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Our business

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This is ABB
Driving today's technological revolutions

ABB's customer markets are undergoing a paradigm shift as internet-based technologies take hold in the industrial sector, revolutionizing the production and supply of energy and of goods and services.

Our markets
As a pioneering technology leader serving utilities, industry, and transport and infrastructure, ABB is at the heart of the Energy and Fourth Industrial Revolutions. With its leading market position in power transmission, industrial control systems, robotics, marine and electric vehicle (EV) charging, ABB helps its customers take advantage of the efficiency and performance improvements that digitalization delivers.

Utilities
The rise of renewable energy is dramatically increasing the complexity of the electricity grid, as the number of feed-in points from solar and wind sources multiply and transmission distances lengthen. At the same time, demand for electricity is rising exponentially, driven by massive increases in the volume of data and the accelerating take-up of electric vehicles.

For utilities, these developments pose huge challenges: on sunny and windy days, energy production typically surges, and may threaten to overwhelm the grid, only to drop precipitously when the sun goes down and the wind stops blowing. Balancing such intermittency requires a complex combination of technologies, from long-distance power transmission – to transport electricity to where it is needed most at any given time – to stabilizing microgrids that integrate multiple generation sources, to energy storage solutions.

For ABB, which pioneered high-voltage direct current (HVDC) transmission, and is a leader in grid stabilizing technologies, the Energy Revolution offers tremendous opportunities. Over the next 25 years, some $7 trillion is expected to be invested in renewables globally, and by 2025 the market for microgrids should be worth $5 billion.

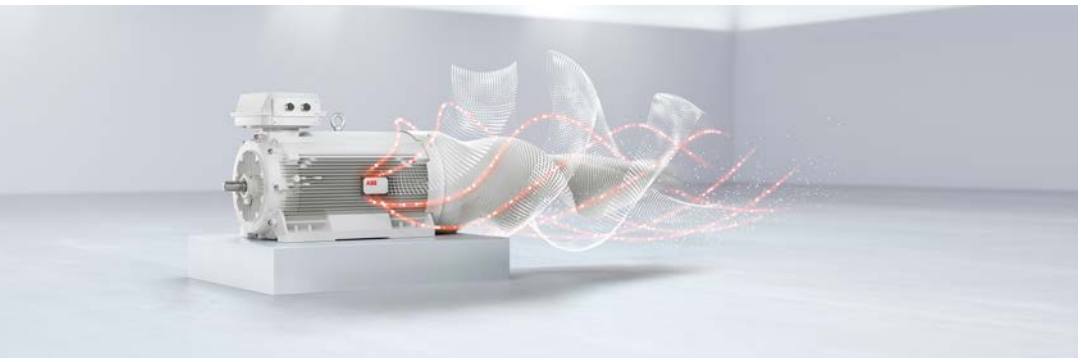
Industry
In industry, the impact of digitalization is accelerating as more and more devices and systems are equipped with sensors and connected to the cloud. With the massive increase in processing power, it is now possible to remotely monitor the health of equipment, machines and robots, and through state-of-the-art performance modelling, to diagnose potential problems and to intervene before an interruption of service. By providing actionable information to operators, ABB's smart sensor solution (see page 25) for electric motors can deliver downtime reductions of up to 70 percent, extend the lifetime of the motors by up to 30 percent, and reduce energy consumption by 10 percent.

As a world leader in industrial robotics, with a global installed base of more than 70 million connected devices and more than 70,000 installed control systems, ABB is ideally positioned at the forefront of the Fourth Industrial Revolution. By 2020, the number of industrial robots is expected to more than double to 2.6 million compared with 1.2 million today, and there will be 26 billion connected devices worldwide.

Transport and infrastructure
The technologies enabling the Energy and Fourth Industrial Revolutions are set to transform the urban environment as governments, city planners and developers seek solutions to the challenges of urban development. With two thirds of the world's population expected to be living in cities by 2050, the urban environment will increasingly be characterized by electric mobility, and low-energy smart homes.

For ABB, a world leader in fast-charging systems for electric vehicles, energy management solutions and smart home automation, the opportunities are tremendous. By 2020, the energy management and smart home markets are expected to double and triple in value to $44 billion and $36 billion respectively, while by 2030 50 percent of cars sold are expected to be EVs.

Delivering sustainable value
To enable us to deliver value for our customers and to provide sustainable, profitable growth for our shareholders, ABB interacts with a wide range of business partners along our value chain. We aim to build long-lasting partnerships to create shared value - with suppliers, customers, business partners, employees and the communities in which we operate.



When we source the raw materials, components and services for our operations, our strategy is to partner with best-in-class suppliers who adhere to similar standards of quality, operational excellence, business ethics, and social and environmental responsibility. ABB's Supplier Sustainability Development Program further supports performance improvement for selected suppliers, creating value for the suppliers, their employees and their local community.

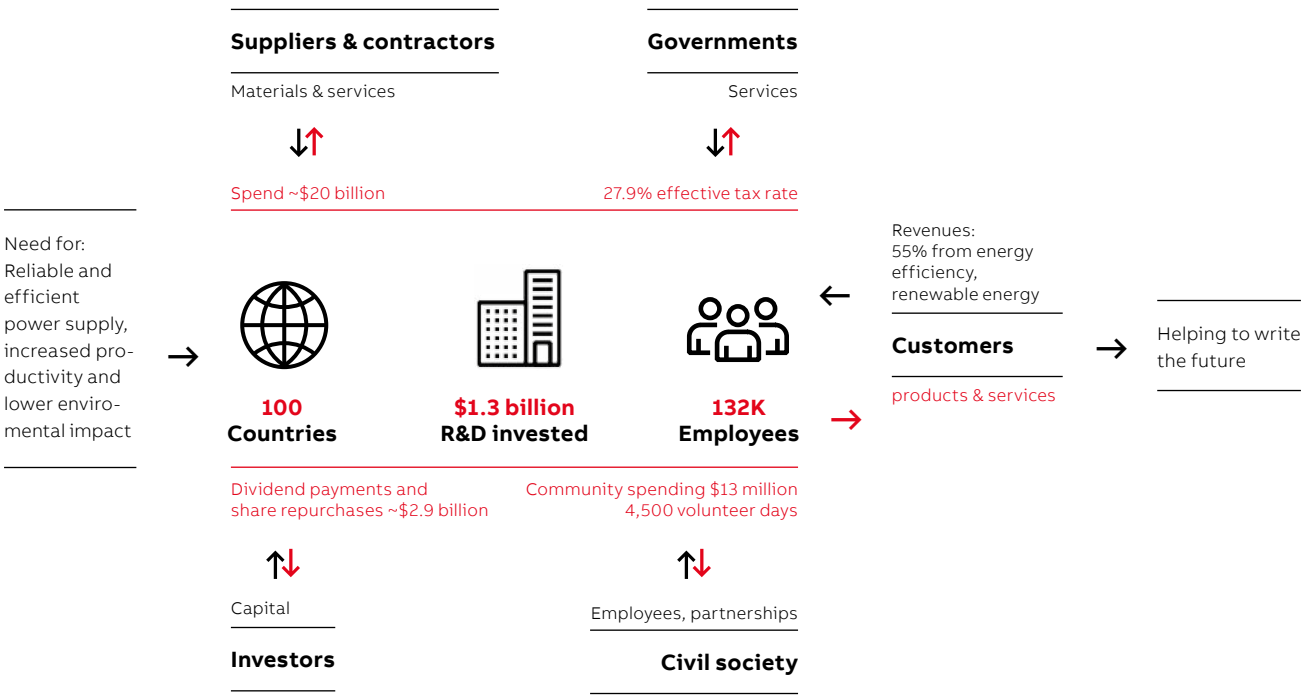
When we design and manufacture products, our processes are designed to ensure appropriate consideration of legal, strategic, customer, environmental, and health and safety requirements. Dialogue with customers, suppliers and government regulators, as well as experts from the university sector and other relevant organizations helps us to respond to our changing environment and to retain our innovative edge and to create value for our customers and society.

Governments provide the regulatory frameworks for our business, including the determination of corporate income and other taxes. These taxes are a significant source of funding for public services by government institutions worldwide. The planning of ABB's tax position reflects our corporate strategy and is consistent with applicable tax laws and international best practice guidelines such as the OECD Guidelines for Multinational Enterprises. Further information about our tax policy is available on our website.

Central to our ability to maintain technology leadership and create value is our need to attract, develop and retain the right people in the right jobs. Our interaction with different parts of society helps us to attract the best employees and secure our standing in the communities where we operate.

It is these relationships that help us to drive the future of industrial digitalization and create sustainable, mutual value.

ABB value chain



PRODUCTS AND SERVICES

Quantum leap in digital

We are on the cusp of two revolutions: a fourth industrial revolution and an energy revolution. The first is driven by an explosion of data, computing power and ubiquitous connectivity between machines and people. The second is driven by environmental and energy independence concerns.

ABB is well positioned to play a leading role in the new era. As early as the 1970s, we were already building software and connectivity into our devices and systems to improve efficiency. In fact, ABB introduced the world`s first electric robot, controlled by a microprocessor, in 1972. Over several decades we have built up a wide portfolio of products and services to cope with the growing complexity of energy systems and, with the world's largest installed base of connected industrial devices, we have the ability to fully leverage digital technology, making the power of our collected knowledge count in the physical world.

>70,000,000
digitally enabled devices connected

Industry-leading digital solutions
ABB has dedicated itself to helping customers improve three important metrics: uptime, speed and yield. One of the most significant tools in realizing this is digitalization. Whereas past breakthroughs in productivity were typically achieved on the level of devices and individual technologies, the new revolution will center on collaboration between devices and systems and across value chains. Real-time information is shared and processed digitally.

In 2016, ABB launched our industry-leading digital solutions offering, ABB Ability™, which brings together all of our digital products and services to create real business value for our customers. ABB Ability helps customers in utilities, industry, transport and infrastructure develop new processes and advance existing ones by providing insights and optimizing planning and controls for real-time operations.

The digital offerings we have developed in ABB Ability include performance management solutions for asset-intensive industries; control systems for process industries; remote monitoring service for robots, motors, and machinery; and control solutions for buildings, electric-vehicle charging networks and offshore platforms. Some of the more specialized offerings address energy management for data centers and navigation optimization for maritime shipping fleets, among many others.

For example, the ABB Ability Asset Health Center 3.0 uses predictive and prescriptive analytics and customized models to identify and prioritize emerging maintenance needs based on failure probability and asset criticality. The ABB Ability smart sensor connects low-voltage electric motors to the industrial internet, allowing them to be monitored continuously. Early indications are that the smart sensor leads to reductions in downtime of up to 70 percent and in energy consumption by as much as 10 percent.

The ABB Ability digital substation incorporates fiber optic current sensors and disconnecting circuit breakers to reduce maintenance requirements and the need for extensive conventional cabling. The combination of electrical hardware with digital sensors and cloud computing enables grid operators to make decisions based on comprehensive, up-to-date information, while predictive algorithms can improve maintenance practices and asset management.

In the transport sphere, ABB Ability marine performance optimization is one of the former standalone systems that is now being integrated into the ABB Ability platform. Logistics companies will now be able to use one integrated control and monitoring system to keep track of ships, cargo flights, trucking operations, warehouse operations and other assets, all in one place, allowing them to identify logistical bottlenecks and take preventive action to avoid conflicts or maintenance issues, saving resources, time and money.

Pushing the boundaries of technology and innovation
To achieve these outcomes, ABB invests significantly in research and development (R&D), focusing on developing and commercializing the technologies that are of strategic importance to our future growth. In 2016, we invested $1,300 million, or 3.8 percent of revenues, in R&D activities, along with $155 million on order-related

development activities. To support this R&D effort, we maintain corporate research centers in seven countries (China, India, Germany, Poland, Sweden, Switzerland and the U.S.) and employ 7,900 technologists in more than 30 countries.

ABB's R&D technologists are also key to ensuring our health, safety and environmental (HSE) ambitions are designed into our products and solutions. The ABB Gate Model process defines our Group-wide approach to product and technology development and HSE aspects are built-in via a standardized Life Cycle Assessment procedure. A handbook and "HSE checklist" provide further guidance on HSE aspects during design, supported by specific training packages. In 2016, we initiated a review and expansion of the HSE checklist to account for recent changes in applicable ISO standards and to better cover safety aspects of manufacturing and service during design. Training activities related to HSE in design were therefore postponed until the checklist update is completed.

Collaboration: Sharing expertise, harnessing creativity
Even though we maintain significant R&D capabilities within ABB, the change to a digital economy is so comprehensive, touching almost all areas of business, that no single company can hope to master all aspects alone. The complexity of today's industrial ecosystem means that collaboration with other, best-in-class companies is essential. That is why we place great store on sharing our expertise with leading industry players. We recently announced a far-reaching partnership with Microsoft to develop next-generation digital solutions on an integrated cloud platform, and we continue to work closely with household names, from Hitachi to Ericsson and Volvo Buses.

ABB invests heavily in university collaborations to develop long-term disruptive technologies as well as mid- to short-term evolutionary innovations for our existing products and services. We maintain partnerships with more than 100 universities worldwide, helping us to shorten the time to turn basic ideas into viable products, as well as to attract new talent.

To make sure that we are harnessing the creativity of the next generation of researchers, we established incubators, such as the Synerleap growth hub at our R&D center in Västerås, Sweden, which fosters contacts between ABB researchers and tech start-ups working on innovative technology in the fields of industrial automation, robotics and energy. Additionally, our strategic venture capital arm, ABB Technology Ventures, invests in high potential industrial technology and energy companies aligned with ABB's mission of improving the efficiency, productivity and quality of our customers' operations while minimizing environmental impact.

We further encourage young engineering talent through a variety of awards and "innovation challenges". In 2016, ABB announced the winner of the first ABB Research Award in Honor of Hubertus von Grünberg. The prize, named after ABB's former chairman, will be awarded every three years to a pioneering post-doctoral research project. ABB in China and Malaysia also run local competitions to encourage engineering innovation, while ABB in the U.K. partnered with the IdeaHub innovation platform to seek innovations focused on variable speed drives.

Contributing to a more sustainable world
As part of our sustainability objectives, ABB committed to increase revenue from our portfolio of energy efficiency-related products, systems and services by 20 percent by 2020, from a 2013 baseline. The criteria defining the ABB energy efficiency portfolio were developed in 2011, based on the technology standards and ABB's business scope of the time.

55% of revenues
related to eco-efficiency portfolio in 2016

Given the subsequent technology improvements, significant organic and inorganic changes in ABB's business portfolio and the launch of our Next Level strategy in 2014, we reviewed the nature of the portfolio during 2015 to account for these changes. After extensive consultation, we developed an expanded "eco-efficiency" portfolio that now includes energy efficiency, renewable energy and resource efficiency criteria. We also strengthened the methodology defining the portfolio to provide greater transparency and consistency.

→ Read more at
abb.com/sustainability

According to the updated criteria, 55 percent of ABB revenues were related to the eco-efficiency portfolio in 2016, with 54 percent in 2015 and 53 percent in 2014.

Considering the evolution of ABB's business to address the energy and digitalization revolutions, including the launch of ABB Ability in late 2016, as well as feedback from our stakeholders requesting a greater focus on assessment of impacts rather than on the revenue generated by the eco-efficiency portfolio, we have decided to review our stated sustainability performance indicator and target for products and services. During 2017, we will consider alternative proposals and plan to publish an updated indicator and target in our next report.

With our eco-efficiency portfolio, including industry-leading digital solutions, ABB continues to push the boundaries of technology and innovation to decouple economic growth from environmental impact and support the growth of a sustainable and resilient global economy.

Achievements and innovations in 2016

Take a look around. Wherever you see modern technology, reliable power supplies, efficient road transport, and remarkable rail solutions, you're likely to be looking at ABB technology. Not that it is always visible. Most of it is at work inside buildings and vehicles, where it drives progress. The future we envisage is already reality in many projects and places. It makes our cities more livable and our transport more attractive, and it strikes a better balance between what people want and the needs of a sustainably developed environment.

THE GOTTHARD BASE TUNNEL is the world's longest railway tunnel at 57 km. The latest energy-efficient technologies from ABB provide it with ventilation and power supply for its infrastructure and for over 10,000 orientation lights. Our company helps in many other ways to ensure that Switzerland, a country famous for its railways, keeps setting international standards. That includes locomotives as well as infrastructure, and encompasses maintenance, upgrades and retrofitting. The EC250 high-speed train, which is due to launch in 2019, will be yet another railway pioneer, and will incorporate ABB converters.

FIFTEEN SECONDS is all the TOSA fully electric bus needs to replenish its batteries. It can recharge using pivoting contacts on its roof during a regular stop. It drives without emissions and without noise. The TOSA can carry 133 passengers; it connected Geneva Airport to the Palexpo exhibition center from May 2013 to the end of 2014 – to the delight of passengers and operators. Geneva's Line 23 is now being equipped with TOSA buses.

LIKE A JULES VERNE STORY
That was how Bertrand Piccard's idea sounded: to fly around the world in a solar-powered plane without a drop of fuel. He spent 12 years together with a 60-man team of partners to prepare for the 17-stage flight. To circle the globe he alternated with André Borschberg as the pilot of Solar Impulse 2, landing 505 days later in Abu Dhabi where he had set out on the record flight. Four twin-bladed tractor propellers were driven by solar power, which was collected during the day by 11,628 photovoltaic cells affixed mainly to the 63.4-meter-long wings. The current was converted by an ABB microgrid, which also controlled its highly efficient distribution and storage in rechargeable batteries, from which the high-wing plane was powered at night. This high-flying dream provides very real evidence of what renewable energies can achieve when used intelligently – by courageous people, it should be added.

ABB AND THE SMART SENSOR FOR LOW-VOLTAGE ELECTRIC MOTORS
German Chancellor Angela Merkel and US President Barack Obama were the first to experience a groundbreaking new sensor from ABB during their visit to the Hanover Fair. As guests of honor at the world's largest industrial trade show, they were shown how ABB's latest innovation allows electric motors for the first time to report their condition through a wireless internet connection.

INTERVIEW WITH GUIDO JOURET

Preparing for a digital world

Guido Jouret, ABB's Chief Digital Officer since October 2016, explains how ABB can help customers realize the efficiency and performance improvements that digitalization delivers today.

It's clear that digital is the way the world is going and ABB is growing as a digital company. But what does that mean for our sustainability objectives? A lot, if we view digital broadly.

Today 55 percent of ABB products already have some digital component, yet digital is about more than just software or connectivity. Only when we look at the big picture can we start to see the possibilities.

Efficiency on the up

The most obvious benefit of digital technology is increased efficiency, which of course helps ABB, our customers and the environment. When we do things digitally, we avoid waste and re-doing work. Digital sensors and the data collected can allow us, for example, to right-size our motors and drives so that customers only get as much product as they really need. An oversized solution is not only an excess cost for them, but also leads to excess energy consumption. By learning more about how customers actually use our products, we can provide more efficient solutions.

If a customer realizes we understand their business and are coming to them with products and services that are good for both their operations and the environment, I think they will be more confident in ABB.

Digital technologies also allow us to study the ABB solutions at work, such as a customer's robot assembly line, and optimize it for energy efficiency, durability, throughput or whatever the customer wants. If the customer has a good inventory of their digital assets, we can figure out how much life is left in them, when the next services should be performed to prevent unplanned downtime and essentially how to extend their lifetime. We would have a way of knowing if a transformer or a motor, expected to last several decades, is still going strong and might be good for another couple more.

Another example is of course the digital platform we're in the process of creating, which is all about efficiency and scale. This set of reusable components, like Lego bricks, allows us to build a new application or solution tomorrow without reinventing every element of the wheel.

Thinking bigger

Digital technology can spark all kinds of innovation. Because ABB knows how to build very big solutions at scale, we can distill that know-how into smaller systems and bring the benefits to more people. In effect, digitalization can make things local again – and local is good from an overall system and efficiency point of view.

We're doing this already with microgrids. You don't have to wait for the public utility to show up because now you can connect locally and power your village. As we have seen, making everything smaller and more accessible again is very good for industrializing nations.

And what if we could do the same not just for power, but for other industries we are not even in today?

I would say that we should create more awareness of existing digital solutions, stimulate demand for new ones and try to overcome the occasional resistance to the idea of connectivity. The more our products are connected, the more value they create for customers. I actually think we have an opportunity at ABB to spell out why connected devices are a benefit to customers and, critically, what we will do with their data. We need to reassure them by distinguishing between customer identity data – which must be protected – and raw measurement data, which can help their operations run more efficiently and be benchmarked against others.

Our digital journey will help us better understand the frustrations and aspirations of our customers and create new kinds of business models, too.

Reasons for optimism

Ultimately, we know that going digital will bring about a societal transformation. Many jobs will become at least partly cybernetic (computer assisted) because certain tasks, especially those involving diagnosis and valuation, are simply done best by technology. And these innovations will no longer take generations to roll out, but years.

GUIDO JOURET
CHIEF DIGITAL OFFICER

Understandably, there are concerns about whether artificial intelligence (AI) will displace people and automate certain decisions. But it's important to remember that while software may be getting smarter, it will never be smart in the same way that people are. Digital AI software systems are extremely proficient at solving a specific problem, but not at understanding the real reason why.

If a customer realizes we understand their business and are coming to them with products and services that are good for both their operations and the environment, I think they will be more confident in ABB.

This won't go away and the need for contextual evaluation will create new opportunities for education and learning. We'll want people to know more about AI technologies and robots, and how to solve problems, make decisions and collaborate. This is a good thing and nothing less than an innovation opportunity.

Today, ABB has an even bigger opportunity to address sustainability issues in a more efficient way. Digital technology allows us to be a bit bolder, understand where our fundamental capabilities lie, look for new opportunities and hunt them in the right space. We might have to do things a bit differently than before, but I'm a big believer that we can and should be leading the charge when it comes to looking at the primary needs of society – and figuring out how to make the whole system more efficient.

GOVERNANCE AND INTEGRITY

Living our values

At ABB, how we execute our Next Level strategy is just as important as delivering on our targets. Our five value pairs form the backbone of all operations and our daily life in ABB, driving sustainable value creation for all our stakeholders.

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ABB's value pairs were introduced in 2014 along with Next Level strategy and during 2016 we worked at all levels of our Group to enrich understanding of their significance. For example, the Group Leadership Forum (GLF) meeting in March 2016 was structured around the value pairs, giving ABB's top leaders a clear appreciation of how our new value pairs support the execution of our strategy and can improve performance at every level of the business.

ABB then launched a series of interactive workshops to ensure that all employees have the opportunity to explore what the value pairs mean for them and their teams. The workshops focus on bringing the values to life, leading to a common understanding of how our values help us to drive growth and performance across ABB. To reinforce the importance of living our values, ABB's short-term incentive plan now includes requirements for behavior targets related to the value pairs.

→ Read more at
abb.com/sustainability

Integrity
The value pair "Safety & Integrity" is the bedrock of our organization. We do not accept business if it means putting people at risk or engaging in unethical practices.

ABB's high standards of integrity are expected of every employee in every country where we do business. Our expectations are described in the ABB Code of Conduct and Supplier Code of Conduct, which are underpinned by a robust set of internal standards and policies. These policies include the prohibition of facilitation payments, zero-tolerance of any involvement in bribery or corruption, and robust policies on gifts, entertainment, and expenses and third party representatives.

The Codes of Conduct and underlying policies also define our wider social responsibilities as a corporate citizen. These responsibilities include compliance with applicable laws and regulations. This includes providing transparent and comprehensive information to tax administrations to facilitate their understanding of the tax-related decisions taken by ABB. Further information about our tax policy, as well as our integrity standards and policies are available on our website.

Prevention
ABB's integrity program is based on three pillars: prevention, detection and resolution. Our primary focus for all employees is on training and communication, which are key to ensure that ABB's values are understood and to prevent non-compliant behavior.

Within three months of joining, every new ABB employee must complete online e-learning and face-to-face training on the ABB Code of Conduct. Thereafter, all employees must complete an integrity training cycle every two years. In addition, employees in sensitive roles receive specialized trainings for specific integrity risk subjects. All third party representatives acting on behalf of ABB must also participate in mandatory integrity training.

In 2016, more than 93,000 of the ABB employees holding email accounts (96 percent) completed the new e-learning Global Anti-Bribery Essentials: Don't look the other way, while more than 39,000 employees (98 percent of target group) completed face-to-face integrity training.

We also rolled out a new cloud-based tool for pre-approval of gifts, entertainment and expenses, helping us to provide globally consistent review and transparent advice for our employees.

97%
employees trained on anti-bribery principles

During the year, ABB re-aligned our integrity strategies with the new structure of our businesses and our value pairs, resulting in a new integrity priority plan. We are

now investigating new technical opportunities for monitoring and reporting on these activities.

Detection
Multiple channels are available to all employees to report integrity concerns, including web-based reporting and a business ethics hotline run by a third party, available 24 hours a day, seven days a week, in over 180 languages. Reports are treated confidentially and reporters can choose to remain anonymous, with whisteblowers promised protection from retaliation. A stakeholder hotline for external business partners is also available, with details shown on our website. All hotline reports are subject to initial review and are brought to full closure using systematic investigation processes and tracking systems.

Anti-bribery reviews of business units and countries are also conducted throughout the year by ABB's internal audit department. The anti-fraud program is monitored by internal audit, which regularly evaluates fraud risk exposure and developing trends.

Multiple reporting channels

Resolution
ABB enforces a strict zero tolerance policy for violations of the law or the ABB Code of Conduct. All allegations and reported issues are appropriately investigated, exposures mitigated and disciplinary actions taken as applicable and appropriate, including termination of employment.

The Office of Special Investigations, part of ABB's Legal and Integrity team, investigates reported integrity concerns. Where disciplinary action is required, the process is governed by ABB's Human Resources Disciplinary Protocol and administered by Human Resources Disciplinary Committees at headquarters and in the regions. Following a systematic review, we implemented improved processes for incident investigation and resolution during 2016, to ensure consistent practices across ABB's global organization.

In 2016, there were no substantiated corruption cases and the company did not face any significant fines or sanctions for non-compliance with laws and regulations. For further information, please refer to the Commitments and contingencies note in the Notes to the Consolidated Financial Statements contained in the ABB Group Annual Report.

In early 2017, ABB uncovered a sophisticated criminal scheme related to a significant embezzlement and misappropriation of funds in its South Korean subsidiary. The company immediately launched a thorough investigation, involving internal and external parties. We have reinforced financial processes and new disciplinary measures and rules are already in effect.

Engagement and external recognition
ABB supports international efforts to embed integrity into the industries where we are active; ABB is a founding member of the UN Global Compact and Ethics and Compliance Switzerland and is a signatory to the Partnering Against Corruption Initiative. This engagement allows us to benchmark our internal practices against global best practice through peer exchange and learning and to participate in collective action initiatives against corruption.

ABB's integrity program is also recognized externally. In 2016, we maintained the Ethisphere Compliance Leader Verification and Anti-Corruption Program Verification seals and for the fourth consecutive year, we were recognized as one of the World's Most Ethical Companies. ABB in Brazil was recognized for the second year as a Pró-Ética (Pro-Ethics) company by Instituto Ethos and the Brazilian government, an initiative recognized by the OECD.

Risk management
In addition to the risk identification processes conducted by the Internal Audit and the Legal and Integrity departments, ABB maintains a global, integrated risk management process. This comprehensive top-down and bottom-up approach to Enterprise Risk Management directly involves all ABB Group functions, regions, divisions and the majority of ABB's country organizations and global business units.

We have also integrated Group-wide sustainability criteria into our risk assessment processes for projects, our supplier selection guidelines, the due diligence processes for potential acquisitions and into our product design and development model.

→ Read more at
abb.com/sustainability

SUSTAINABILITY GOVERNANCE

Streamlining and clarifying for better performance

Sustainability principles and considerations are embedded in ABB's business strategy and guide what we manufacture, how we operate the company and the way we behave towards our stakeholders.

These considerations help us to capitalize on market opportunities and to reduce safety, security, social and environmental risks, for the benefit of our customers, employees and all other stakeholders. ABB's sustainability vision is that, by 2020 and beyond, we will be recognized as a leading contributor to a more sustainable world through our unique business offering and sustainable business practices.

ABB's sustainability strategy is aligned with corporate strategy and is supported by objectives that address our activities and impacts along the value chain (see page 10). Progress towards our objectives is driven through all levels of ABB's business, from Executive Committee endorsement, to operational review and target setting in business units, to local training and execution at site, supported by sustainability specialists at Group, country and local level.

Sustainability policies, principles and external initiatives
We have implemented environmental, social, human rights, and health and safety policies and a Supplier Code of Conduct. These policies include references to the relevant international standards. For example, the human rights and social policies draw on the Universal Declaration of Human Rights, the ILO Core Conventions on Labor Standards, the UN Global Compact, the OECD Guidelines for Multinational Enterprises and the Social Accountability 8000 standard.

ABB has adopted ISO 14001 for environmental and OHSAS 18001 for health and safety management systems, and will transition to the newly-released ISO 45001 for health and safety. We have incorporated the principles of the International Labour Organization (ILO) guidelines on occupational health and safety management systems, and the ILO Code of Practice on Recording and Notification of Occupational Accidents and Diseases into our health and safety program.

All ABB facilities are encouraged to implement management systems for health and safety, environmental and quality issues, while manufacturing and service sites are required to implement such systems. Globally, we have achieved external certification for health and safety management systems at 408 of 583 reporting locations, covering 81 percent of employees, and for environmental management systems at 392 locations.

390+
locations certified to ISO 14001 and OHSAS 18001

ABB is a founder member of the United Nations Global Compact (UNGC) and has been closely involved in its development. Close collaboration with the UNGC, the Global Business Initiative on Human Rights and other such organizations helps ABB's understanding of human rights and benefits our day-to-day business. We have been working to implement the UN Guiding Principles on Business and Human Rights and use the recommendations to assess expectations of corporate behavior.

During 2016, ABB amended a number of key policies and processes to extend our existing efforts to ensure there is no child or forced labor within our operations nor our value chain. These include the ABB Supplier Code of Conduct, the ABB Policy Combating Trafficking in Persons, our Human Rights policy and statement, our Social policy, our supply chain and contractor questionnaires, as well as certain internal directives and guidelines. The revised policies make clear that there is no place in ABB business or within the operations of our contractors and suppliers for modern slavery and human trafficking.

Sustainability governance structures and processes
ABB's Sustainability Board, comprising the ABB Executive Committee, oversees sustainability policies and programs, reviews developments and monitors progress towards our targets.

The ABB Health, Safety, Environment and Sustainability Affairs (HSE/SA) organization is responsible for the

development and coordination of policies and programs covering health and safety, environment, corporate responsibility and security. HSE/SA reports directly to Executive Committee Member and Chief Human Resources Officer, Jean-Christophe Deslarzes.

A network of HSE, security and sustainability specialists worldwide reports to and supports the HSE/SA management team. In countries where ABB entities have or could have significant HSE, security and sustainability impacts, we have appointed HSE managers and security managers responsible for ABB's HSE and sustainability management program and for gathering the data consolidated in this report. All regions where ABB operates have region HSE managers and security managers. The country and regional specialists are supported by site level HSE advisors.

Transformation: Streamlining and standardizing
During 2016, we continued our work to ensure that we have the right HSE and sustainability resources and structures in place to support our businesses with the implementation of the corporate Next Level strategy. Following comprehensive workforce mapping and consultation, we developed an HSE and sustainability network operating model to reflect the required resource allocations and the changes in ABB Group structure.

Consistent with the Next Level strategy to ensure business line accountability, HSE managers have now been appointed for all business units and divisions. By the end of 2017, regional and country HSE and sustainability organizations will transition to virtual HSE/SA Centers of Expertise (CoE). The CoEs will optimize and standardize support services and provide expertise in strategic competence areas to support our businesses.

Country HSE/SA experts will maintain their country responsibilities and ensure fiduciary risks are managed through new Country HSE/SA Boards. The Country HSE/SA Boards will monitor performance, support management of risks and provide assurance that HSE/SA risks are managed in an effective way by local business.

As part of our ambition to transform the HSE/SA organization, work started in 2016 to create and establish a single management system for the function, setting out how we manage HSE/SA at ABB.

Due to launch in 2017, the "ABB Way" is a management system for HSE/SA that will provide a common structure for the management of all HSE/SA risks and create clear expectations of our minimum standards. Implementation of the ABB Way will not only improve governance processes, but will also reduce costs by consolidating more than 300 different management systems into one.

The ABB Way will be coupled with an HSE/SA assurance strategy, tools, processes and programs that will

ensure continual improvement and drive positive change throughout our operations. A Group-wide comprehensive audit and assurance program is in development, designed to engage and include line management and to streamline and drive efficiency. To drive the process, a Group HSE audit and assurance manager was appointed in 2016, Group standard audit protocols are being developed and piloted and the audit team is being recruited during 2017, with full program deployment planned for 2018.

To further support our businesses to track their HSE/sustainability performance throughout the year, we developed a "balanced dashboard" during 2016, for roll out in 2017. The dashboard contains selected indicators for health, safety, environment, security and corporate responsibility, consistent with ABB's Sustainability Objectives. The dashboard will be available quarterly and will be able to show progress at Group level, by division or business unit and by region.

This transformation of ABB's HSE and sustainability governance structures and the development of global, standardized support processes will help to drive the achievement of ABB's vision to be a leading contributor to a more sustainable world.

MATERIAL ISSUES

Refining our priorities

ABB's sustainability vision is that, by 2020 and beyond, we will be recognized as a leading contributor to a more sustainable world through our unique business offering and sustainable business practices.

We have undertaken considerable work in recent years to understand what internal and external stakeholders expect of ABB's sustainability performance and where they consider that we should focus our strategy and improvement goals.

We regularly review and evaluate these material issues to determine if they remain consistent and relevant, and if there are any new and emerging issues we need to address.

In 2010/2011, we conducted the widest-ever sustainability stakeholder survey undertaken by ABB to fundamentally reassess our material issues. We sought input from nearly 600 people, including senior ABB executives and employees from all parts of the business in different countries, as well as from our customers and external stakeholders specialized in key sustainability areas – the environment, climate change, human rights, health and safety, and security.

We also benchmarked key sustainability focus areas of peer companies and mapped regulatory risks and macro trends to help us establish a comprehensive sustainability issues landscape. We then scored the relevance to stakeholders of the key issues that had been identified and mapped ABB's material sustainability-related issues. The resulting materiality matrix shaped the development of our sustainability strategy during 2011.

We undertook further reviews with a smaller selection of stakeholders in 2013 and in 2014 to update our assessment of material aspects and to seek their views on how best to report on our sustainability strategy, performance and progress. These reviews were conducted by a third party who interviewed representatives across our key constituencies: ABB employees, customers, suppliers, investors, civil society, including NGOs, international organizations, sustainability experts and young people. The results from the interviews confirmed the main conclusions from our 2011 consultation and led to better definition of our material issues.

These stakeholder consultations have helped us to develop and further refine our Sustainability Objectives 2014–2020.

External stakeholder panel: Deeper conversations
In order to continue and enrich our stakeholder consultation process, we set up a sustainability report review panel in 2015 to replace the third-party stakeholder interviews. The panel's objective is to challenge the company's approach to sustainable development, review the most material issues and form an opinion on the company's sustainable development performance and reporting.

Panel members represent the key market and non-market stakeholders of the company and were selected for their level of knowledge and skills regarding sustainable development issues relevant to the company. We sought to achieve both geographical and gender balance, as far as was possible. Three of the eight original panel members also participated in stakeholder interviews in previous years.

Meetings with the panel are held virtually and chaired by an external facilitator. The majority of panel members join these calls and those unable to participate are interviewed separately at a later date.

During our meetings regarding the 2015 sustainability report, we received extensive feedback on ABB's Sustainability Objectives, input regarding material issues, as well as commentary on ABB's 2014 sustainability reporting and online sustainability presence.

This feedback regarding material issues and narrative helped us to determine the structure and content of the 2015 report and led to a slightly updated materiality matrix. Panel recommendations regarding longer term issues, such as adjustments to objectives, targets and KPIs helped to guide some of our work during 2016.

The panel's consensus statement was published in the 2015 report and ABB's response to the panel's recommendations, covering activities during 2016, appears online.

Six of our eight original panel members graciously agreed to continue their participation in the panel to review ABB's 2016 sustainability performance and sustainability report. We followed a similar process to 2015, using virtual meetings to provide updates about

ABB's business, sustainability governance, performance against targets and progress with our various initiatives.

Once again, the panel's feedback helped to shape our sustainability report and provided input for further development of our programs. The panel's statement appears later in this report, along with individual comments from the panel members.

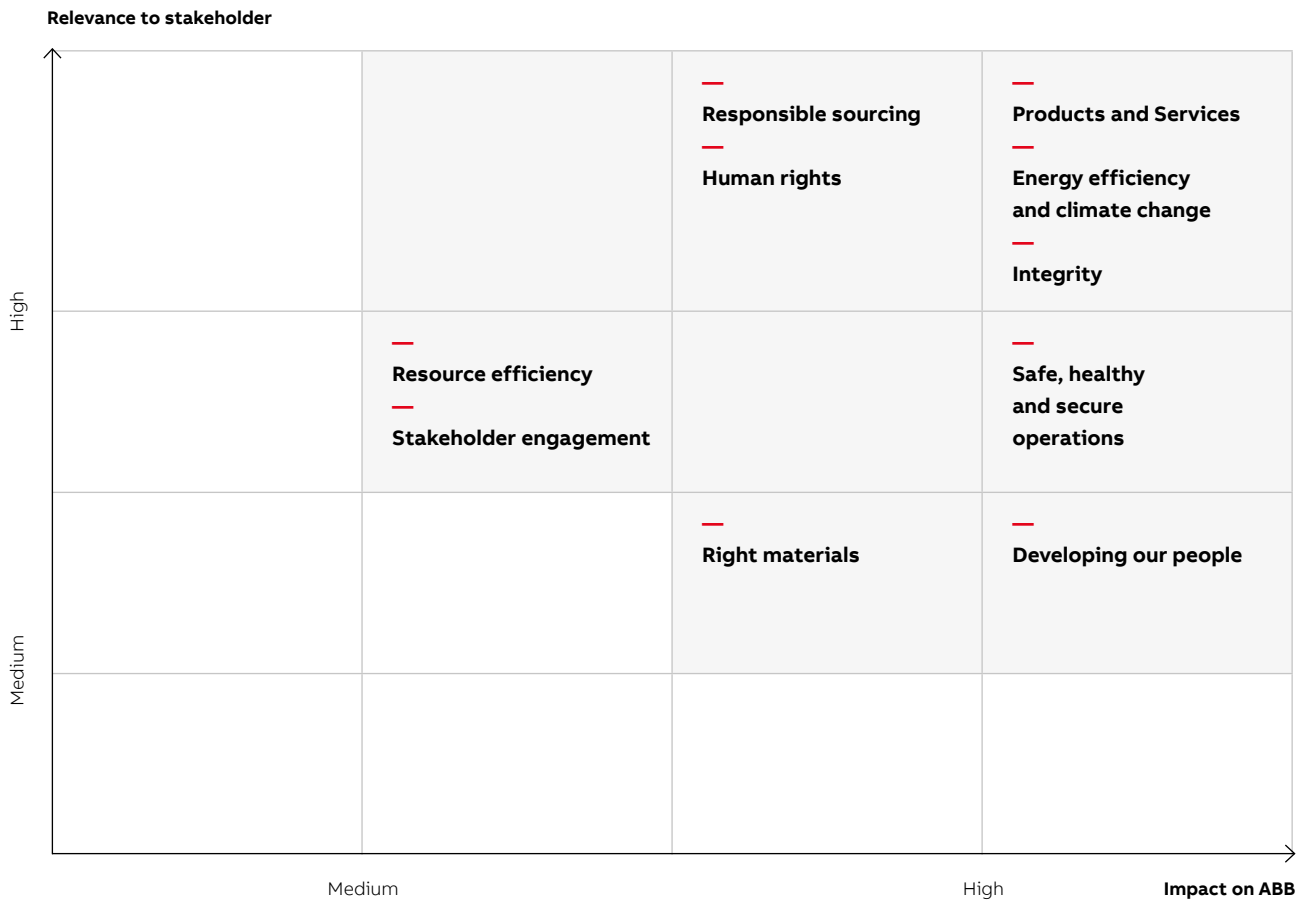
For 2016, we have not updated our materiality matrix, as we will soon embark on a comprehensive materiality review to provide a foundation for the development of ABB's post-2020 sustainability objectives.

Sustainable Development Goals
ABB welcomes the adoption of the UN Sustainable Development Goals (SDGs), believing they provide a framework for tackling a number of core economic, social and environmental challenges in the coming years. ABB's business focus on utilities, industry, infrastructure and transportation correspond to several of the improvement areas prioritized in the SDGs.

During 2015, we conducted a first analysis to understand where ABB can best support the realization of the SDGs. We reviewed current ABB material issues, programs and objectives versus SDG underlying objectives and targets, mapped ABB activities to the relevant SDGs and developed a first list of 'priority' SDGs, which were reviewed by our stakeholder panel.

"ABB's approach to the Sustainable Development Goals" was published in the 2015 Sustainability Report, focusing primarily on ABB's existing activities and contributions.

In 2016, we conducted further internal and external consultation to refine our approach. As a result, we determined that the most material SDGs for ABB are SDG 7 Access to energy for all, SDG 9 Sustainable industrialization, SDG 13 Climate change action and SDG 8 Decent work and economic growth. In this report, we have explicitly linked the ABB sustainability objectives with the relevant SDGs in our Performance against targets dashboard, to demonstrate ABB's contributions.

However, importantly, our stakeholder panel reminded us during our consultations that it is important to balance consideration of opportunities with the challenges posed by the SDGs. We will incorporate these considerations into our assessment of future work programs and activities from 2017 and beyond.

2016 materiality matrix