Industrial productivity

As so many of the products and services sold by ABB relate directly to issues of sustainability, it is not possible to provide an exhaustive account of them all. Yet, it is worth highlighting the substantial gains in efficiency and productivity generated over the past year by ABB Ability, our Group's comprehensive digital offering, which consolidates and analyzes data from across the industrial internet and provides customers with automated, data-driven information and insights about processes and machinery to increase the uptime, speed and yield attainable from their assets.

ABB Ability connects one of the world's largest installed bases of industrial devices – more than 70 million of them – to industry-leading digital solutions in sectors as diverse as marine, mining, paper milling, printing and food and beverage processing.

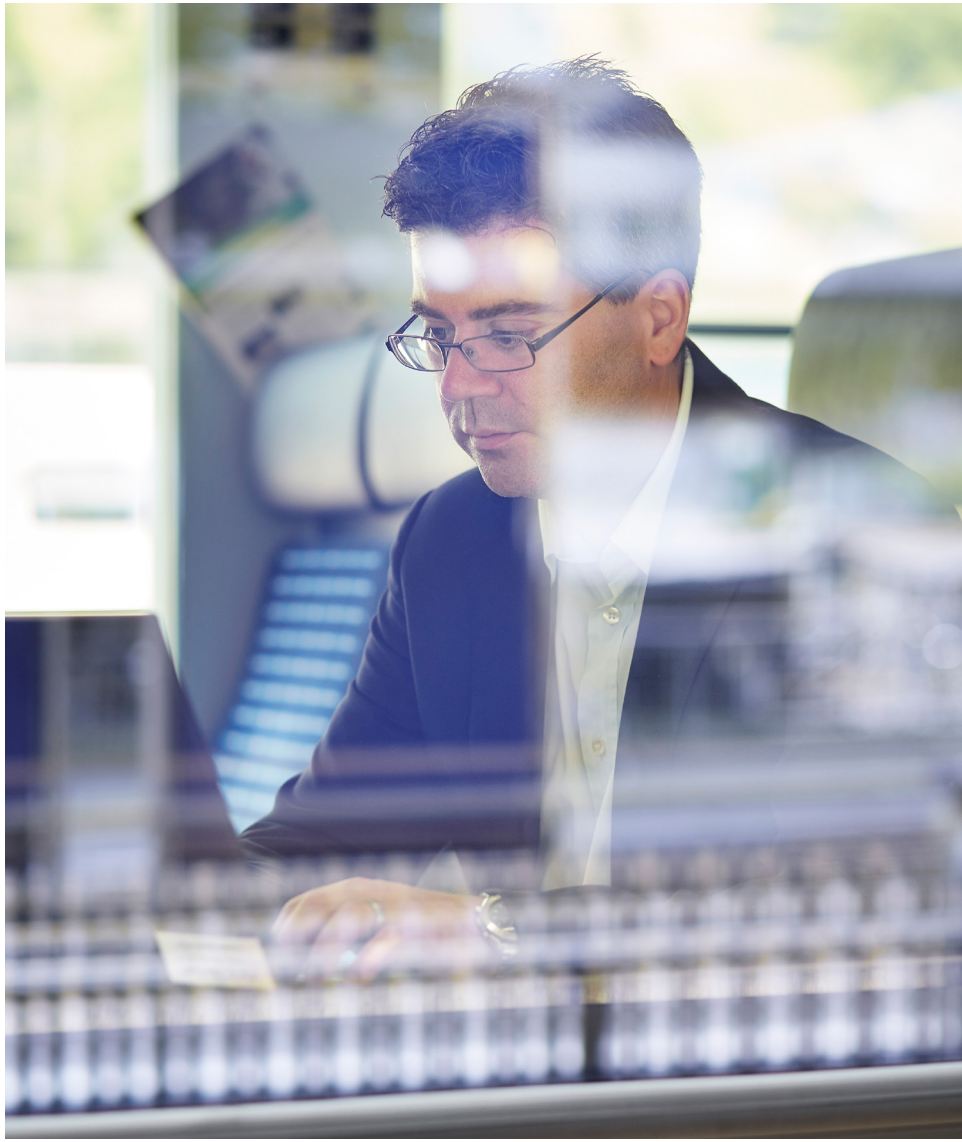
The ABB Ability Smart Sensor, when used to connect low-voltage electric motors to the industrial internet, allows them to be monitored continuously. The installation of these sensors can result in a 10 percent reduction in energy consumption. If all the low-voltage motors around the world were equipped with them, the resulting energy savings would equal the energy output of about 100 large power plants.

Sustainable transport

ABB is a pioneer in the field of e-mobility, having played a key role in the development of electrified railways and urban transit systems. In 2018, ABB initiated a partnership with Formula E, the first fully electric international FIA motorsport class, bringing its name and technology leadership to the racing series, now known as the "ABB FIA Formula E Championship." ABB entered this partnership with Formula E both to promote the rapid adoption of electric vehicles and to emphasize our own role as the world's largest provider of fast-charging equipment for electric cars and buses.

In the fight against climate change, transport technologies present a tremendous opportunity. Fossil-fuel-powered vehicles account for roughly a quarter of the world's energy consumption and greenhouse gas emissions. Switching to cleaner forms of transport will also significantly reduce emissions of carbon monoxide, sulfur dioxide and particulates. Sustainable transport represents a vital aspect of Sustainable Development Goal 9 – building resilient infrastructure – and Sustainable Development Goal 11 – making cities and settlements inclusive, safe and resilient.

Sustainable transportation solutions make up an important part of ABB's extensive portfolio of clean, energy-efficient technologies. We have worked particularly hard in recent years to expand our position as one of the world's leading providers of EV fast-charging stations, with more than 6,000 chargers installed in 57 countries. As just one example, ABB's charging systems are now being deployed in a growing network of stations along Germany's motorways. The company's car chargers can be found in



Case study
A reliable power supply for Warsaw's second metro line
Click here to reveal

Case study
Sustainable high-voltage circuit breakers
Click here to reveal

networks in Russia, the Netherlands, the United States, Canada, Iceland, Bulgaria and beyond. In some cases, these units can replenish an EV's batteries in as little as 10 minutes.

New, electric, high-capacity buses that use ABB's robotic flash-charging technology and onboard traction equipment have gone into service in Switzerland in the past year and are scheduled to debut in Nantes, France, in 2018. The flash-charging units are built into bus shelters and boost the vehicle's batteries in the 20 seconds or so spent at the stop. That boost makes it possible to reduce the size and weight of the bus's battery pack significantly.

ABB also provides many of the electric power supply technologies relied upon around the world for urban rapid transit systems and high-speed railway lines. One recent breakthrough in this field is the Effilight traction transformer – onboard equipment that delivers power to an electric train's motors. With a patented cell design that can reduce the amount of insulating oil required by up to 70 percent, ABB's Effilight technology also reduces the weight of a transformer by up to 20 percent and provides more energy-efficient operation – meeting two of the rail industry's top priorities.

Fuel efficiency is a major concern for maritime shipping as well, and ABB is heavily engaged in this field. Used in cruise ships and oceangoing freighters, ABB's Azipod propulsion systems consist of steerable, high-efficiency electric-drive propellers contained in pods located outside the hull. The Azipod makes ships significantly more maneuverable and can reduce their use of fossil fuels by 40 percent or more.

more than 6,000
chargers installed
in 57 countries

ABB technology, using sophisticated sensors and edge computing, also makes ships easier to monitor and maintain; the number of ship visits by ABB service engineers can be reduced in this way by as much as 70 percent. ABB Ability offers the shipping industry a wide range of decision support functions. With six dedicated ABB Ability Collaborative Operations Centers serving the marine sector around the world, shipping companies now rely on remote monitoring and diagnostics services with access to ABB experts 24/7. Today, more than 700 large vessels are connected to these services.

ABB technologies are making possible a multitude of other novel, clean transportation solutions – like solar-powered charging stations for electric rickshaws in Jabalpur, India. Seemingly small advances like these are helping cities around the world curb major sources of noise and pollution.