



18TH JUNE 2018

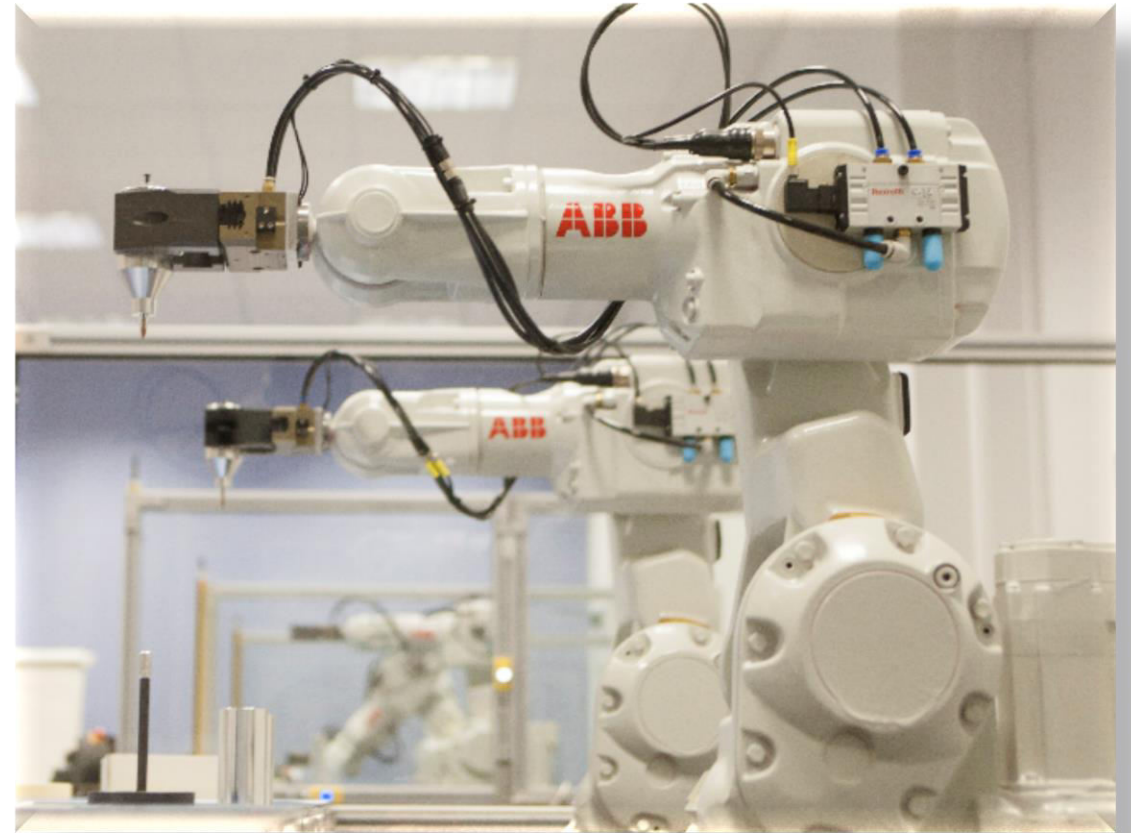
Significance of Innovation for competitiveness

ABB India Ltd.

Ganesh Kothawade, Vice President

Significance of Innovation for competitiveness

- Agenda :
 - ABB Overview
 - Global Market
 - Change and Innovation
 - Innovation in entire Value Chain



Significance of Innovation for competitiveness

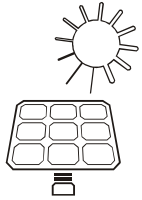
ABB - Leading Market Position with Global Footprint



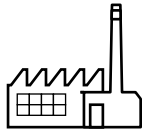
Significance of Innovation for competitiveness

ABB India - Leading technology and innovation for sustainable growth

Our footprint in



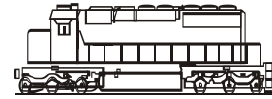
50%
of solar power generated in India
passes through ABB equipment



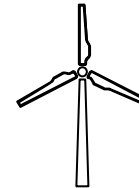
50%
of cement plants commissioned in
the last 5 years run on ABB's control
system DCS



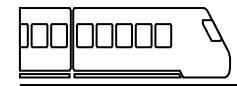
60%
of India's oil production monitored
by ABB solutions



52%
of diesel locomotives run on ABB
Turbochargers



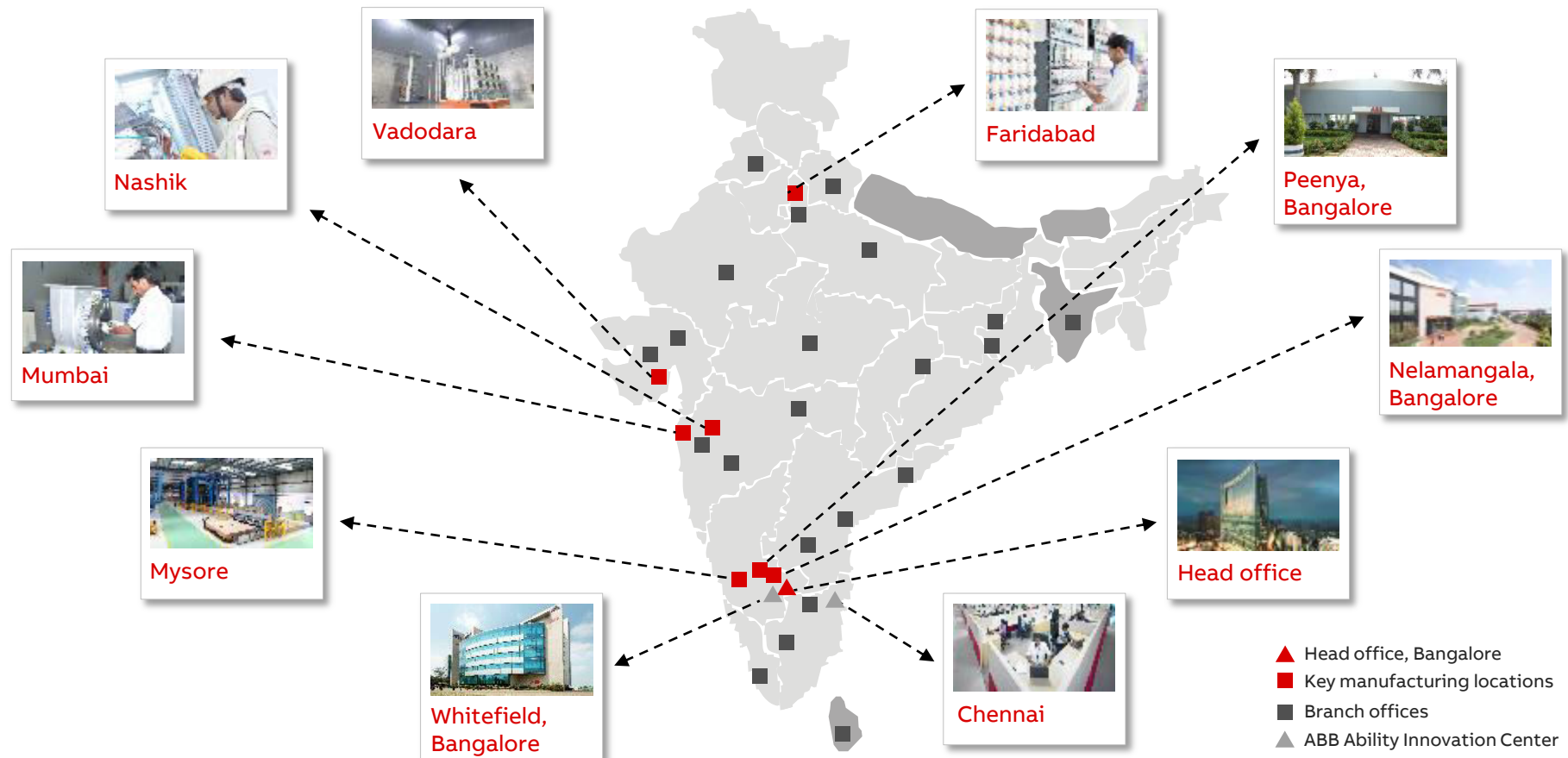
Largest
manufacturer of wind converters in
India



All
8 operational metros across the
country run on ABB technology

Significance of Innovation for competitiveness

ABB India - 10 world class manufacturing sites, 22 sales offices



Significance of Innovation for competitiveness

ABB Nashik facility

Plant I



- 12 acre facility established in 1978 (48,360 SQM)
- Medium voltage hub with 6 product lines
- Dedicated technology & training centre
- ISO 9001, ISO 14001, OHSAS 18001

Plant II



- 5 acre of newly established facility (20,668 SQM)
- Medium voltage hub for 2 product lines
- Engineering centre
- Energy efficient & zero discharge facility

Smart factories with safe & healthy environment

Significance of Innovation for competitiveness

ABB Nashik Facility

R&D Centre



- Cumulative > 100 man years of pioneering technology development
- 30 patents registered
- Technology development for global markets

Training Centre



- State-of-the-art training facility
- Skill development for employees & customers
- Hands on training > 10,000 man hours

India Engineering Centre



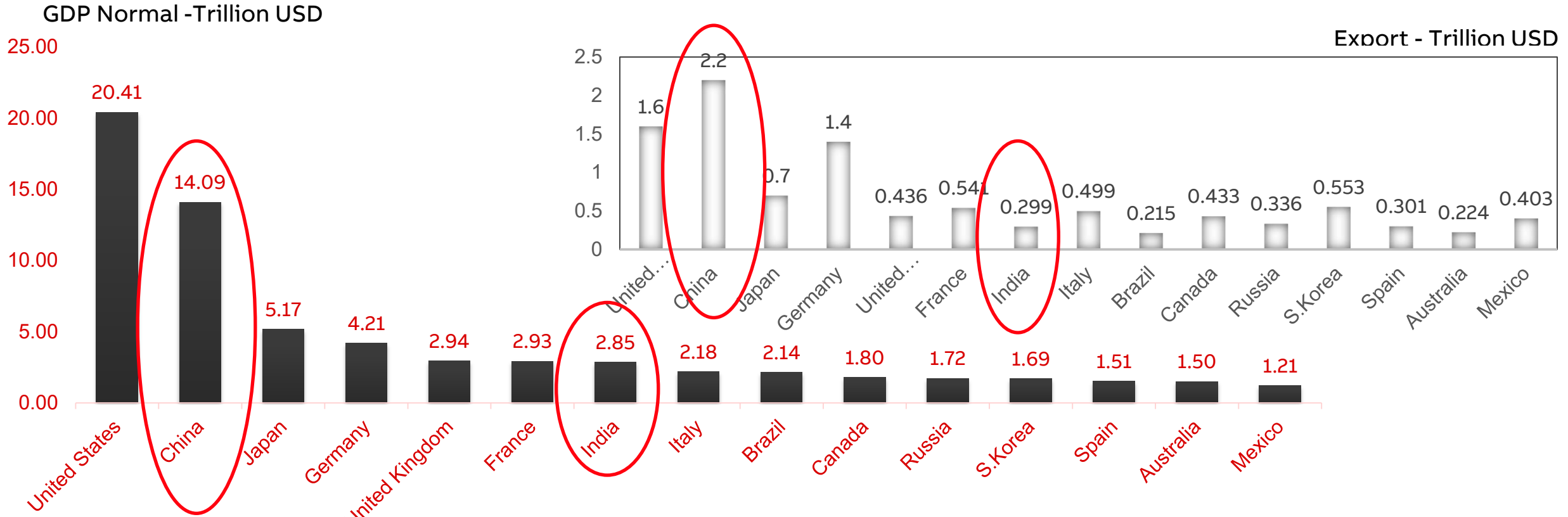
- Project based engineering
- Supporting global requirements
- Advanced design and simulation software

Let's write the future together

Significance of Innovation for competitiveness



Global market (Top 15 economies) & India's Share in export



Its an opportunity for growth

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Global market expectations

Global expectations

- ✓ World Class products / services
- ✓ Efficient, state of the art processes / systems
- ✓ Focus on Safety, Quality and Environment standard compliances
- ✓ Responsible sourcing & global compliances
 - Ex. Conflict free sourcing, Data security / IP regulations, WTO regulations, Human Rights, ILO regulations
- ✓ Transparency & Sustainable business models
- ✓ Commitment for competitive prices

Indian Industry at large

- Conventional products
- Traditional manufacturing / lack of automation resulting into complex processes
- Still in early stages of awareness about HSE & Quality (Chalta Hai approach)
- Lack of compliances / awareness to global standards
- Gap in “Say to do ratio”
- Communication and commitment issues
- Prices still higher by 12-20% compared to CN

Need for Improvement, Innovation & Change

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Change

- It is not necessary to change. Survival is not mandatory.

W. Edwards Deming



Change as per market demand



Change before market forces you

You can't do today's job with yesterday's methods and be in the business tomorrow

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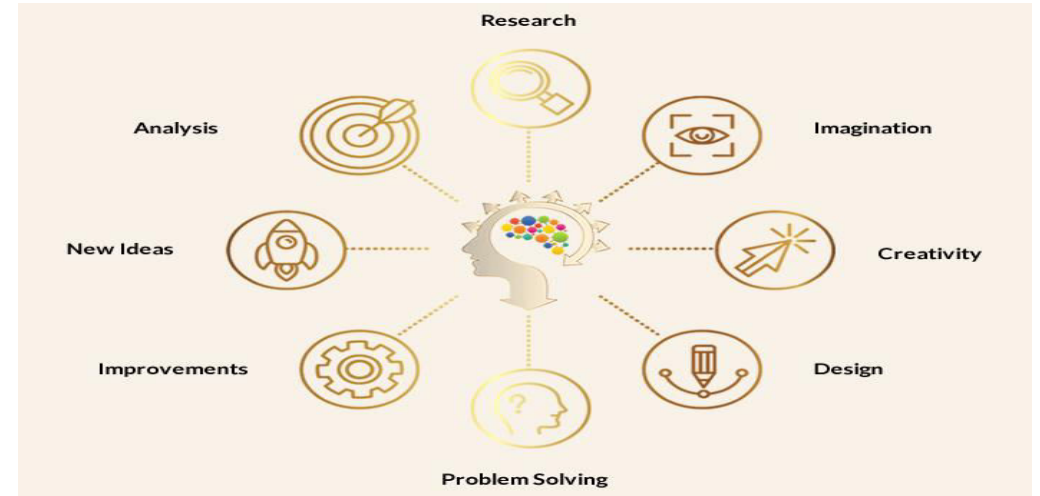
Change through Innovation

“**Innovation** can be defined simply as a "new idea, device or method".

Innovation is often viewed as the application of better solutions that meet existing needs, unarticulated needs and new requirements foreseeing future.

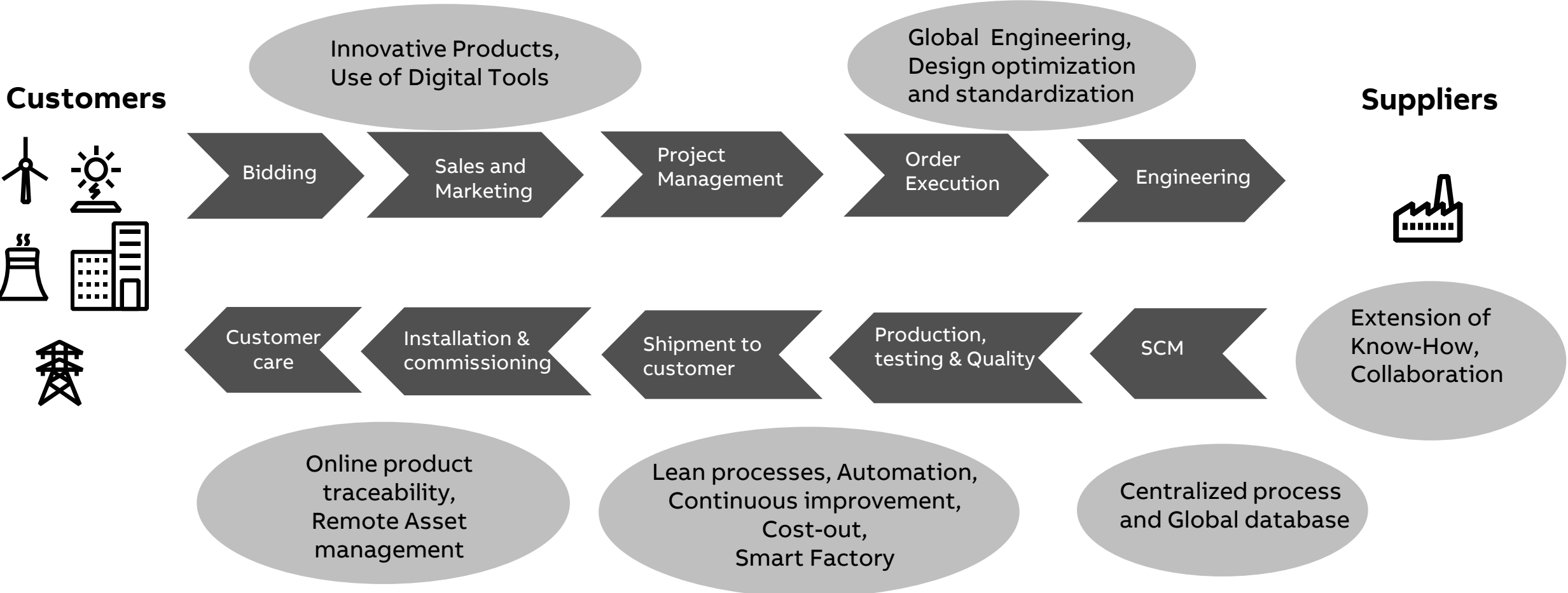
Such innovation takes place through more-effective;

- ✓ Products / Services,
- ✓ Processes / methods,
- ✓ Materials / Technologies
- ✓ Lean Business Models



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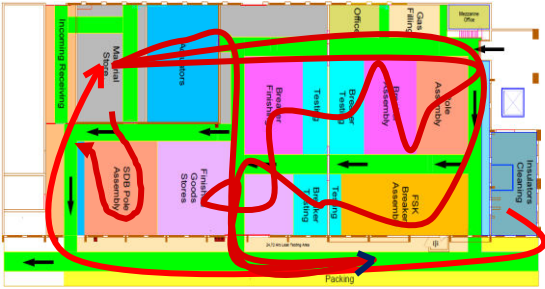
Innovation in entire Value chain



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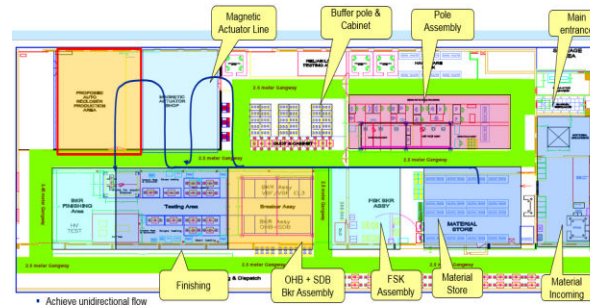
Journey towards smart factory

Transformation



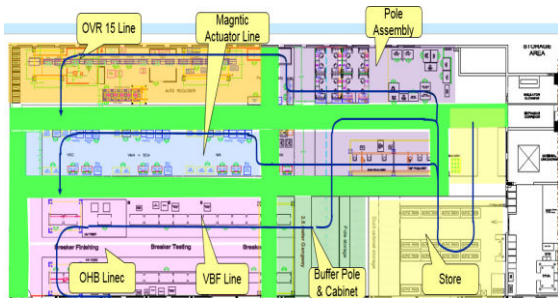
Initial Stage

- Zig Zag Assembly flow
- Excessive material & man movement
- High TPT
- Safety hazard
- High Inventory



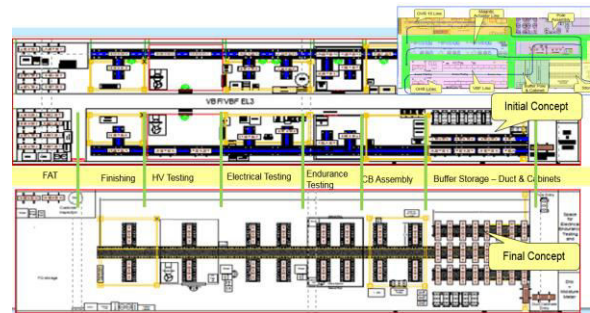
First Phase

- ✓ Achieved unidirectional flow
- ✓ Reduction of Man, Material Travel
- ✓ Reduction in TPT



Second Phase

- ✓ Lean Manufacturing lines
- ✓ Created additional space for 2 new products
- ✓ Optimized Inventory



Final Stage

- ✓ Semi Automated manufacturing line
- ✓ Improved productivity,
- ✓ Consistent flow and output
- ✓ Improved safety

Improvement is not a “One-time job”

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Smart Factory set up

Energy Efficient System

- To restrict external heat
 - Use of DGU (Double glass unit)
 - Roof sheet with underdeck insulation sheet
- Use of HVLS fans resulted in reduction of
 - AHU size by 80000 CFM (70 kW),
 - Water and Space
- Use of VRF (variable refrigerant flow) air conditioning system
-30% efficient than conventional
- Use of LEDs across the factory
- Use of motion sensors for auto light switching off on each workstation cluster
- ABB Office automation system to control curtains, AV system, lighting as per desired selection.



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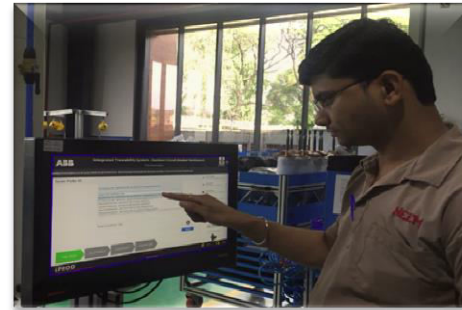
Smart Factory set up

Digitalization



E Gemba

- Web based tool
- Interactive
- Maintains history
- Sends MOM



Integrated Traceability System

- Web based system
- Real time data
- Mistake Proofing
- Operator assistance



E Gallery

- Interactive
- User friendly
- Accommodates more data
- Adoptable



Remote testing facility

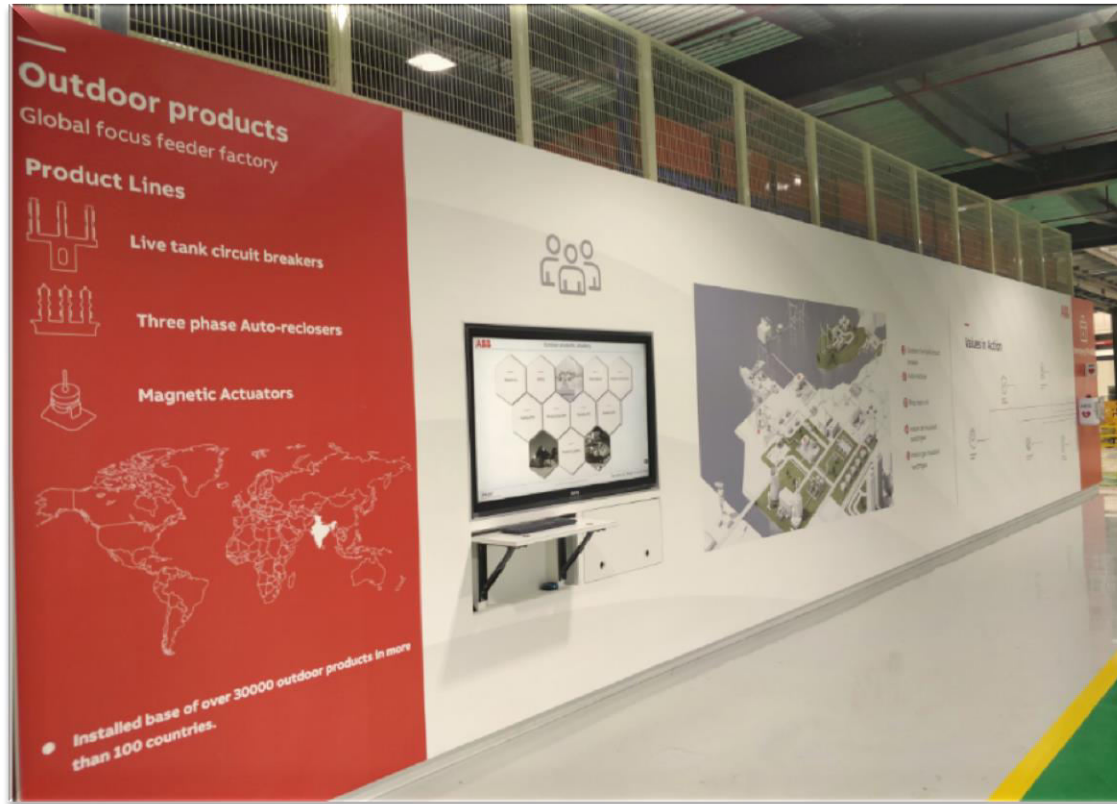
- Customer lounge
- Remote FAT

A step towards Industry 4.0

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Smart Factory set up

eGemba Point



Manufacturing set-up



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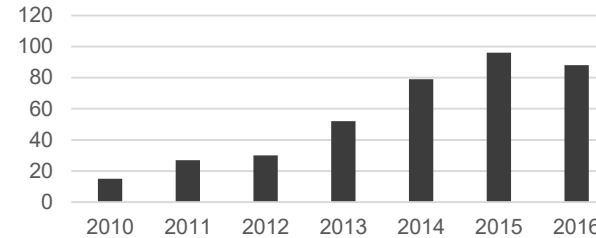
Process improvement through innovation

Continuous improvement culture

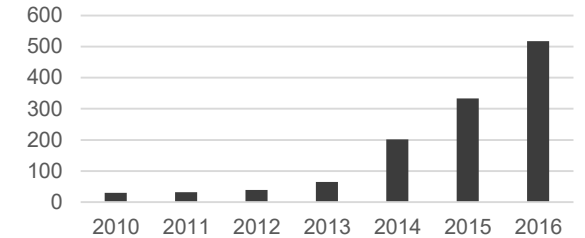
- Safety First – Don't Look the other way
- 4Q – Data analysis for improvement and problem solving
- Kaizen – small improvements
- Poka yoke – ensure consistency
- OPQ – to generate Cost out projects
- Gemba – to align team towards common goal

Engaging people for continuous improvement

4Q projects development



Kaizen development

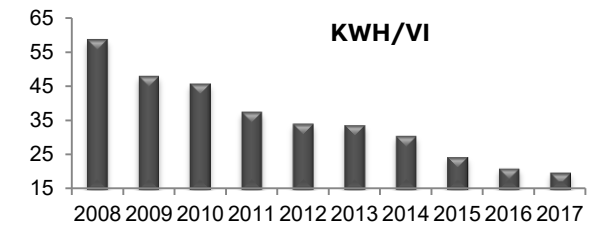


Safety Reporting Tools

Welcome to the ABB Global Management Information System

Hazard Reporting	SOT Reporting (managers and supervisors only)	Reports	Support
Report a Hazard	Report an SOT	Standard Report	Master
View My Hazards List	View My SOTs List	Hazards Overview	Implementation Portal
ABB inside hazard reporting page	ABB inside SOT reporting page	Hazard Report - org structure	MYS

Cost-out Energy Saving



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Cost out through Innovation

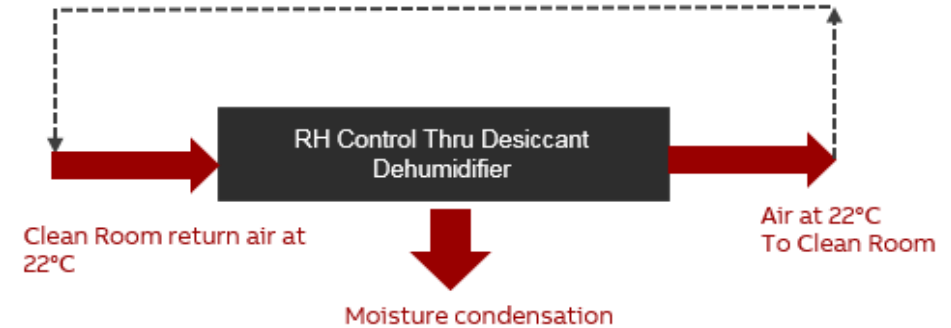
Clean Room



Following parameters needs to be maintained inside clean room

- Temperature : 22 ± 2 ° C
- Relative Humidity (rH) : $50 \pm 5\%$
- Pressure : +50 to +60Pa
- Room Cleanliness : ISO Class 6

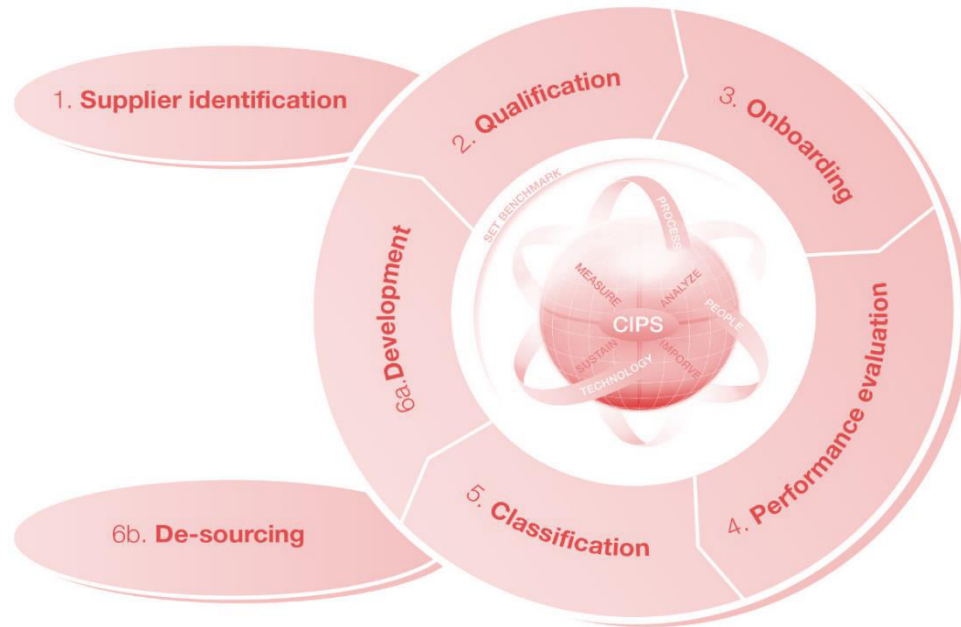
rH control process :



- HSD Consumption Reduced By 75% (65,678 Liter)/year
- Electricity Consumption Reduced By 17% (668,626 kWh)/year
- CO2 equivalent saved (732 Ton of CO2)
- Return On Investment – 4 Months/year

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Collaboration with Suppliers



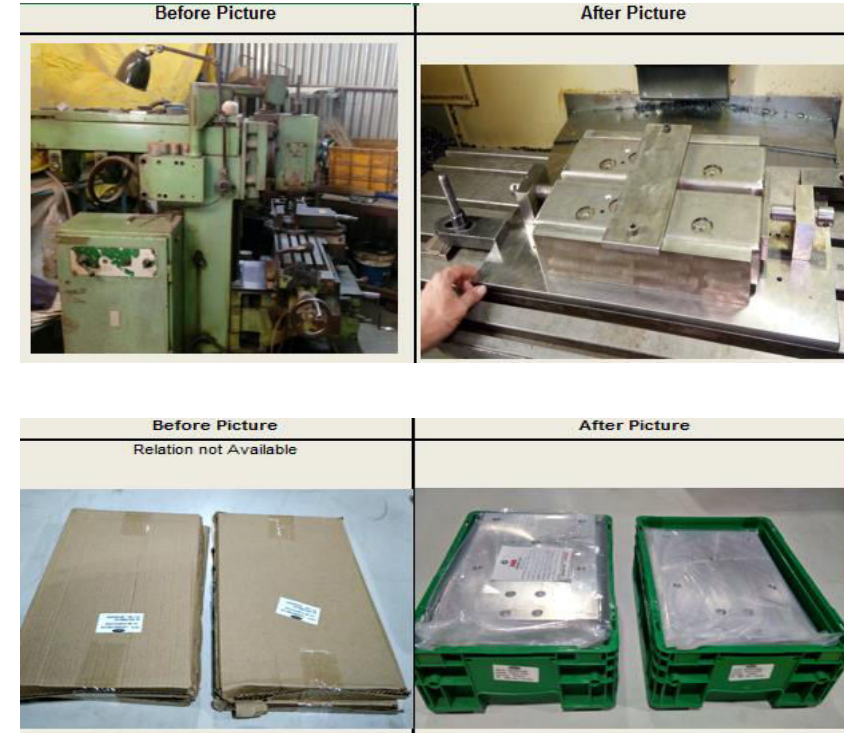
- **Supplier Qualification Based on**
 - **Financial capacity, Manufacturing set-up**
 - **Technical competency, Manpower**
- **Sustainability and compliance**
- **Commitment to High standards of Ethics and code of conduct**
- **Online Global database, eRFQ**
- **Centralized P2P (Procurement to Pay to process)**

Overall process is focused to improve quality, cost competitiveness and compliance

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Innovation through Joint Efforts

- Onsite Training on special processes
- Online Tool condition & calibration Monitoring
- Use of PokaYoke / Kaizen techniques
- Kanban, Kitting, Vendor to Manufacturing line
- Process Improvements with Focus on Prevention
- Involvement of suppliers during product development stage
- Extending HSE and sustainability culture
- Promoting suppliers for Global sourcing



Know-How and Collaboration with Suppliers for Quality & Cost excellence

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Customer connect through digitalization

Marketing and communication

- Webinar for knowledge sharing and communication
- Local partnering to be cost competitive; meeting local legal, taxation and regulatory requirements
- SFDC and configurators to create dynamic platform for opportunity handling
- Using Latest communication techniques such as Skype, Blue Jeans, Doodle, VC etc.

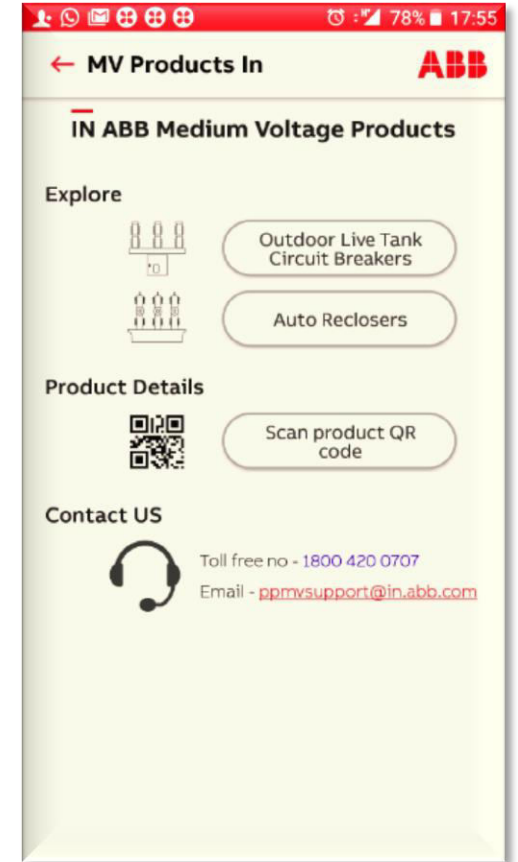


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Customer connect through digitalization

Information at a click

- Mobile app for:
 - Product brochure
 - Instruction manual (Multi-language)
 - Installation and Maintenance Video in the application
 - FAQ
 - Link to service support portal
- Equipment user can scan the product bar code to have :
 - Product Profile (Sr. no, Year of manufacturing etc.)
 - RTC for that particular product



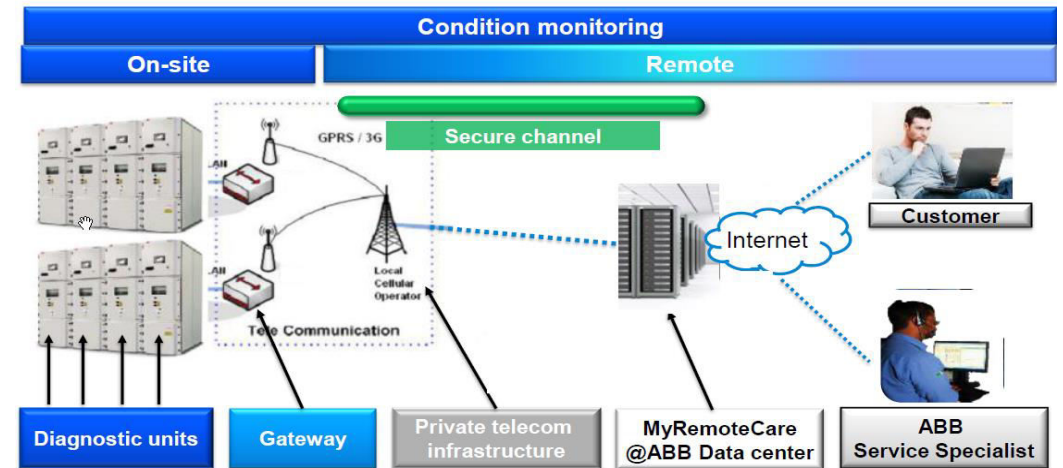
Significance of Innovation for competitiveness

Customer connect through digitalization

Remote Asset management

- Cloud based equipment healthcare platform
- Centralization database
- RFID based data sensing for condition monitoring
- Predictable preventive maintenance
- Real-time alerts

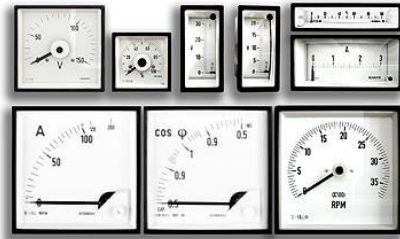
MyRemoteCare system Condition monitoring



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Product Innovation

Traditional way



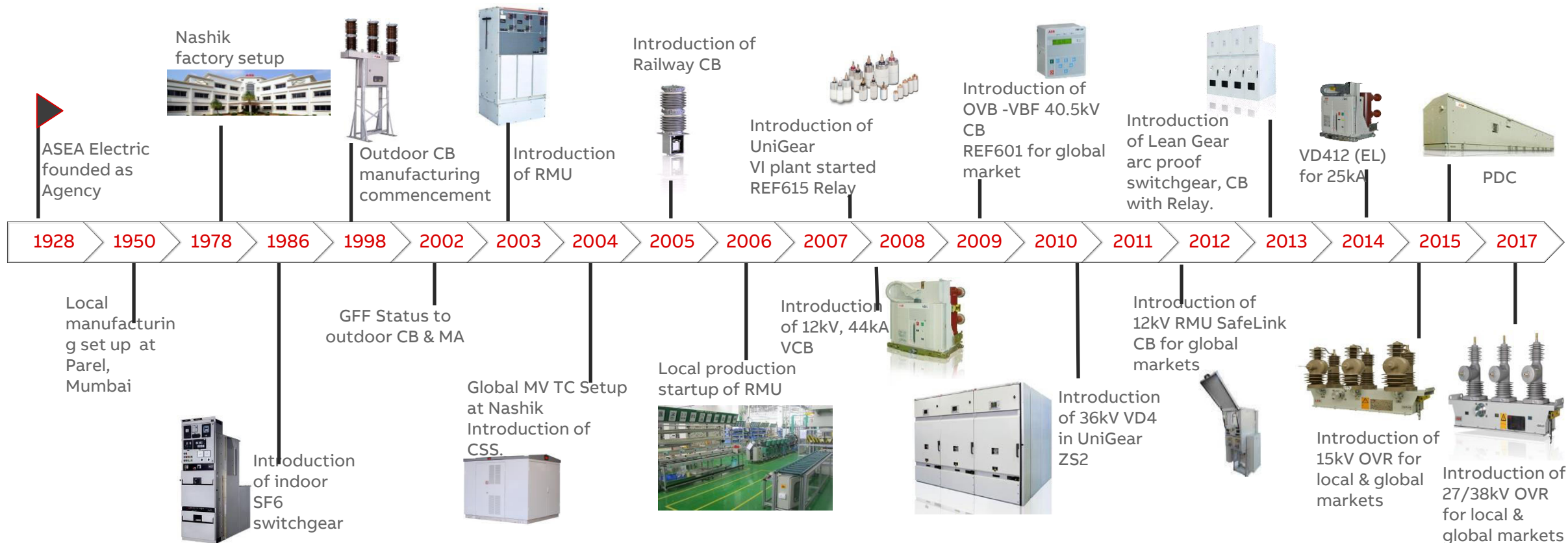
Innovative solution



Compact, Ready to Plug, Multifunction, Cost Effective

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Evolution of technology to meet customer need



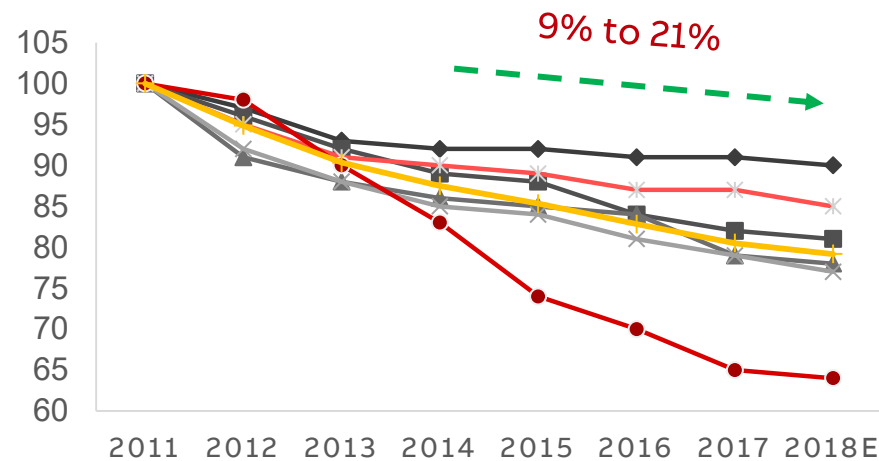
Innovation is Key to success



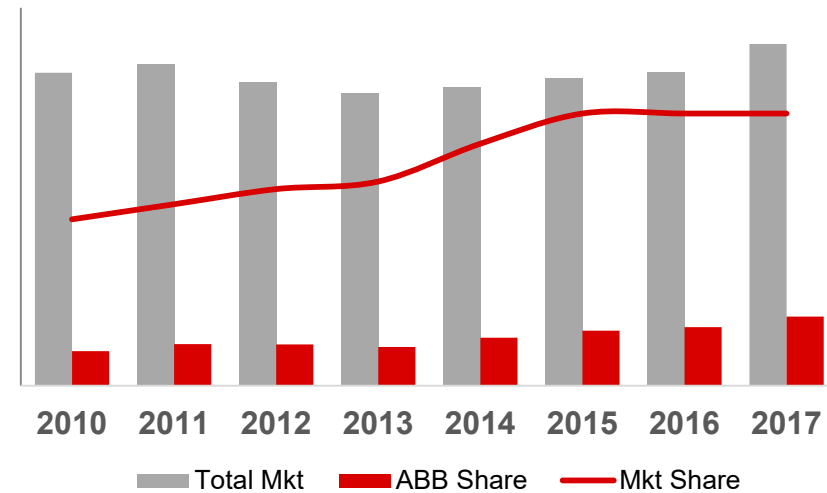
Significance of Innovation for competitiveness

Survival of the fittest

Price Erosion across product lines



Growth in our Market Share



Sustainable growth in challenging market through continuous Innovation

Significance of Innovation for competitiveness

ABB Nashik – Export footprint

Albania
Angola
Argentina
Australia
Austria
Azerbaijan
Bangladesh
Bolivia
Botswana
Bhutan
Brazil
Canada
Chile
China
Colombia
Croatia
Cz Republic
D'congo
Egypt
Estonia
Ethiopia

France
Finland
Georgia
Germany
Ghana
Greece
Guyana
Guatemala
Hungary
Honduras
India
Indonesia
Iran
Iraq
Israel
Italy
Jordan
Kazakhstan
Kenya
Kuwait
Laos
Lesotho



Malaysia
Mauritius
Mexico
Morocco
Mozambique
Myanmar
Namibia
Nepal
New Zealand
Netherland
Nigeria
Norway
Oman
Panama
Paraguay
Peru
Philippines
Poland
Serbia
Senegal
Slovakia
Slovenia

Spain
Saudi Arabia
South Africa
Sri Lanka
Sweden
Switzerland
Tanzania
Turkey
Thailand
Tunisia
Ukraine
Uganda
Uruguay
Uzbekistan
UAE
USA
Vietnam
West Indies
Zambia
Zimbabwe
Lebanon
Lithuania

Worldwide reference Sold in > 100 countries



AABB