Digital Core Transformation
Underpinned by S/4HANA
Enterprise Management
Industry 4.0 – The pace of change...

**Power Generation**  
Late 18th century  
Steam engines and hydraulic power drive improved productivity and enabled industrialisation

**Industrialisation**  
Start of the 20th century  
Electricity and assembly lines paved the way for mass manufacturing, improved infrastructure and advances in financing and credit markets

**Electric Automation**  
1970s to 2000  
Advances in computing and the internet allow for information to be captured and transferred more quickly than ever before

**Digital Supply Networks**  
4th Industrial Revolution  
Execution of connected products, customers and supply chain and operations – driven by a vast network of cyber-physical systems
Enterprises have the challenge to keep pace with the digital economy because their current core business-management system is too limited to support the digital transformation.

SAP S/4HANA Enterprise Management provides the lean digital core that serves as a foundation for business innovation and optimisation, enabling the enterprise to start the digital journey in line with its individual benefits/risk profile.
**Enabled business opportunities**
Improving productivity, pace and quality of discrete manufacturing significantly through seamless integration of manufacturing business operations, machines and people underpinned by S/4HANA and RFID

**Use case:** Connected Factory – Horizontal integration

- Machines are connected to a virtual system, and **adapt in real time** to changes in production requirements
- Machines **automatically update** status throughout production process
- Factory supervisor can choose to **remotely monitor** work in progress and machine health
- Using real-time analytics for **predicting product failure** and for **proactively separating defects for inspection**
- Connected machines can proactively sense and **automatically optimize** production settings
- **Legend**
  - Connected machines (ME/MII)
  - Remote Monitoring
  - Proactive Sensing & QC
  - Synchronisation
- Real-time utilisation data from machinery, manpower, inventory levels and demand are synchronized automatically to let machines self-calibrate
Use case

- **Less manual interventions** on the shop floor leading to higher throughput and quality
- Improved visibility of manufacturing relevant data in real-time
- Ensuring business continuity in MES systems supporting 24/7 operations
- **Quick adaption** of manufacturing process to changes in production requirements (Lot Size One)
- **Traceability** of individual product along the whole supply chain

**Use case:** Connected Factory – Vertical integration

**SAP S/4HANA ME/MII**
Extends the core to the shop floor and enables leveraging IIoT (Industrial Internet of Things) Machine-to-Product, Machine-to-Machine and Machine-to-Human capabilities.

**Enabled by**

**MII for manufacturing environments requiring higher flexibility**
- Supports standard connectors to other MES and shop floor systems
- All data affecting manufacturing is visible in real-time (reporting/visualisation)

**ME for more stringent manufacturing environments**
- Provides standard processing instructions to the machines
- Enables management and control of manufacturing and shop floor operations

**RFID integration**
- Enables inter/intra equipment connectivity
- Facilitates scheduling & synchronisation of manpower, inventory, products and asset availability
- Monitors process characteristics, production count and production issues in real-time
- Reads and optimises pro-activity production settings (quality control)
- Ensures regulatory compliance requirements with unit-level traceability
Enabled business opportunities
Shop-floor technologies are diverse and are getting even more complex. We assessed the adaption of the App Store concept for production IT with the Fraunhofer Institute and automotive customers. “Empowering the shop floor” will result in a number of short-term business benefits and increase the ability to accelerate change, an important characteristic of the digital transformation.

Use case: Shop-Floor – App Store

Shop-Floor Service Bus

01 Manage Apps
02 Configuration and injection
03 App running in BLH* or native
04 Managed BUS Communication (ESB **)

* BLH: Business Logic Host  **ESB: Enterprise Service Bus
Digital Core Transformation | Industry 4.0

**Use case**

- Simplify line setup of nut runner installation using an **App-like** mechanism to provide installation by a centralised **shop-floor App store**
- Integrated **App store** will provide proven Apps as centralised process registry. Business users can initiate, execute and maintain nut runner configuration without support (e.g. IT Department)

**Enabled by**

**Shop-floor App store**

- Increases flexibility of line changes due to in-time status alerts to the shop-floor
- Reduces complexity of set-up by up to 18% (due to configuration wizard)
- Saves set-up time and reduces test effort significantly
- Enables user self service for production business to set-up nut runner without support e.g. from IT
- Changes responsibility of configuration to business owner
- Ensures IT governance to shop-floor and standardised configuration for all nut runner type

**Lead Question:**

“Does App-like shop floor functionality empower simplification and therefore increase the agility of production line modifications?”
How to get started?
Think big, but start small and act fast...

**Think big**
- Immerse in innovation
  Join an IoT lab to explore the “art of the possible”, incite ideas and cultivate a culture of innovation
- Build your ecosystem
  Evolve your supply chain by collaboration with suppliers

**Start small**
- Scale the edges
  Disconnect from the core business and set-up teams to enable disruption within an established organisation
- Pick one or two use cases
  Prioritise your desired tactics and pick just one or two use cases to start with proofs of concept

**Act fast**
- Prove it works (quickly)
  Use agile approach to move from strategy to prototyping as quickly as possible – “fail fast” and achieve rapid results
- Market your own success
  Champion your successes to gain traction and achieve enterprise-wide adoption
How to continue the journey?
Scale, build, pick and implement...

**Scale the edges**
- Analyse business process requirements
- Conduct E2E capability and performance assessments
- Conduct assessment for scalability

**Immerse yourself in innovation**
- Conduct creative design sessions (agile)
- Define new use cases
- Identify relevant digital ecosystem

**Build your ecosystem**
- Define IT Strategy
- Define implementation approach & roadmap
- Conduct tool selection
- Determine S4/HANA transition roadmap

**Pick one or two use cases**

**Market your own success**
- Support solution implementation
- Use case PoCs
- Pilot deployments

**Prove it works (quickly)**
Industry 4.0 Manufacturing transition – From Top-floor down to Shop-floor

The digital transition takes time and focus and therefore a “Step-by-Step” approach is essential but at the same time the speed of delivery is important to make sure to get the momentum of first movers.

1. Map out Industry 4.0 strategy
   - Evaluate own digital maturity
   - Identify most business value
   - Readiness of company leadership

2. Create pilot initial project
   - Define a confined scope
   - Collaborate with digital leaders
   - Cooperate with industry organisations

3. Define capability need
   - Building Pilot lesson learnt
   - Map out needed capability
   - Recruit people needed

4. Increase the data analytics capability
   - Set up cross-function expert teams
   - Build direct links between decision-making and intelligent system design
   - Think big – Start small
   - Be willing to experiment with new technology/new ways of operating

5. Transform into a digital enterprise
   - Set up “tone from top” with clear leadership commitment
   - Set up digital culture with DevOps and Design Thinking
   - Understand/develop the future ecosystem between all involved partners

6. Plan an ecosystem actively
   - Develop a complete product and service solution
   - Look for bridges to fill gaps
Deloitte has a deep expertise in integrating organisational and technology change management in SAP S/4HANA implementations.

1. Deloitte has global organisational change management expertise in the key capability areas digitalization requires.

2. Deloitte is ranked the Global leader by IDC and #1 by Kennedy in technology-driven Change Consulting Services.

3. We streamline and align our change management programme to the SAP Activate implementation methodology, offering seamless integration with all facets of the larger programme.
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