

L'evoluzione 4.0: lo scenario in Italia. Opportunità, difficoltà e applicazioni.

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FESTO – 24 Marzo 2017



Is Italy ready for the Fourth Industrial Revolution?



Challenges to Manufacturing Today...



The Market of One

- » Customized offerings
- » Individual requirements
- » Regional preferences



Extreme Variability

- » Productivity
- » Innovative technology
- » Employee Satisfaction

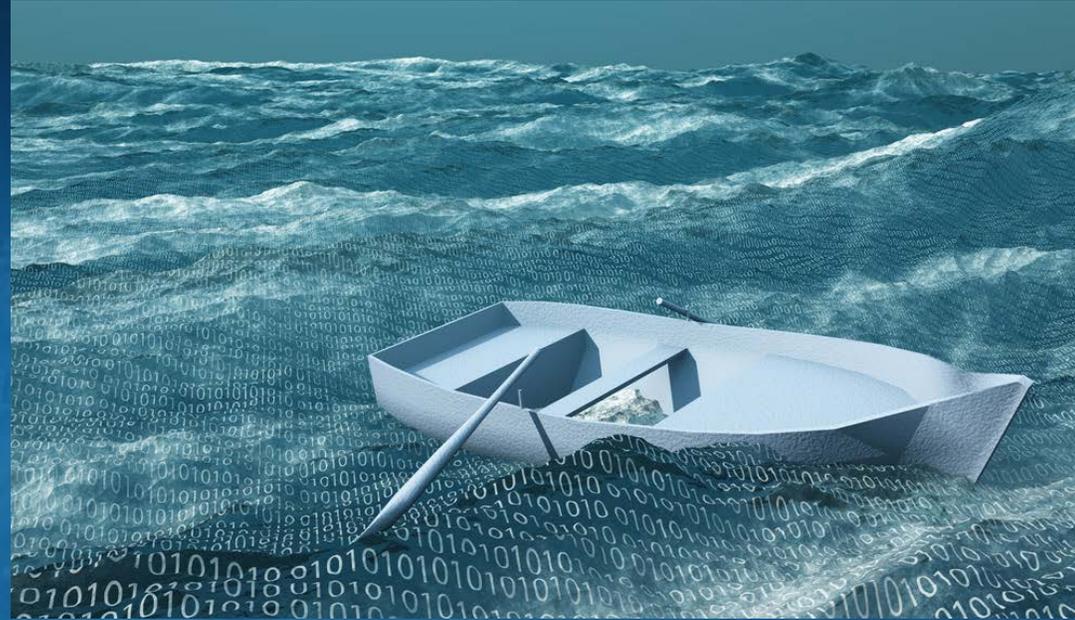
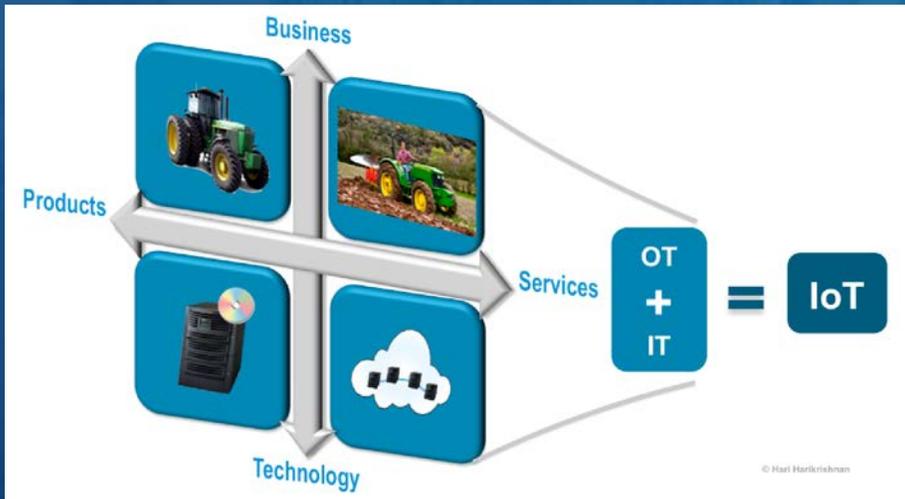


Rapid Innovation

- » Time to market
- » innovative products

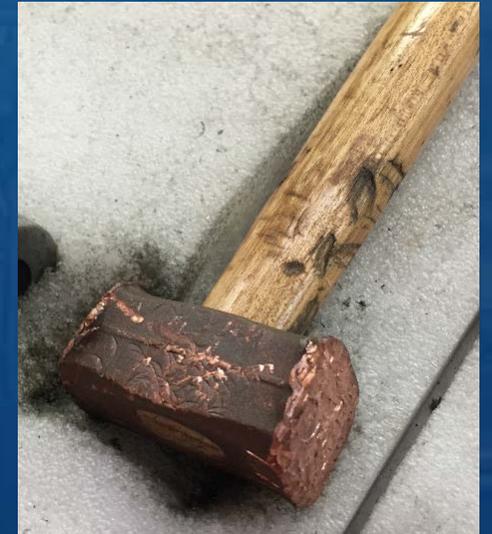
Industry 4.0 Impression from Italy

Difficult to integrate OT and IT



Big data,
what to do ?

Strategy not ready for I3.0



Industry 4.0 – Customers' Perspectives

Fears

People knowledge not always available (data scientist)
Business case not clear / difficult to define



Resistances

Internet infrastructure reliability
Products/machines not ready for connection



Expectation

Customer wants "More with Less"
Higher Profitability with new opportunities

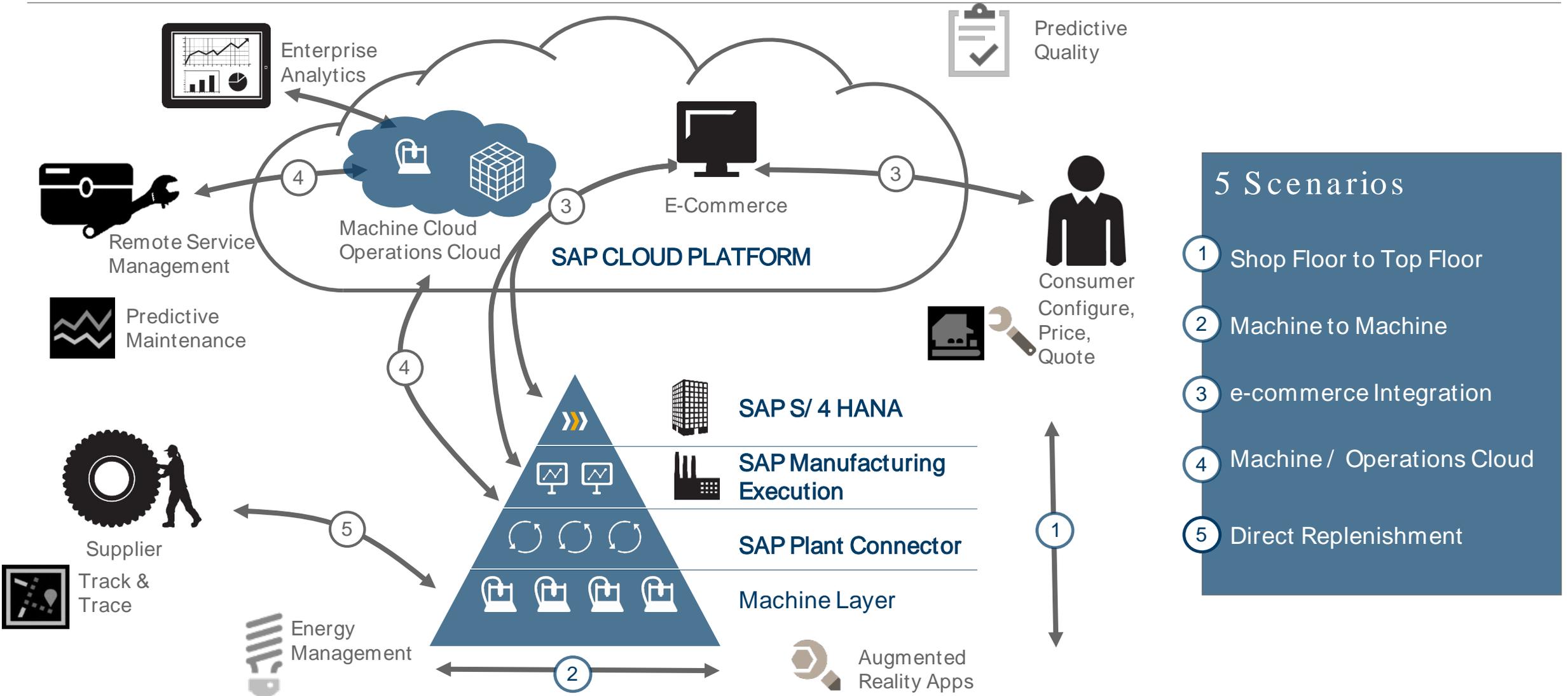


SAP Point of View



SAP Connected Manufacturing

Five Scenarios of Industry 4.0



Connecting Things with People and Processes

SAP Leonardo Innovation Portfolio

SAP Leonardo Bridge

Connected Products



Product Insights

Goods and Equipment

Supply Networks

Connected Assets



Fixed Asset Insights

Manufacturing Execution

Manufacturing Networks

Connected Fleet



Mobile Asset Insights

Logistics Safety

Logistics Networks

Connected Infrastructure



Building Insights

Construction

Energy Grids

Connected Markets



Market Insights

Rural Areas

Urban Areas

Connected People



People and Work

People and Health

People and Homes

SAP Leonardo
for Edge
Computing

SAP Leonardo Foundation

SAP Cloud Platform / SAP HANA Platform

Innovation Portfolio: Foundation and Edge



SAP Leonardo Bridge

Connected Products

Connected Assets

Connected Fleet

Connected Infrastructure

Connected Markets

Connected People

SAP Leonardo Edge

- Streaming
- Persistence
- Business transactions
- Predictive and machine learning*
- Analytics*

Technical Services

- Device Management
- Connectivity
- Messaging

SAP Leonardo Foundation

Business Services

- Thing model (digital twin)
- Application Enablement
- Re-use UI and APIs
- Data Management



Analytics



Mobile

SAP Cloud Platform
SAP HANA Platform



Machine Learning

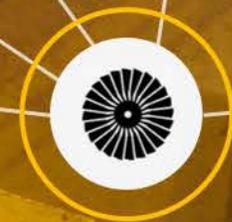


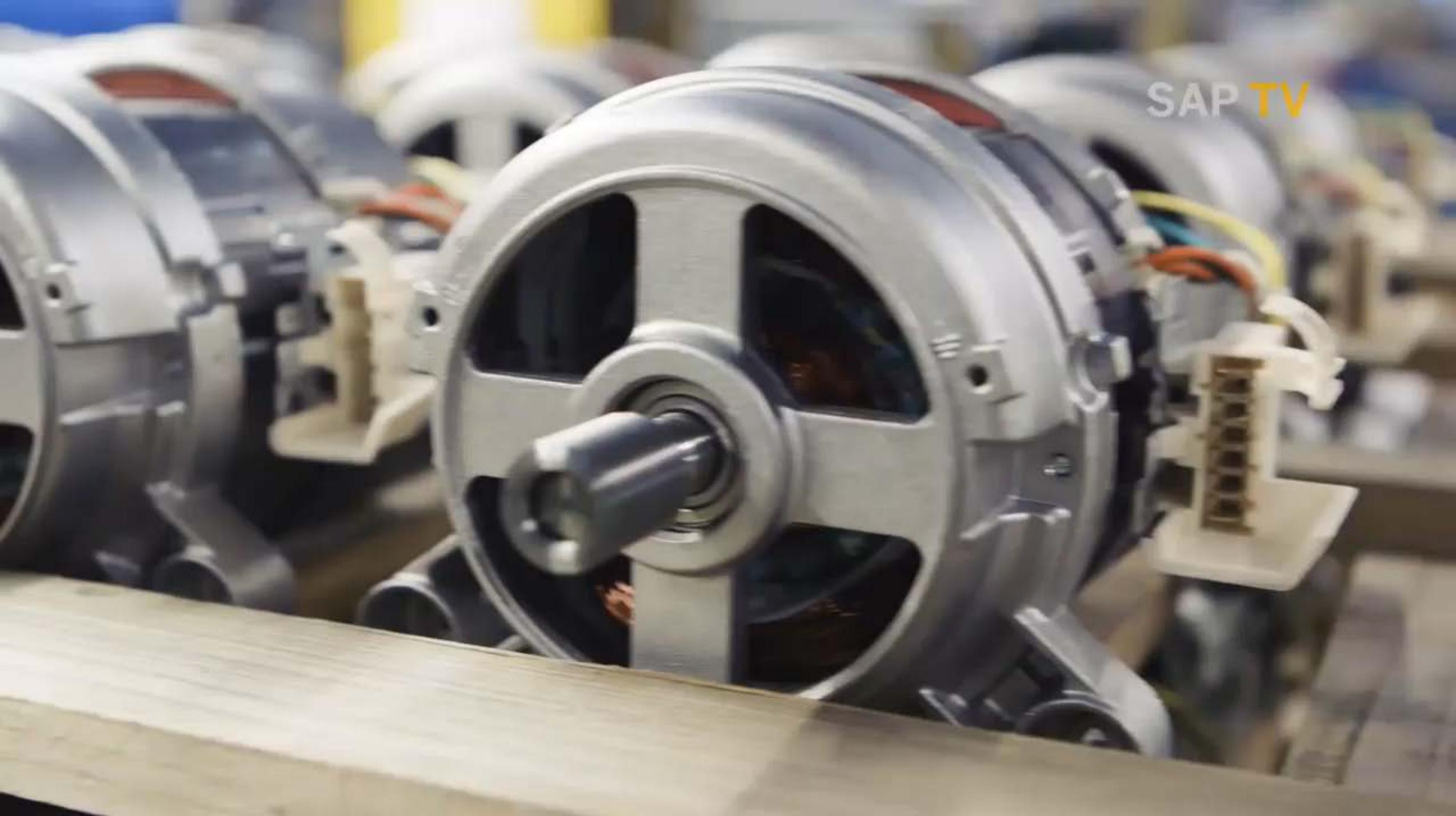
Integration



*Future capabilities

Is the Fourth Industrial Revolution, real today?





Dynamic Maintenance Management System: Trenitalia

Company

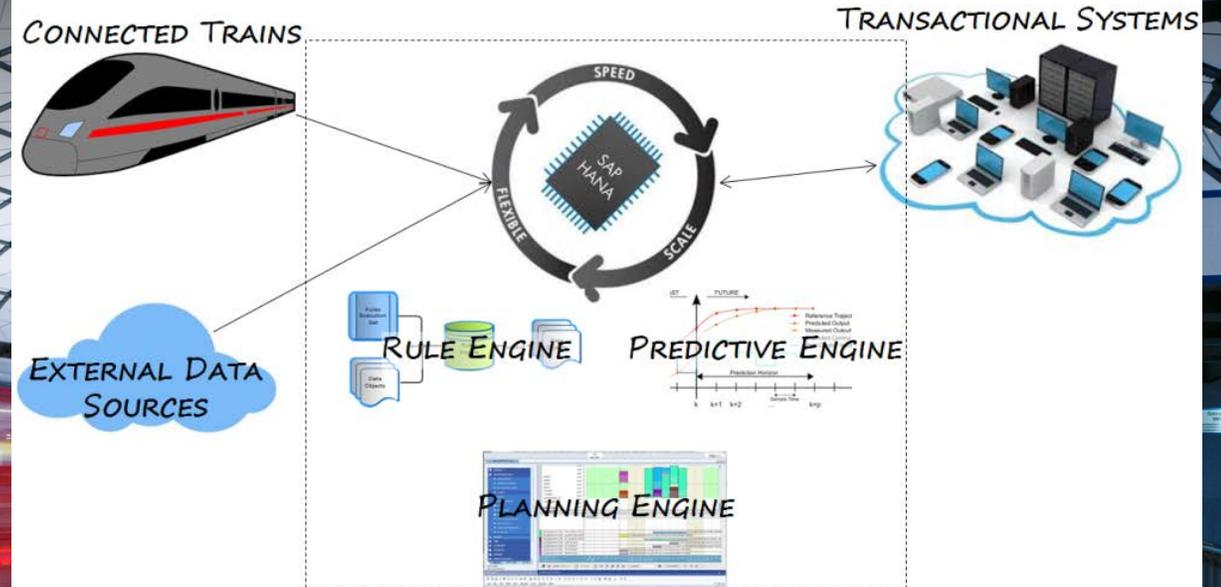
The company owns and operates a fleet of around 2.000 electro-trains, 2.000 locomotives and 30.000 coaches and wagons.

Situation: 40% of maintenance effort is for corrective maintenance. Maintenance of rolling stock has been identified as one aspect of the Digital Transformation.

Solution

- Custom solution on SAP HANA
- Data fusion between IT and OT data
- Multidimensional assets description
- Remote train diagnostics
- Engineering rules and predictive models
- Indicators-based planning
- Dynamic optimization of maintenance schedules

Process/ Technology Innovation



Benefits

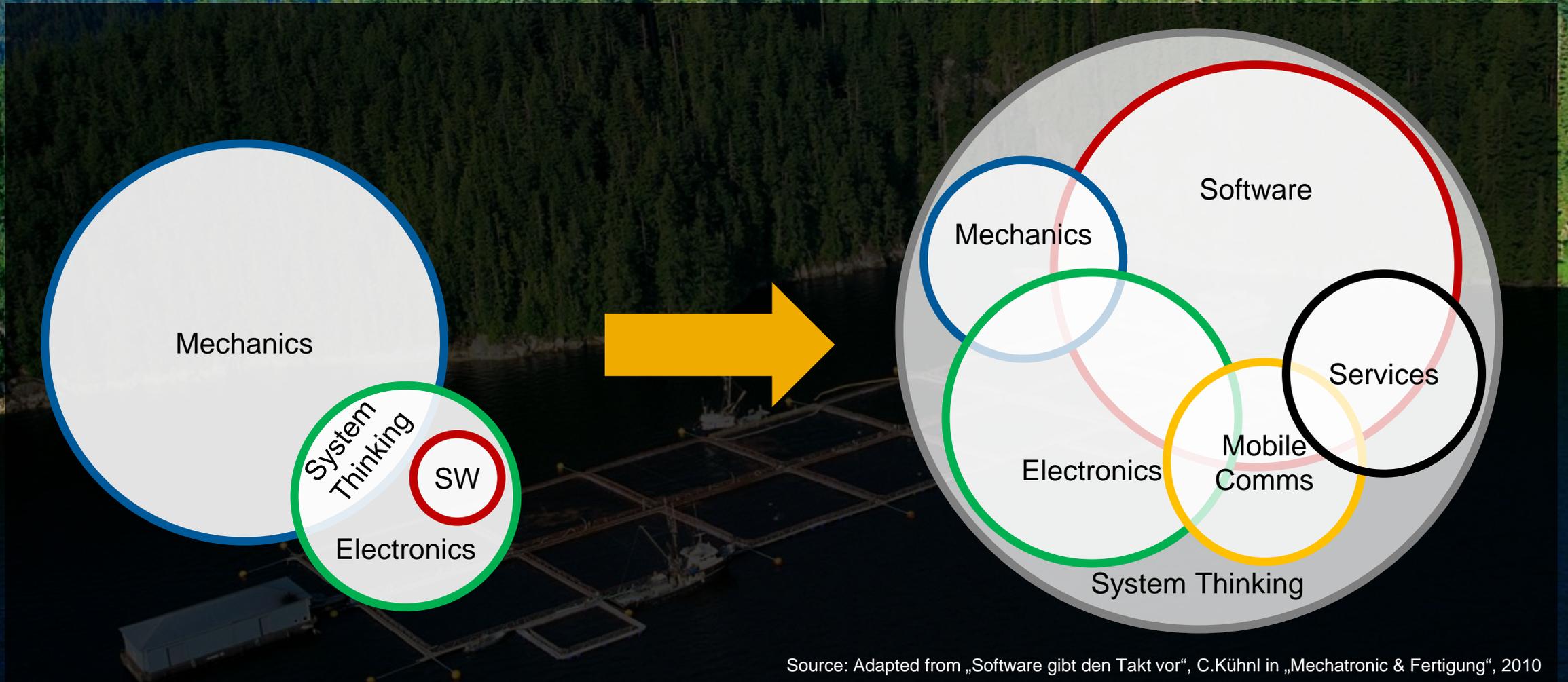
- Higher asset availability leading to higher passenger satisfaction
- Less effort for corrective maintenance

Fourth Industrial Revolution Actions to take?



From Products to Systems

Transition from simple Products to complex Solutions



Source: Adapted from „Software gibt den Takt vor“, C.Kühnl in „Mechatronik & Fertigung“, 2010

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