



MORGAN STANLEY SUMMIT, BEIJING, MAY 30, 2018

# **ABB China: Pioneering technology leader and digital champion**

Lars Eckerlein, Chief Financial Officer, ABB (China) Ltd.



---

# Important notice

This presentation includes forward-looking information and statements including statements concerning the outlook for our businesses. These statements are based on current expectations, estimates and projections about the factors that may affect our future performance, including global economic conditions, and the economic conditions of the regions and industries that are major markets for ABB Ltd. These expectations, estimates and projections are generally identifiable by statements containing words such as “expects,” “believes,” “estimates,” “targets,” “plans,” “outlook”, “on track”, “framing 2018” or similar expressions.

There are numerous risks and uncertainties, many of which are beyond our control, that could cause our actual results to differ materially from the forward-looking information and statements made in this presentation and which could affect our ability to achieve any or all of our stated targets. The important factors that could cause such differences include, among others:

- business risks associated with the volatile global economic environment and political conditions
- costs associated with compliance activities
- market acceptance of new products and services
- changes in governmental regulations and currency exchange rates, and
- such other factors as may be discussed from time to time in ABB Ltd’s filings with the U.S. Securities and Exchange Commission, including its Annual Reports on Form 20-F.

Although ABB Ltd believes that its expectations reflected in any such forward-looking statement are based upon reasonable assumptions, it can give no assurance that those expectations will be achieved.

This presentation contains non-GAAP measures of performance. Definitions of these measures and reconciliations between these measures and their US GAAP counterparts can be found in the ‘Supplemental reconciliations and definitions’ section of “Financial Information” under “Quarterly results and annual reports” on our website at [www.abb.com/investorrelations](http://www.abb.com/investorrelations)

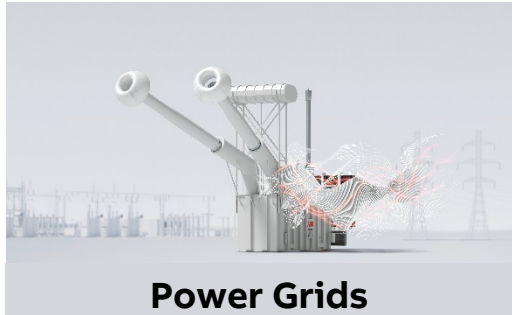
# Streamlined and strengthened digital-first portfolio

Two clear value propositions

Bringing electricity from  
any power plant to any plug

Automating industries from natural  
resources to finished products

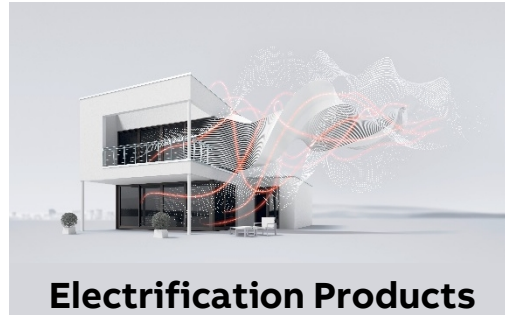
Partner of choice for...



Power Grids

... a stronger, smarter  
and greener grid

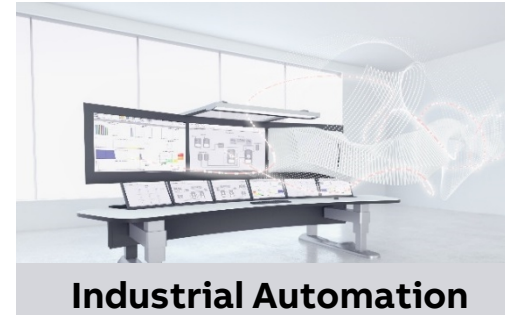
#1



Electrification Products

... electrification of all  
consumption points

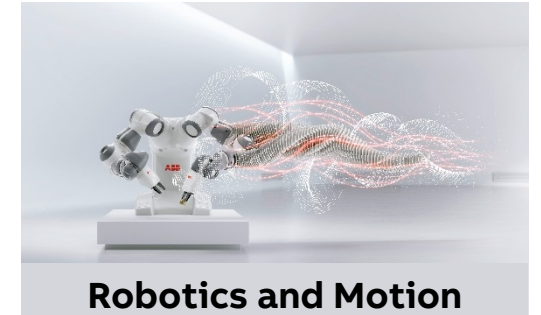
#2



Industrial Automation

... perfection in  
automation

#2



Robotics and Motion

... robotics and intelligent  
motion solutions

#1 motion  
#2 robotics

---

# Attractive markets: Energy and Fourth Industrial Revolutions

## The Energy Revolution



## The Fourth Industrial Revolution



**Utilities**

**Transport & Infrastructure**

**Industry**

# China market

New drivers in new era bring new opportunities

## Energy structure evolution

Smart grid

UHVDC/AC

Microgrids / integration of renewables

Energy storage



## Industry upgrade and productivity improvement

China manufacturing 2025

Industrial robots

Energy efficiency

Environment protection



## Regional development and urbanization

Smart home and green building

E-mobility

Data center electrification



## Belt and Road initiative

Infrastructure connectivity  
(grid, roads, railways, airports,  
ports, logistic centers)

Mining and metal

Oil & Gas



Digital is a key enabler of China's future economic growth

# ABB: over 111 years in China

## Localized value chain drives steady business growth

### Truly a local company

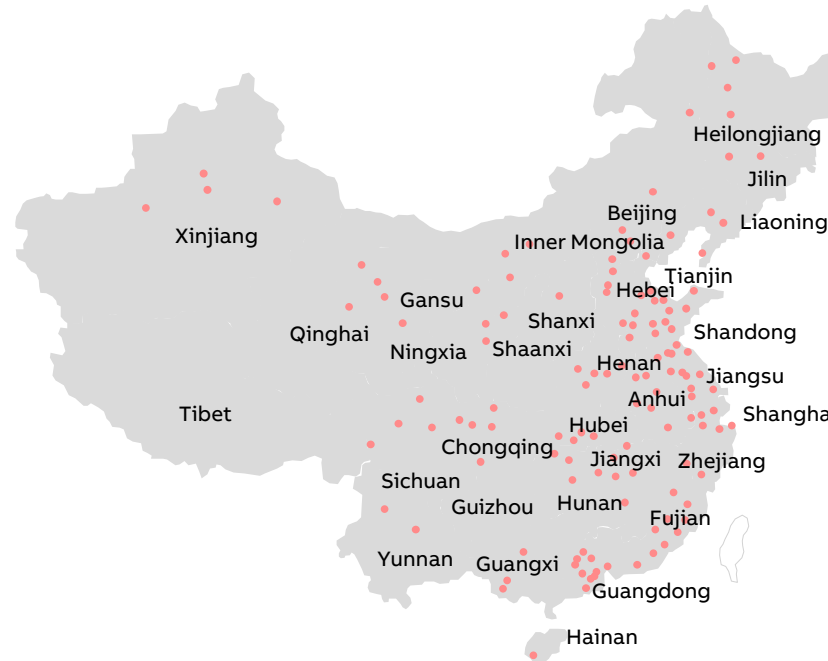
- ~ 2,000 R&D professionals
- > 90% of sales from locally-made products, solutions and services

### Continuously expanding footprint in China

- 40 entities and 17 service centers
- ~ 18,000 people across 140+ cities
- E-business covers 670+ cities/towns
- Accumulated investment ~16 bn CNY

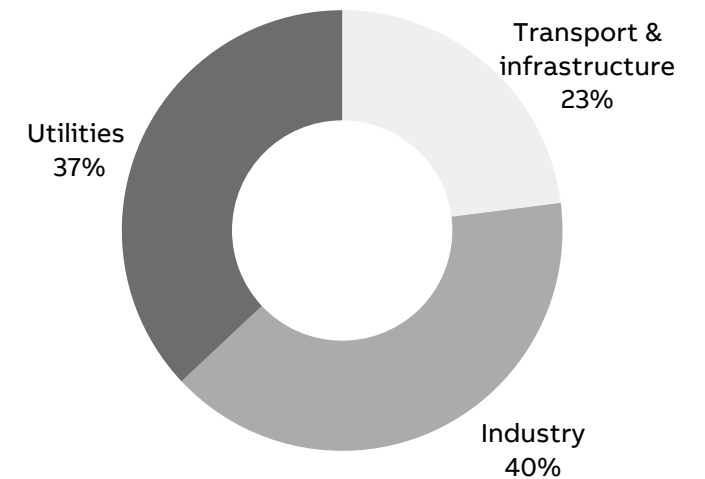
### Made in China, for the world

- Exports account for ~20% of orders received in China



## Customer segments 2017

Approximate share in %



# ABB Ability™ – making a quantum leap in digital

## Power Grids



### ABB Ability™ Control & Protection System

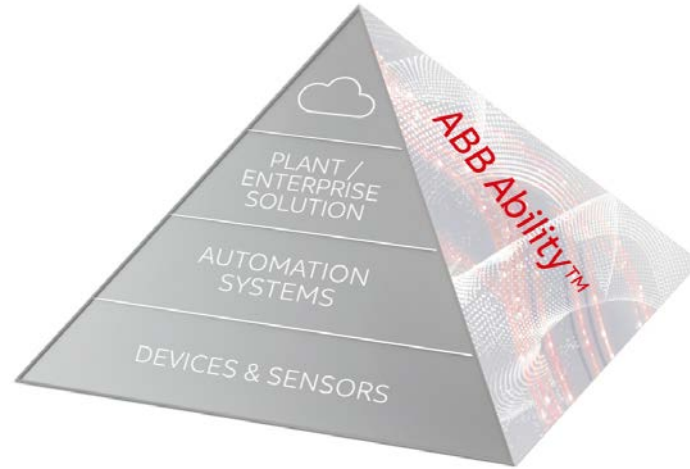
Digital grid upgrades

## Electrification Products

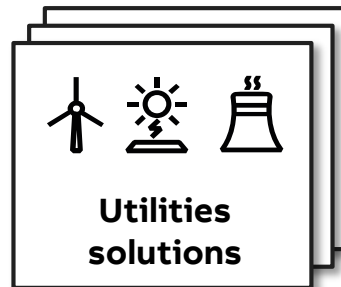


### ABB Ability™ Connected Solutions

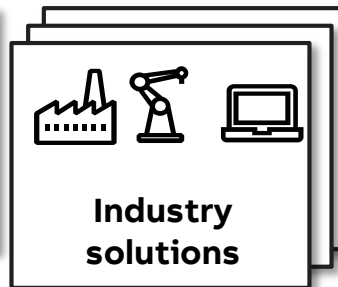
EV fast-charging solutions



## 210+ ABB Ability™ solutions



Utilities solutions



Industry solutions



Transportation & Infrastructure solutions

## Industrial Automation



### ABB Ability™ Collaborative Operations

15 centers launched globally

## Robotics and Motion



### ABB Ability™ Connected Services

>7,000 connected robots globally

# Penetration

Writing next chapter in electrical history



Changji-Guquan, the **world's first  $\pm 1100\text{kV}$  UHVDC project** will set a **new world record** in terms of voltage level, transmission capacity and distance

Developed in close collaboration with **State Grid Corporation of China**, the  $\pm 1100\text{ kV}$  UHVDC transformer and key components have passed stringent tests

The project enables the integration and transmission of remote renewables on a much larger scale with lower losses, and inflicts less environmental impact

# Penetration

Industrial services step into a new era: remote, smart and digital

## Strong service capacity accelerate value creation

---



**1,500+** service experts dedicated to offering comprehensive services of partnership to improve asset performance



**400+** service offerings to meet customer needs in asset lifecycle management, upgrade and tailor-made services



**17** comprehensive service centers to provide rapid response and professional services



### **ABB Ability™ Cloud Service**

ABB remote service centers are providing cloud-based real-time monitoring and technical support for users of ABB equipment such as drives, MV & HV products and robots



**200+** service stations & certificated service facilities covering all key areas nationwide

# Innovation

New technologies enhancing competitiveness

## Key innovations

### Strong grid solutions

1,000kV Gas-insulated lines (GIL)

$\pm 1100\text{kV}$  UHVDC converter transformer



### Automation solutions

ACS530/ACS860

HDS Servo Motor

Smart coal flow control system

Symphony Plus HR Series  
Modular Power System IV

Select I/O



### EV and smart LV/MV solutions

Terra 63Z DC fast charger

ABB Ability™ Electrical  
Distribution Control System

MNS Digital Switchgear

ABB i-bus® KNX PEONIA sensor



# Innovation

New business model driving transformation

## E-business sales approach

50,000+ products from 4 divisions

Orders: +89% yoy<sup>1</sup>

Orders from 676 cities or towns, 88% without ABB office

A dedicated, lean, agile team tuned for e-biz dynamics



Online service  
8:00-24:00



Working time  
8:00-24:00



Smallest order  
< 5 CNY

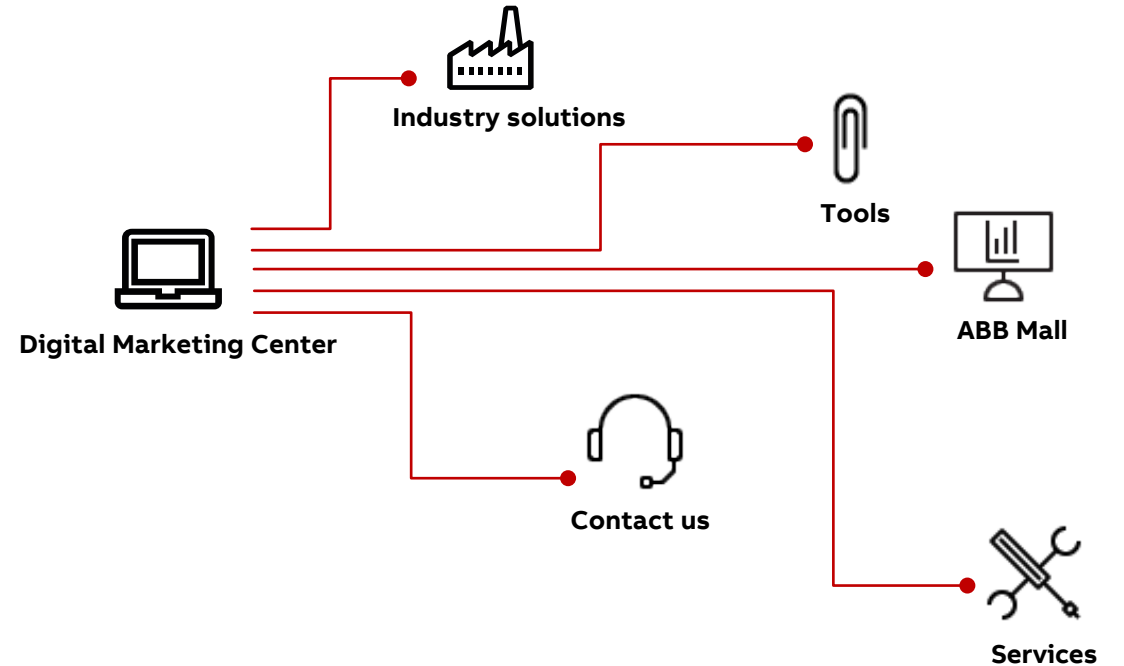


Biggest order  
> 300,000 CNY



Daily inquiries  
200+

## Digital Marketing Center



# Expansion

Explore business opportunities from Belt and Road Initiative

- Lahore Orange Line Metro Train Project, Pakistan  
DC yard equipment & Live tank breakers  
Electrification solutions
- Dubai Hassyan Clean Coal Power Generation Project, UAE  
Transformers, Symphony Plus
- Paper machine project of Ittihad Paper Mill, UAE  
Drive system & AMI motors
- Coal-fired power plant, Bangladesh  
GIS solutions



- Sinoma cement project, Philippines  
Substation
- Transmission project, Indonesia  
Transformers
- Long Son Cement, Vietnam  
Freelance DCS
- High-capacity metro train project, Australia  
Traction motors

---

# ABB Ability™ smart sensor for motors

Adding new capacities to existing equipment of Baowu Steel

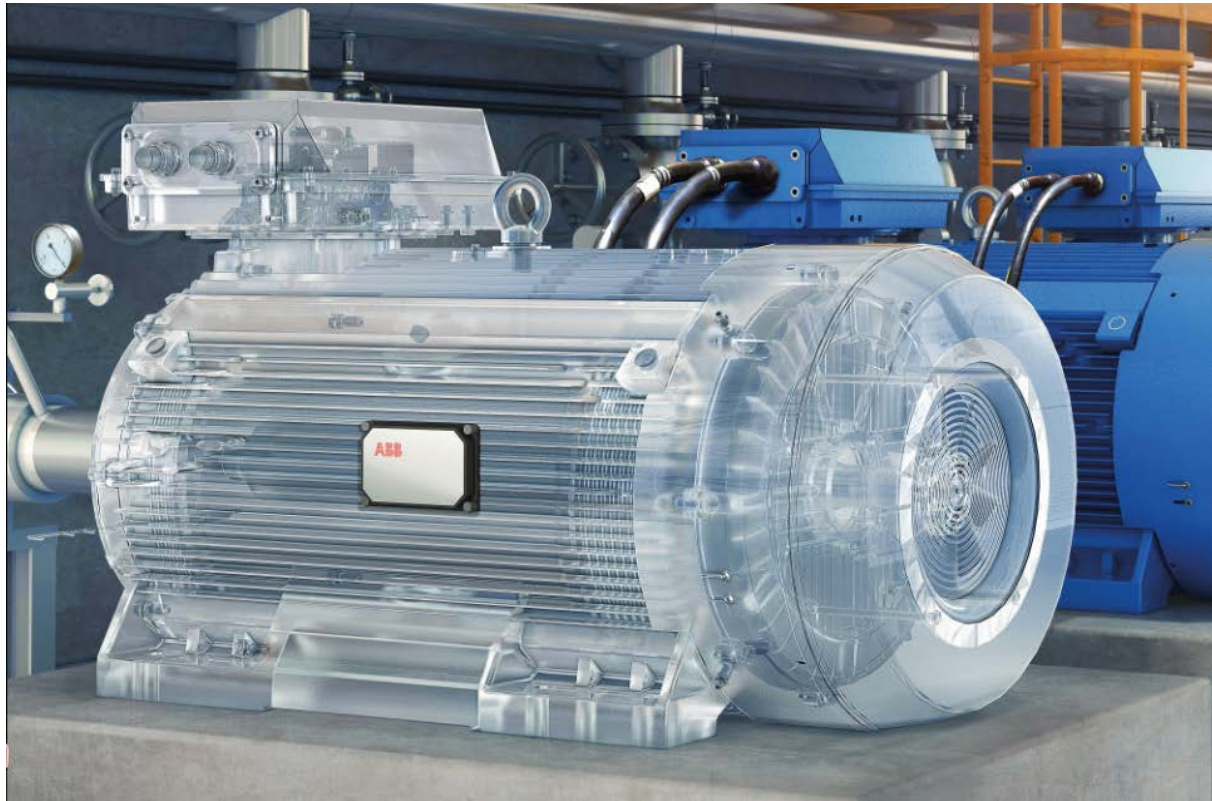


ABB gives old motors of **Baowu Steel Group** the benefits of the Industrial Internet of Things with a **wireless, pocket-sized sensor**

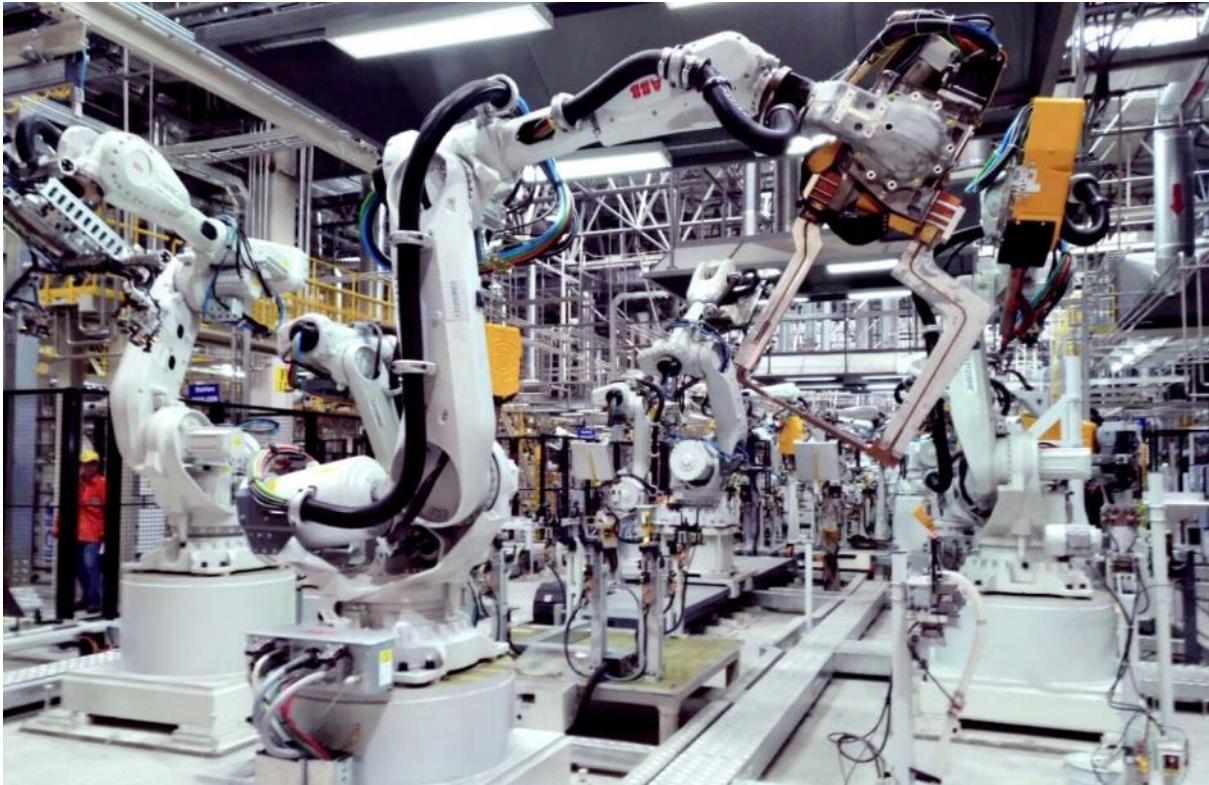
The sensors are attached to low-voltage motors, transmitting data through bluetooth, together with cloud-based applications

Significantly boosts productivity and efficiency by optimizing performance and predicting maintenance

---

# ABB Ability™ Connected Services for robotics

Secured uptime and optimized performance for Volvo factory in Chengdu



The 270 ABB robots installed at **Volvo's factory**, Chengdu, Sichuan province, are linked to **ABB Ability™ Connected Services**

Conducting remote monitoring and fast fault detection, the connectivity helps avoid unplanned shutdown and increase equipment availability

Such service could cut shutdown rate by 20%, improve responding speed by 60%, prolonging the life of the robots

# ABB Ability™ Marine Remote Diagnostic System

Smart cabin for Xue Long II ice breaker



Xue Long II is China's first domestically built **polar research ice breaker**, and will be the world's first electric ship to embody a **smart cabin**

Data is collected by smart sensors and transferred to **ABB Ability™ Marine Remote Diagnostic System** for real-time digital monitoring, offering assessment of asset health status and suggestions. With remote services, data can be transferred to the shore-based operation center, facilitating remote asset management and preventive maintenance

ABB has also provided the ship with **Azipod® VI propulsion** to face even the most challenging ice conditions

# ABB Ability™ Power Management System

Ensuring reliability for Baidu data center



Baidu's biggest data center – **Baidu Cloud**, Yangquan, Shanxi province – is now equipped with the **ABB Ability™ Power Management System (PMS)**

ABB Ability™ PMS helps ensure maximum reliability and uptime by monitoring the real-time condition of power supply and distribution, as well as analysing the health of electric equipment

Management tools installed inside the system help customers efficiently operate the industry-level monitoring platform, lifting the reliability of data centers

---

# ABB Ability™ Electrical Distribution Control System

Upgrading asset management for Nanjing Normal University



**ABB Ability™ Electrical Distribution Control System** is an innovative cloud-computing platform designed for monitoring, optimizing and controlling electrical system

Enables multi-user access and multi-device connections in an integrated plug & play architecture and optimizes the performance of the electrical system

Helps customers easily conduct daily equipment management through mobile APPs, realizing advanced digital monitoring and energy management

# ABB Ability™ Connected Services for electric vehicle charging

Ensuring efficient and intelligent charging for NIO



ABB provided **Terra 63Z DC fast chargers** for NIO House, together with **ABB Ability™ Connected Services**, guaranteeing the charging service for **NIO's** demo cars

NIO House is NIO's first experience store worldwide, demonstrating NIO's latest products on-site

The Terra 63Z DC fast chargers, having an output of 60kW and equipped with ABB Ability™ Connected Services, can remotely diagnose 90% of possible problems and solve 60% of exceptional cases, greatly improving the operating efficiency and uptime of charging piles

# Support China growth

Deeply engaged in local communities



## Educational support

Donated 15 million CNY cumulatively via ABB New Great Wall Fund, benefiting 2,000+ students from 45 schools

Collaboration with universities to establish scholarships and joint labs

## CSR activity

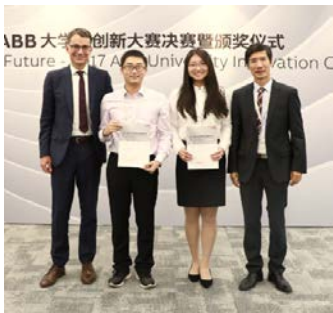
Participation in anti-desertification program and organization of tree-planting

Advocate for safe use of electricity  
Provision of help in nursing homes

Donations to support the rebuilding of earthquake hit areas



Let's  
write the  
future.  
Together.



## Talent development

Cultivation of innovation, holding ABB University Innovation Contest, attracting 6,000+ participants from 200+ universities and ABB Cup National Intelligent Technology Thesis Contest, with 6,500+ contestants and 3,000+ theses

## Government advisor

Advised on the development of Beijing, Shanghai, Guangdong and Chongqing, to support China's economic transformation and upgrade and sustainable growth



---

# ABB Formula E championship – a true game changer

The race to the future is on



**ABB**