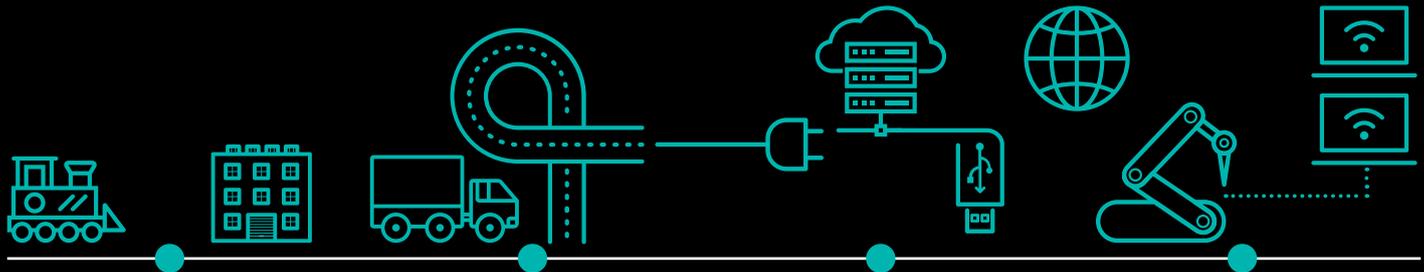# Deloitte.

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
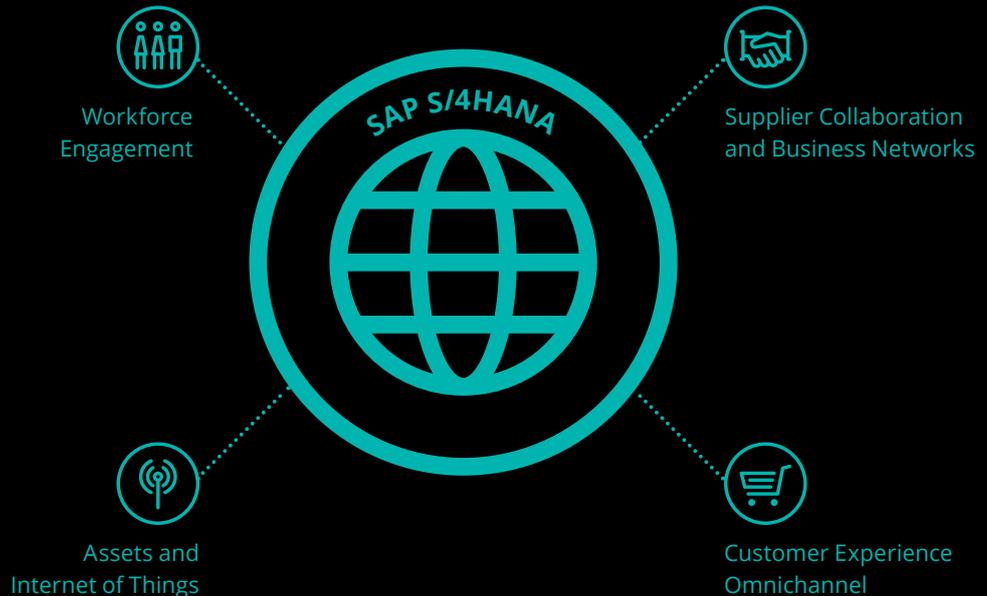
Digital Supply Networks
4th Industrial Revolution

Execution of connected products, customers and supply chain and operations – driven by a vast network of cyber-physical systems

Embrace the digital world

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.
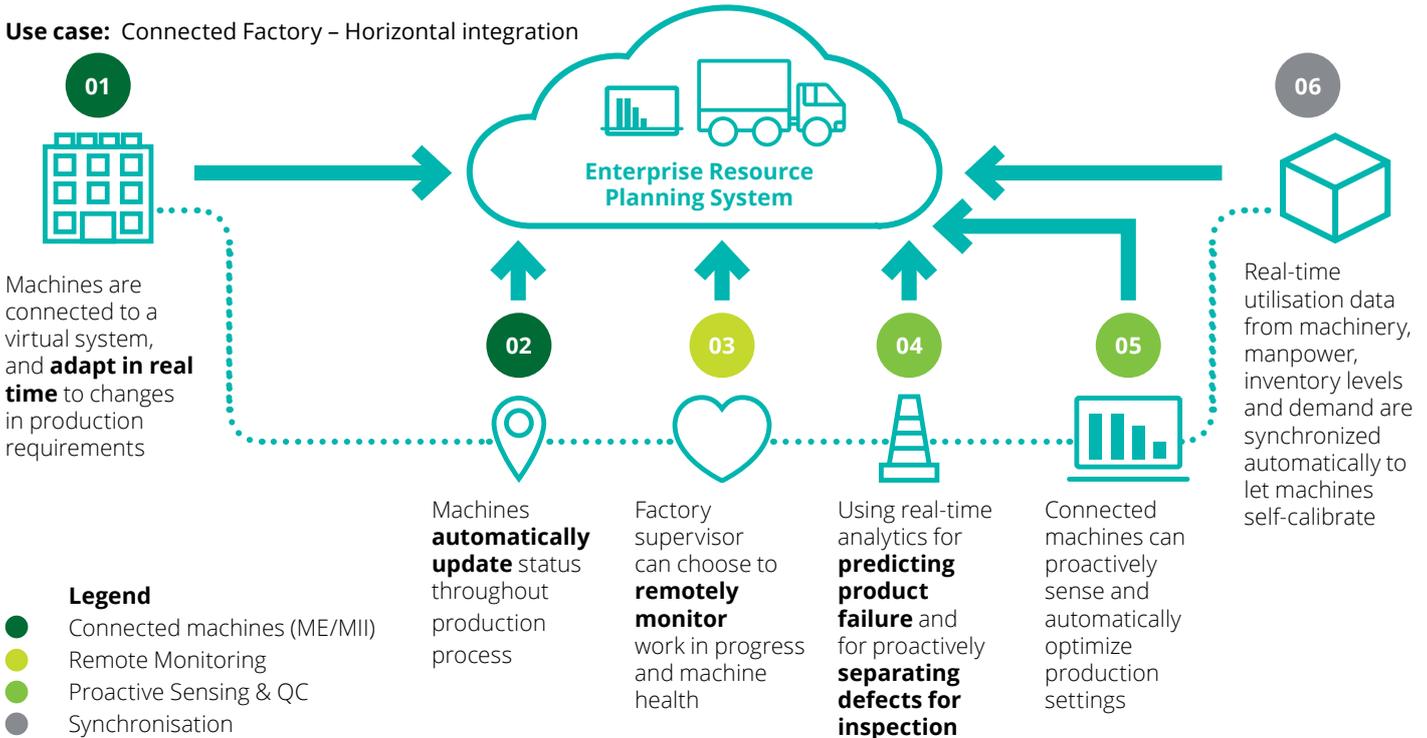
SAP S/4HANA Enterprise Management provides the lean digital core that serves as a foundation for business innovation and optimisation, enabling the enterprise to start the digital journey in line with its individual benefits/risk profile.

Workforce Engagement

Supplier Collaboration and Business Networks

SAP S/4HANA

Assets and Internet of Things

Customer Experience Omnichannel

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

01

Enterprise Resource Planning System

06

Machines are connected to a virtual system, and **adapt in real time** to changes in production requirements

02

03

04

05

Real-time utilisation data from machinery, manpower, inventory levels and demand are synchronized automatically to let machines self-calibrate

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

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.

Leveraging IIoT/M2P/M2H

S4/HANA cloud, hybrid or on-premise

SAP ME/MII incl. PCo run on HANA DB

Machines/ Devices

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
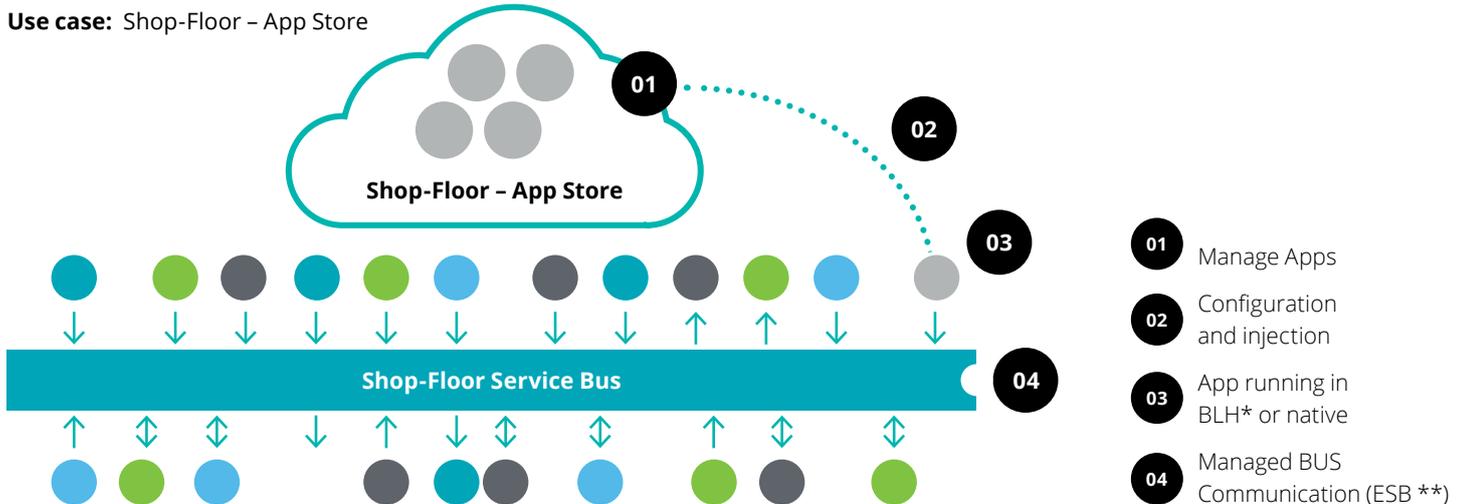- Enables management and control of manufacturing and shop floor operations

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

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

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 asessments
- Conduct assessment for scalability

- Provide insights to Target Operating Model
- Develop Business Case
- Define Digital Transformation Strategy

SAP S/4 HANA

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

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

Build your ecosystem

Prove it works (quickly)

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

Pick one or two use cases

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.

01	02	03	04	05	06
Map out Industry 4.0 strategy	**Create pilot initial project**	**Define capability need**	**Increase the data analytics capability**	**Transform into a digital enterprise**	**Plan an ecosystem actively**
Evaluate own digital maturity	Define a confined scope	Building Pilot lesson learnt	Set up cross-function expert teams	Set up "tone from top" with clear leadership commitment	Develop a complete product and service solution
Identify most business value	Collaborate with digital leaders	Map out needed capability	Build direct links between decision-making and intelligent system design	Set up digital culture with DevOps and Design Thinking	Look for bridges to fill gaps
Readiness of company leadership	Cooperate with industry organisations	Recruit people needed	Think big – Start small	Be willing to experiment with new technology/new ways of operating	Understand/develop the future eco-system between all involved partners

Deloitte has a deep expertise in integrating organisational and technology change management in SAP S4/HANA 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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