

The efficient and reliable distribution of renewable power is critical to any sustainable city and will be a prerequisite for industrial facilities in the future. ABB technology is perfectly suited to this application, as evidenced by our latest installation in Brazil. There, Enel Green Power chose our [ABB Ability™-powered digital substation](#) to deliver emission-free solar power from the São Gonçalo solar photovoltaic plant to Brazil's 500 kV transmission network. This solution will eliminate 600,000 tons of carbon emissions a year and make Brazil's grid stronger, greener and smarter.

In the city of Västerås, Sweden, ABB Ability™ digital solutions and expertise are being applied to good purpose in close cooperation with Microsoft. There, ABB is working in partnership with Swedish energy company Mälarenergi. Mälarenergi operates a broad range of essential services for the city of 150,000, including hydropower plants, the local power grid, a waste-to-energy plant, heating and cooling networks, water and wastewater treatment plants, a water distribution network and a fiber-optic network. For the management of all of these core functions, they rely on ABB Ability™ Collaborative Operations to make more information about these services available faster.

In Vietnam, Ho Chi Minh City's local utility, SAWACO, uses the ABB Ability™ Symphony® Plus supervisory control and data acquisition system (SCADA), reducing water leakage from 30 percent to 10 percent while supporting long-term growth. The smart collection of digital data offers real-time insights into the water network's status, enabling quality improvement of its drinking water and better living conditions for millions of people in the Vietnamese city.

Hospitals are also categorized as fundamental infrastructure assets, and ABB is at the forefront

of efforts to empower them with smart technologies. The healthcare sector is now being challenged to keep pace with advances in the diagnosis and treatment of disease while coping with an aging population, increasing costs and a growing worldwide shortage of medical staff. In response, in 2019 we opened the first ABB global healthcare research hub, on the Texas Medical Center campus in Houston, Texas. The goal is to develop robots for repetitive, delicate and mundane processes, leaving highly skilled medical and laboratory staff free to take on more valuable roles, and ultimately treat more patients.

At the research hub, we will use our experience in industrial and collaborative robotics to create flexible automation solutions for healthcare. Cutting-edge robotics have the potential to reduce the number of manual procedures performed by medical staff, improve the accuracy of laboratory work and enhance patient satisfaction and safety. The hub will feature a number of concept technologies, including a mobile YuMi® robot, which will be designed to assist with laboratory and hospital logistical tasks. Additional YuMi® robots could be used for centrifuge tending and test tube handling systems, while an IRB 1200 robot may be used to execute liquid transfers in a pipetting application.

## Innovative industry

ABB is developing advanced products, solutions and services that are radically reshaping the production landscape by making smart and sustainable factories of the future possible. Our portfolio enables manufacturers to respond to the increasing pressure for shorter product design cycles, the rise of mass customization, and increased environmental, safety and compliance regulations.

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Case study  
**Energy savings  
enabled by intelligent  
motion solutions**

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As a technology leader in the fields of industrial automation, electrification, robotics, discrete automation and motion, ABB's work contributes directly to the achievement of SDG 9. Our suite of ABB Ability™ digital solutions and services uses sensors, network connectivity and data analytics to provide a real-time view into operations, enabling predictive maintenance, improved safety and reduced operating costs. And because ABB Ability™ uses the Microsoft Azure cloud as its integrated connectivity platform, our customers benefit from access to enterprise-grade cloud infrastructure.

Moreover, ABB is a world leading provider of automated control solutions that can increase output while reducing energy usage and waste of raw materials. We recently launched our first cloud application for original equipment manufacturers (OEMs). The new ABB Ability™ Asset Performance Monitor collects data on production rates, energy consumption and temperature and provides a continuous overview of an OEM's entire installed base, enabling more informed business decisions. The ABB Ability™ Asset Performance Monitor displays data on a digital dashboard, giving OEMs the necessary insights to initiate machine upgrades and advanced services. State-of-the-art security standards and transfer protocols ensure data integrity.

This is just one of the flexible, scalable and secure solutions that ABB offers to facilitate the shift to smart factories. Digitalizing production processes increases system reliability and throughput, reduces raw material and energy use and improves product quality. For instance, the virtual commissioning of drives and programmable logic controllers (PLCs) can cut project costs significantly while making more efficient use of engineering personnel.

To power the smart factories of the future, ABB offers a wide range of solutions for secure and efficient energy distribution. For example, our cloud platform can connect all of the electrical devices in a facility to the industrial internet, enabling precise information and control functions. Our compact, intelligent circuit breakers deploy integrated connectivity to link smartphones, tablets and PCs with data analysis tools in the ABB Ability™ suite in real time.

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**ABB believes the digital transformation of global industry – with AI at the center – will rise to the challenge of providing the clean and plentiful food, water, energy and mobility the future demands.**

Guido Jouret – Chief Digital Officer

The ABB Ability™ Digital Powertrain solution also leverages digitalization to improve factory operations. This solution consolidates sensor and drive data with cloud-based analysis of all components in an industrial system within a single unit – covering everything from frequency converters and motors to pumps and bearings. The deep data insights it can provide enables customers to make better decisions to ensure safe, reliable and efficient operations.

Robotics and other factory automation solutions increase efficiency and reduce waste and energy consumption. This is particularly true in the fast-evolving field of collaborative robots, or cobots. ABB has been introducing new robotics breakthroughs that enable human-machine collaboration, allowing robots to share working spaces with people to achieve optimal efficiency.

The new robotics manufacturing and research facility we are building in Kangqiao, near Shanghai, China will be a perfect example of what the digital factories of the future will be like. Production in this complete digital manufacturing ecosystem will be based on cells of automation rather than on a fixed assembly line, which will allow robots to move from station to station for greater customization and flexibility than in traditional, linear production systems. Automated guided vehicles (AGVs) will deliver parts to the production robots just in time, while the latest collaborative technologies will ensure that humans and robots can work safely side by side, bringing greater flexibility and agility to production processes and combining the advantages of robots with the unique capabilities of people.

ABB's solutions for industry, just like its solutions for cities and infrastructure, leverage the latest digital technologies to deliver unprecedented levels of resource efficiency. Our world is a fragile one, with limited resources. These resources must be used sustainably and in a manner that minimizes the impact of their use on the environment itself. Intelligent technologies offer the key to protecting the earth while enabling continued economic growth. ABB is committed to developing the products, solutions and services required to make a brighter future possible for future generations.