ABB – Next Level
Pushing the boundaries of automation
Agenda

Next Level in robotics

Next Level in mining
Discrete Automation and Motion
A leading automation player

Industrial motion
#1 in industrial motion motors and drives
Complementary mechanical power transmission offering

Discrete automation
A leading robotics player
Uniquely integrated robotic, motor, drive and control offering

Renewables
#2 in solar inverters with more than 1,000,000 inverters installed
A leading independent supplier of wind converters and generators

Power control and quality
#1 in excitation systems for power generation and high power rectifiers
Comprehensive power protection portfolio for data centers and industries

Transport
#1 in fast charging for electrical vehicles
#1 in drives and motors for marine. Strong in traction propulsion

Robotics is a key growth opportunity for us
Development of the industrial robotics markets
Massive opportunities: new applications, new industries, new markets

ABB has developed the first industrial robot in 1974
We have supplied 250,000 robots worldwide since then
We have grown above the markets in the last five years
Industry 4.0 / Internet of things, people and services

ABB present in ~100 countries, Robotics in ~50 countries, 100+ locations and 700+ system integrators

1Includes robot types not offered by ABB (SCARA, Gantry, Cartesian, Cylinder, etc.); Source: IFR
Drivers for future robotics expansion
Ease of programming, higher productivity, lower operating costs

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<th>Traditional value drivers</th>
<th>New value drivers</th>
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<td>Output quality</td>
<td>Total cost reduction</td>
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<td>Productivity and costs</td>
<td>Simplified programming</td>
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ABB Robotics enabling new robotics applications
We make it easy to deploy and use robotics

Customer value chain penetration

Plan / design → Build → Operate

Tomorrow

Consulting
New software tools
e.g. RobotStudio
e.g. grid planning

Today

Simplification
Collaboration
Accessibility – integration costs
Hardware to software

e.g. Asset Health
e.g. life-cycle services

New software-based services
Service mgmt.

Planning partner

Software, RobotStudio
System integration

Product, solutions, systems provider

Pre-engineered solutions
Manufacturing cells, production lines
ABB supporting products

Operations partner

Remote Asset Health
Life-cycle services
Industries
Building new solutions and robot concepts
Modular manufacturing cells and function packages

Food and beverage

Electronics assembly
Building new solutions and robot concepts
New applications – tomorrow’s collaborative robots

Logistics

Side-by-side collaboration
ABB well positioned for growth in Robotics
Broad offering, deep expertise, and global reach

Expanding market

- Robots more accessible, total cost of ownership falling
- Simpler programming, more robust, proactive, software
- Robots expanding into new industries and applications

ABB position

- Offering – a complete robot offering and supporting products
- Expertise – 250,000+ robots worldwide, pre-engineered applications and solutions. Thousands of applications and service engineers
- Global reach – ABB Robotics present in ~50 countries. A strong footprint in China, world’s largest robotics market, and a global network of over 700 system integration partners

We are perfectly positioned to capture strong industry growth
Agenda

Next Level in robotics

Next Level in mining
Process Automation business
A leading automation player

#1 in DCS
Pioneer of integrated power & automation control
Process application software
A leading service player

Key deliverables / products, systems, and solutions
Fully engineered products, systems, and solutions for process control, safety, instrumentation, plant electrification, and energy management

Key industries served
Oil, gas, and petro-chemicals
Metals
Mining and minerals
Pulp and paper
Marine
Others

Service
Systems

Domain generic products
- Control systems
- Measurement products

Domain specific products

Approximate breakdown based on 2013 revenues
Mining: transformational productivity shift underway

Why now?
- Scaling opportunities at final limits
- Need to make significant investments more efficient and productive
- Regulatory framework

Four key industry requirements
- Productivity
- Safety
- Environmental sustainability
- Reliability

Source: Rand Corporation
Reduce cost, increase productivity, and safety by remote monitoring, diagnostics and interventions.

Move automation and electricity to where the ore is extracted, minimize haulage, and transport.

Key features of future mining operations:
- Limited human presence in production area
- Continuous production and mechanical excavation
- Central control room
- Continuous of ore, people, and equipment

... people further away from processes

... equipment closer to processes

... enabled by integrated operations from pit to port, fully automated, and remotely controlled
We provide the offering for complete mine automation
Safer, leaner, greener…and more productive

What are the benefits
- Higher productivity, enhanced collaboration
- Holistic commercial view of the whole enterprise
- Increased energy efficiency
- Improved safety

1 Gearless Mill Drive
We are implementing the mine of the future today
Integrated solution for underground mine expansion

Sweden

Underground mine expansion from 1.5 mn ton / year to 2.5 mn ton / year

ABB delivered

Integrated power & automation control system across the value chain from mine to mill

- IT / OT integration, advanced process control
- Remote monitoring capabilities
- High-, medium- and low-voltage electrification, motors, and drives

Energy efficiency solutions

- Ventilation on demand, smart switchgear
- Mining specific drive-motor packages

We are the ideal partner for our mining customers
Mining represents a high-growth opportunity for ABB
Unique solutions, differentiation through technology and software

Future growth opportunities

- Transformational productivity shift underway
- Mining is among the least penetrated industrial sectors for automation
- Automation key to improve safety, product quality, cost competitiveness
- Service and software can increase productivity of existing mining equipment

Delivering power & automation solutions together is a competitive advantage

Penetration
Go with our customers to “new” mining regions, i.e. Central and West Africa

Innovation
Drive integration and automation along the value chain – Mining 2.0

Expansion
Complement offering of key products (e.g., underground mining, explosion proof products)
Power and productivity for a better world™