Digital Transformation in Industry Segments

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TUV SUD - KETI
International Seminar on Smart Manufacturing Transformation
Seoul, Korea, July 23, 2019
About Schneider Electric

The 5 major drivers for a digital transformation towards smart manufacturing

The 4th Industrial Revolution

The 7 key success factors of a digital transformation towards smart manufacturing

Digitization cases

Key Takeaways
Presentation Content

1. About Schneider Electric
2. The 5 major drivers for a digital transformation towards smart manufacturing
3. The 4th Industrial Revolution
4. The 7 key success factors of a digital transformation towards smart manufacturing
5. Digitization cases
6. Key Takeaways
Our technologies ensure that Life Is On everywhere, for everyone and at every moment.
Schneider Electric is leading the digital transformation of energy management and automation

Key figures for 2018

5% of revenues devoted to R&D

€26 bn 2018 revenues

42% of revenues in new economies

137,000+ employees in over 100 countries

A well-balanced global presence (2018 revenues breakdown)

Four end markets:

- Commercial & Industrial & Residential Buildings: 40%
- Data Center & Networks: 14%
- Industry: 29%
- Energy & Infrastructure: 10%
- Utilities: 7%

*Based on non-GAAP FY 2018 orders
Our technologies enable the digital transformation of industrial automation and energy management

A portfolio of integrated digital solutions designed to increase customer efficiency

Industrial automation ➔ Process efficiency

Energy management ➔ Energy efficiency

€ 6 billion

€ 20 billion
Our technologies ensure that Life Is On everywhere, for everyone and at every moment.
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The 5 major drivers for a digital transformation towards smart manufacturing (Digitization is not an option)

1. Intrinsic value of data
   • Data as a new asset class (impacting companies valuation)

2. For companies, to stay in the market
   • Companies have gone out of business because of not embracing the digital transformation

3. Direct impact on companies’ growth
   • New technologies optimize operations driving sustainable and profitable growth

4. Stakeholders demand
   • Shareholders, customers and employees demand data driven ways to run and do business.

5. For countries, to remain competitive
   • Countries must embrace Industry 4.0 to remain competitive in the international arena
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Industry 4.0 –or Digitization of Industry Segments- represents an **evolution** and defines the **digital transformation in industrial segments**...
New Technologies are driving the 4th industrial revolution

The 4th industrial revolution is really an evolution rather than a revolution....

Industry 4.0 framework and contributing digital technologies

- Cloud computing
- Mobile devices
- IoT platforms
- Augmented reality/wearables
- Multilevel customer interaction and customer profiling
- Big data analytics and advanced algorithms
- Smart sensors
- 3D printing
- Location detection technologies
- Advanced human-machine interfaces
- Authentication & fraud detection

What we mean by Industry 4.0

1) Digitisation and integration of vertical and horizontal value chains
2) Digitisation of product and service offerings
3) Digital business models and customer access
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The 7 key success factors of a digital transformation towards smart manufacturing

Digitization is not an option

1. Business value driven
2. Employees buy in and engagement
3. The role of the major stakeholders
4. Domain expertise, a solid system architecture and a successful business platform
5. Scalable solutions that allows gradual investments and measurable returns
6. Open technology and ecosystem that enables heterogenous environments
7. Integration of industrial and engineering software
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Successful implementation of Smart Manufacturing

1.- Digital Transformation should be driven by business value, not technology...

Improve operational safety and enhance the security of your facilities – and ensure the sustainability of your business.

Maximize the availability and performance of your assets by deploying preventive and predictive using condition management and analytics.

Maximize worker productivity, and increase production by using latest automation technologies, advanced process control and a profit focused operation.

Unify the value chain at every stage of production and improve overall business performance.

Creation of Shared Value (Sustainability)
Asset Performance Management using Augmented Reality
Successful implementation of Smart Manufacturing

1. Digital Transformation should be driven by business value, not technology...

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Creation of Shared Value (Sustainability)

- Safety and Security
- Asset Optimization
- Operational Efficiency
- Value Chain Optimization

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Customer Challenges
• Centralize energy buying to ensure consistency, reduce risk, and cut costs
• Improve power quality and optimize energy use in manufacturing plants
• Meet environmental goals — 20% reduction in carbon emissions by 2025

The Solution
• EcoStruxure™ Resource Advisor
• Enterprise services: Strategic energy sourcing and risk management
• Plant technology: Process controllers, variable speed drives, motor control centers, switchgear and switchboards

Customer Benefits
• Millions in annual utility savings
• A single platform to track energy use and program performance across 140+ sites
• Energy efficient and reliable plant infrastructure
• Sustainable operations with reduced carbon footprint, putting the company on track to meet its 2025 target

The Results: Life Is On with... Millions of dollars in annual utility savings

Video link
HTML link

Global producer of construction & other high-performance materials buys energy smarter to fuel its core mission of improving lives through innovation
EcoStruxure™: Energy Efficiency at Saint-Gobain
Successful implementation of Smart Manufacturing

1.- Digital Transformation should be driven by business value, not technology…
Customer challenges
• Need to consolidate end-to-end operational visibility and optimize their mining value chain

Solution
• Demand Chain Planning and Scheduling
• Inventory Tracking & Quality Management (ITQM)
• Delay Accounting (DA)
• Capacity Simulation Model (Pre-CAPEX Analysis)

Customer benefits
• Optimization of end-to-end demand chain from the pit to the port across different time horizons, from long term planning down to weekly scheduling
• Key financial insights into production slowdowns and outages on a shift by shift basis
• Drive better decisions on a timely basis

Results
• Able to improve opportunities to collaborate, de-risk decisions and place greater focus on business improvements, all with a view of their entire business
• Helped increase production of iron ore to 50M tonnes
• Provide full visibility from remote centre that is 1300 Km away from mine
• Up to 20% improvement in supply chain efficiency*
• Extremely high conformance to planned production and supply chain goals

“Our mining operation is one of the largest in iron ore. We have an ore reserve of approximately 2.3 billion tons of ore. We will mine that at approximately one million tons a day and feed approximately 73 million tons per annum into our crushing facilities, which then gets turned into 55 million tons per annum of iron ore product.”
-Mike Lomman, General Manager, Demand Chain Planning
Lead, Care, Think and Perform

Roy Hill Mining Excellence from Pit to Port
Successful implementation of Smart Manufacturing

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Creation of Shared Value (Sustainability)
Successful implementation of Smart Manufacturing

7. Integration of industrial and engineering software

This means a long-term relationship with the end user.
Successful implementation of Smart Manufacturing

7.- Integration of industrial and engineering software

- Complete Digital Definition of
  - Assets (1D, 2D, 3D)
  - Process (Models, Simulation, ...)
  - Operations (Plan, Production, ...)
  - Maintenance (Rounds, PMs, ...)
Successful implementation of Smart Manufacturing

1.- Digital Transformation should be driven by business value, not technology…
ADNOC
The Panorama Project

“The Panorama Digital Command Centre demonstrates how ADNOC is utilizing cutting-edge technology to find new ways to optimize our assets, unlock value and drive efficiencies across the company. It provides a single access point to critical operational and performance information, facilitating smarter and faster decision-making and better enabling us to uncover new solutions.”

H.E. Dr Sultan Al Jaber, ADNOC Group CEO

Results
- Command Center integrates around 100,000 tags and aiming for more than 2 million Tags
- Panorama provides access information from one central location, enabling a “single version of the truth” via dashboards viewable from Pods and the 150ft x 10ft video wall centerpiece
- “Systematic Anticipation” a standardized, automated way of managing the business by looking at current and near future operations requirements, planned and actual performance
- Next: predictive analytics, decision automation and AI
What does Panorama generate?

Knowledge in the form of dashboards (KPIs) and schematic (real-time) information – this provides ADNOC with:

- Reports: daily, weekly, monthly and ad-hoc
- Information of when anomalies occur or are about to happen
- On-shore and Off-shore asset management information
- Actual vs Planned production information
- Utilization and efficiency of production
- Benchmarks of equipment by process area
- Energy usage and consumption with information on actual and planned

Map of OPCOs performance with drill down on operations excellence, health and safety, the environment, weather and climate:

- Macro and capacity planning with forecasting and What-if analysis of key inventories
- Sales and marketing, to show the cost per barrel as it moves through the value chain
- Current Market Prices: displays the products prices and dashboard information for market awareness
- Distribution information: shows fleet, rail and vessel tracking to identify ship departure/arrival dates against plan
- Vehicle status maps to display all vehicles that are in service
- News streams to display current events associated with ADNOC and its products
- Weather stream to focus on extreme weather conditions around the world but would affect ADNOC’s sales and marketing commitments, and particularly activities in the Abu Dhabi region
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Key Takeaways

- **Digital Technologies** are driving the 4\(^{th}\) industrial revolution which is more an **evolution** than a real revolution; and it is as related to **technology** as it is to new business models.

- **Business Values** associated to the need to deal with the **market trends** should be the ones driving the deployment of digital technologies.

- Identify the business value you are trying to address; then point out to the right **technology** and start a **proof of concept** to evaluate results.

- **Partner with suppliers and research organizations** who are willing to support the challenge of a digital journey- to identify the right technology, execute a proof of concept, measure its benefits and are eager to support your digital transformation

- **A key success factor** is the **Human Resources** component