintenance, have been productized and accommodated to different lifecycle phases of various products and systems to maximize availability and performance.

The following examples illustrate how two companies have benefited from ABB's lifecycle management programs. As a side note, assets in the examples have been in continuous operation for more than 10 years.

### A steel rolling mill in Finland

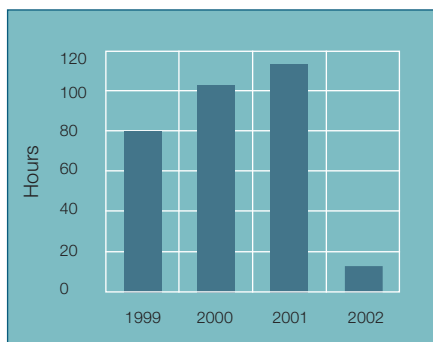
In 1986, a hot steel rolling mill in Finland installed an ABB drive system on the furnace and transport rolls. Preventive maintenance of the system was performed annually by the mill operators. In 1998, the failure rate started to increase, causing production losses.

Because the customer wanted to ensure trouble-free operation of the drives for the next 10 years, ABB was asked to investigate the condition of the drive system at the beginning of 1999. As a result of this investigation, preventive maintenance and upgrades were carried out in August of that year. The system was disassembled and cleaned carefully and much of the electronics was replaced. In addition, the drives system software was updated.

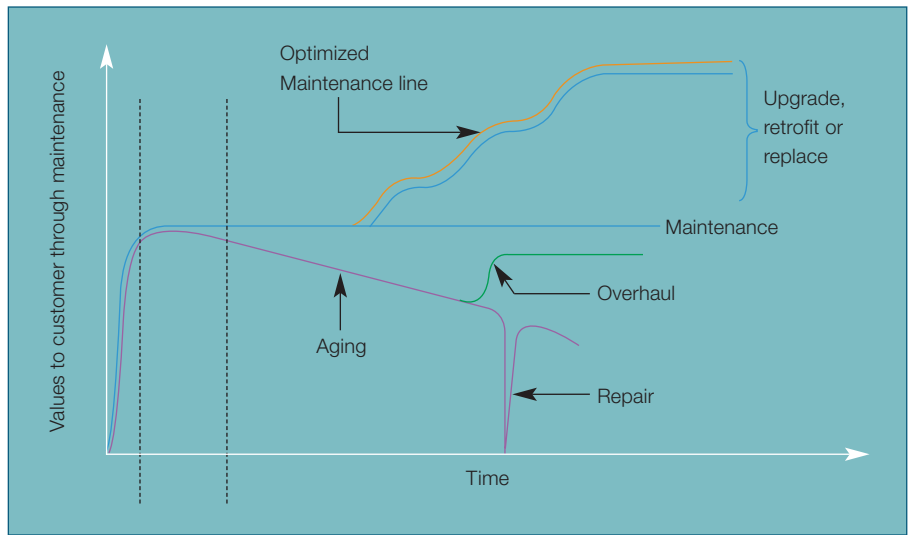
The reliability of the drive system increased dramatically. Repair costs have dropped significantly, and only one electronic failure has taken place since August 1999.

### A paper mill in the USA

A paper mill in Kentucky had been experiencing increased downtime on its drives, which had been installed on a paper machine and winder in 1991. To



Drive downtime (US paper mill)



Lifecycle of a plant

achieve better availability, ABB recommended that a preventive maintenance program be introduced.

After 10 years of continuous operation, the mill decided to update some of the drives through ABB's preventive maintenance program.

Preventive maintenance kits were supplied to maintenance engineers working at the mill, and during a scheduled shutdown in

October 2001 these engineers updated the drives under ABB's supervision. This operation dramatically improved the availability of the drive systems.

The graph (left) shows paper machine downtime due to drive failure in the paper mill from the beginning of 1999 until the middle of 2002. After the October 2001 shutdown, the downtime figures for 2002 show a significant reduction compared with the previous three years.

With each hour of downtime costing slightly more than USD 10,000, the return on investment of the mill's preventive maintenance project has been very

high: as of July 2002, approximately 0.5 hours of downtime was attributed to the drives which had not yet been updated, and 0 hours on the updated ones.

A similar preventive maintenance project for the drives not updated during the shutdown was carried out in 2003.

## ABB's lifecycle management programs for its products and systems exist to provide customers with the best possible return on their assets.

ABB is able to provide productized services to extend the life of its clients' assets because

the company understands the characteristics of its products over the entire lifecycle. Thanks to the preventive maintenance projects described above, the clients expect to utilize their assets for at least another 10 years. ABB's product lifecycle services are built for optimized asset reliability and efficiency.

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