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# Industrie 4.0 Architecture Journey from Traditional to Smart Manufacturing

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## Abstract:

- ▶ Industrie 4.0 is bringing a significant transformation regarding the ways we manufacture our products and also product related services. Industrie 4.0 brings a new step in automation and digitization of manufacturing processes with new technologies like Additive manufacturing, IIoT, AI/ML and Cloud solutions. These technologies enable industries to gather massive data through connected eco-system of smart products and provide ability to analyse this data to bring in insights.
- ▶ According to Platform Industrie 4.0 originated in Germany and which is driving the digital transformation in production, following scenarios shape the heart of Industrie 4.0.
- ▶ **Flexible production:** Many companies are involved in the manufacturing of a product and contribute step by step to the creation of a product. Digitally networked, these steps can be better coordinated and the utilization of the machines can be planned better.
- ▶ **Convertible factory:** In the future, production lines will be built in modules. They can be quickly assembled for one task. Productivity and profitability are improved, individualized products can be manufactured in small quantities at affordable prices.

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**Customer-centric solutions:** Consumer and producer are moving closer together. Customers can design their own products according to their wishes - for example, elements of sneakers can be designed themselves and adapted to the individual foot shape. At the same time, smart products that have already been delivered and are in use, can send data to the producer. With the usage data, the producer can improve his products and offer his customers innovative services.

**Optimized logistics:** algorithms calculate ideal delivery routes, machines automatically report when they need new material - smart networking enables an optimal flow of goods.

**Use of data:** Data on the production process and the condition of a product are merged and evaluated. Data analysis provides information on how a product can be manufactured more efficiently. More importantly, it is the basis for completely new business models and services.

**Resource-conserving recycling management:** Products are viewed with data support over their entire life cycle. The form in which the materials can be recycled is already defined in the design.

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Following is proposed Table of contents:

1. Industrie 4.0 Overview
  - a. Current approach for Manufacturing
  - b. Industry expectations
2. Challenges
  - a. Adoption
  - b. Software integration
  - c. Scaling the use cases
3. Standardized Architecture for Industrie 4.0
  - a. RAMI 4.0
  - b. IIC
  - c. Comparisons
  - d. Limitations
4. Digital Twins
  - a. Concept
  - b. Twins in Product Lifecycle
5. Transformation Journey
  - a. Customer Technology Landscape maturity
  - b. Industry Specific agility demands
  - c. Identify paths of change
6. New usecase in Manufacturing
  - a. Remote Diagnosis as a Service
  - b. Augmented Reality for work instructions
  - c. Autonomous Productions (M2M)
  - d. Continous improvements based on ML in areas of availability, liability and process.
7. Atos's take
  - a. Drive (Involvement) in various I4.0 Architecture standarization programs
  - b. Impact on solutions
  - c. Portfolio/Technology Mapping
8. Future Outlook

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## Presenters:

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