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Logistics Control Center

Reiner Bildmayer, SAP AG, 27.09.2007

Workshop WS-23

Die allwissende Fabrik - Informatik in der Produktion

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THE BEST-RUN BUSINESSES RUN SAP™

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Motivation for a Logistics Control Center

Monitor and Control the Interaction of ERP & Manufacturing Operations

Demo of a Prototype

Manufacturing today has some key challenges

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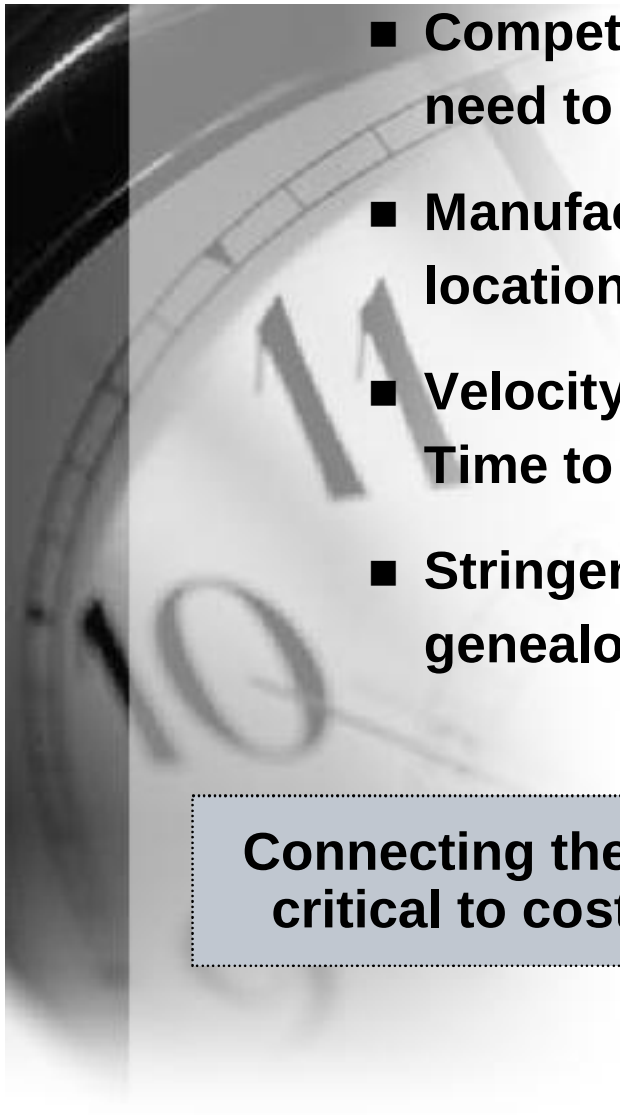

- **Competitive pressures and commoditization is forcing the need to lower manufacturing costs.**
- **Manufacturing nodes are being pushed out to distant locations leading to a loss of visibility and control.**
- **Velocity is critical. Time-to-market, Time to Volume, and Time to Scale are the keys to success.**
- **Stringent regulations are driving the need for quality and genealogy tracking and compliance capabilities**

Connecting the Factory to the Enterprise and Supply Chain is critical to cost-effectively deliver on customer expectations

The disconnect between the Factory and the Enterprise needs to be addressed to meet these challenges

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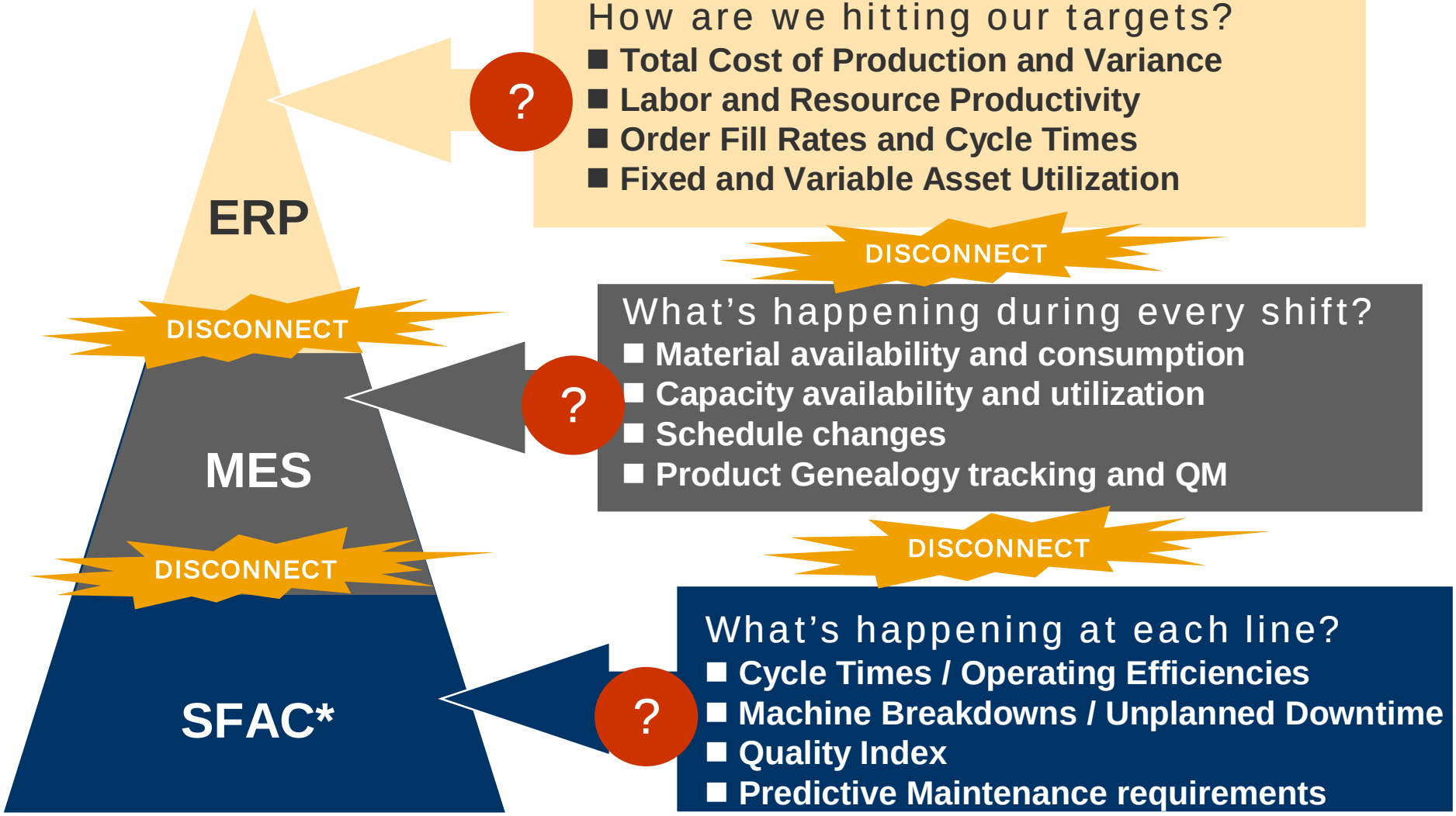

*** Shop Floor Automation and Control Systems**

Analyst View on the Future of Manufacturing

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Gartner

"Changing business models, coupled with an explosion of demand-side and supply-side production information requirements, have forced manufacturers to rethink their plant systems deployments. In response, manufacturers will seek to extend their applications model beyond the execution focus within the "four walls" of the plant, enabling greater visibility and collaboration in product value chains across the enterprise and its trading community." - Ken Brant

ARC

"This new breed of collaborative manufacturing solutions enables an enterprise to derive maximum performance from their production and human assets by making critical information easily and broadly available, and by dynamically aligning employees priorities with real-time objectives." - Greg Gorbach

FORRESTER

"The X Internet boosts flexibility and will let manufacturers improve planning and visibility by connecting shop-floor assets like WIP inventory and equipment to enterprise apps. Smart firms will avoid data overload by learning to manage their shop-floor operations by exception." - Jennifer Chew

AMR Research

"Collaborative Manufacturing Execution requires a shift from bottom up Manufacturing IT and engineering silos, to top-down overarching business and production process management platforms extended over multiple lines and production sites." - Roddy Martin

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ERP Today...

A means of supporting people, processes and innovation

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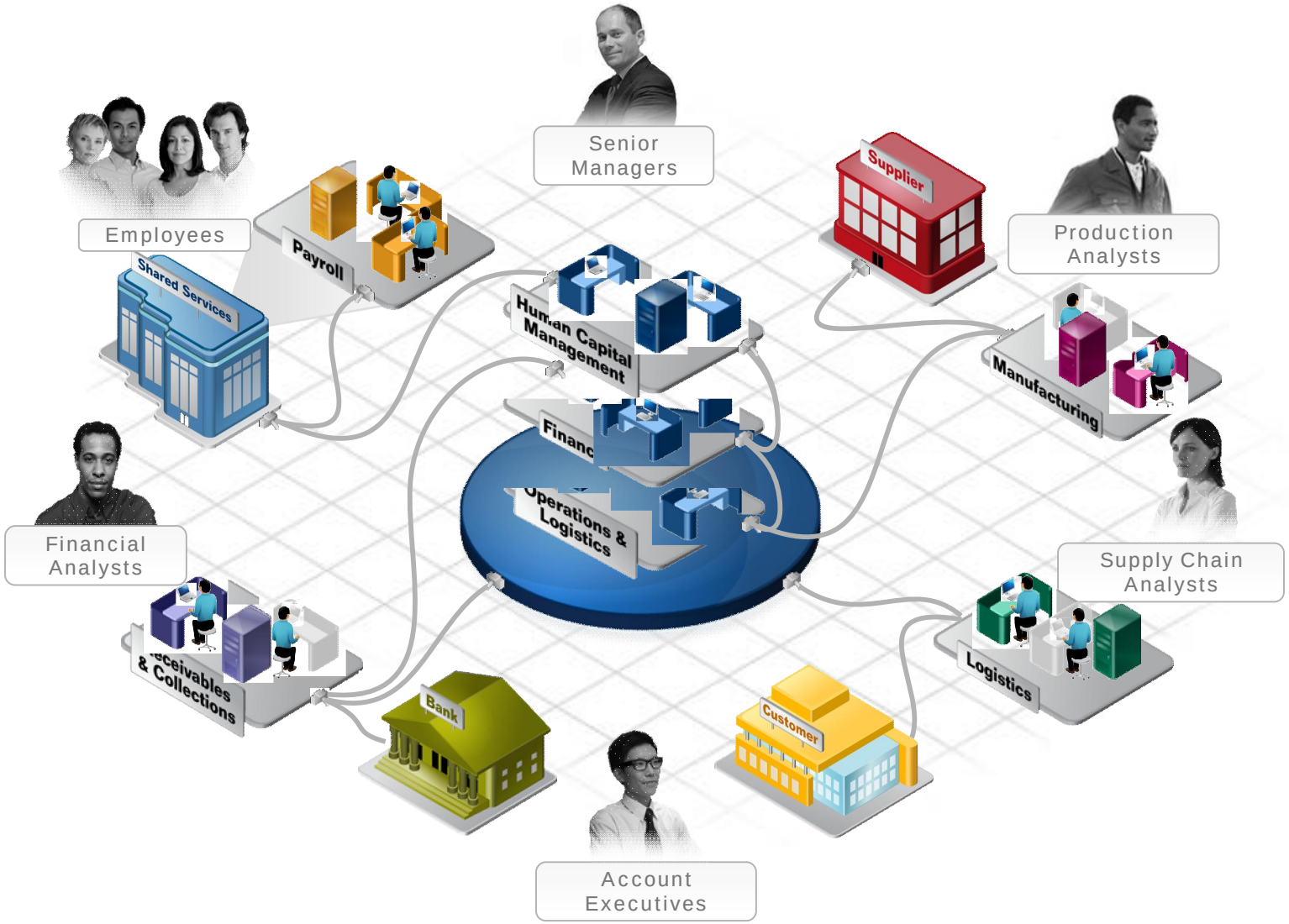

Manufacturing Operations Today ...
A combination of MES, SCADA, SPC, Historians etc.

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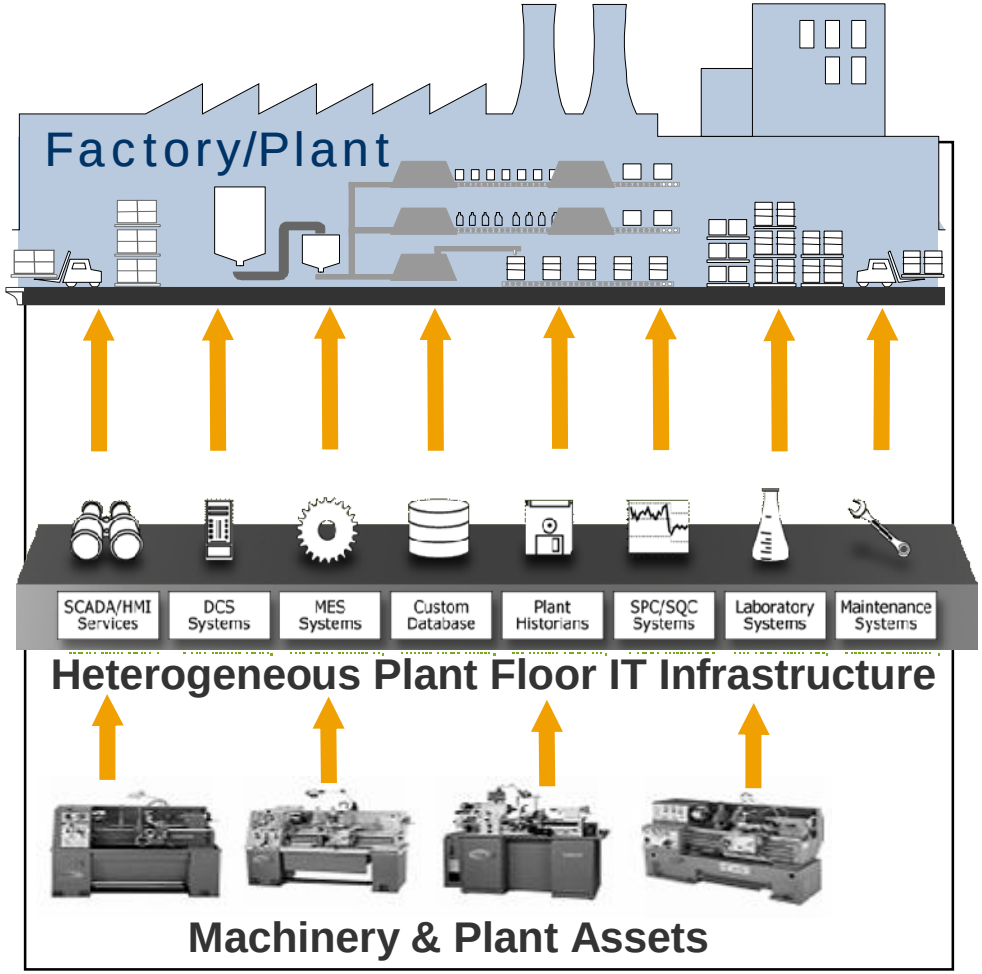

Manufacturers need to:

- **Interact with various Systems and Solutions**
- **Proactively detect machine, labor, quality, and resource exceptions**
- **Collaborate with their suppliers and manufacturing partners to resolve exceptions**
- **Continuously monitor, analyze, and learn from variances to improve processes**
- **Provide production personnel with the decision support and content they need to meet their targets**

The New Reality Requires a Manufacturing Operations Management (MOM) Approach

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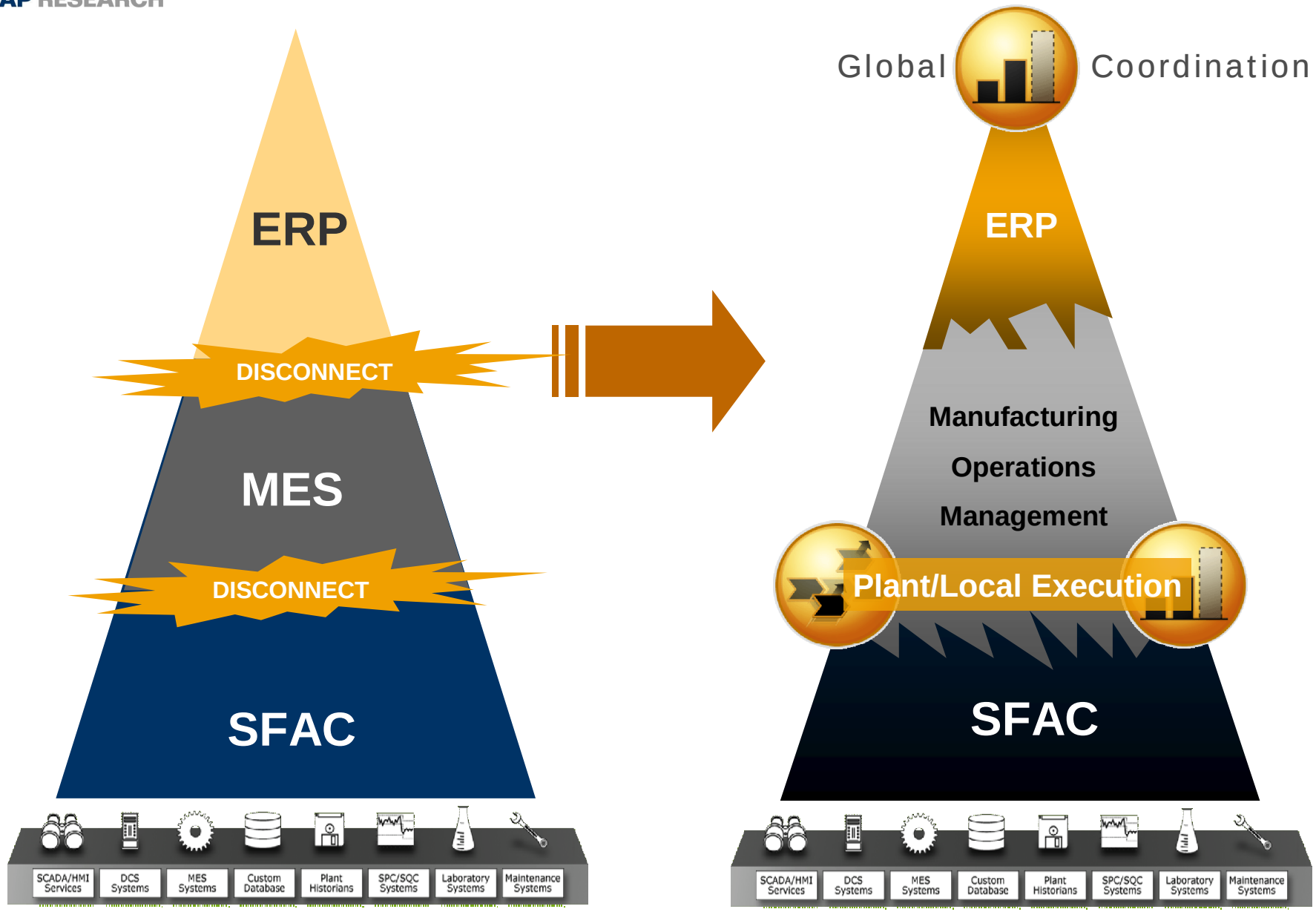

ERP and Manufacturing Operations Management need to have a seamless Monitoring and Control ...

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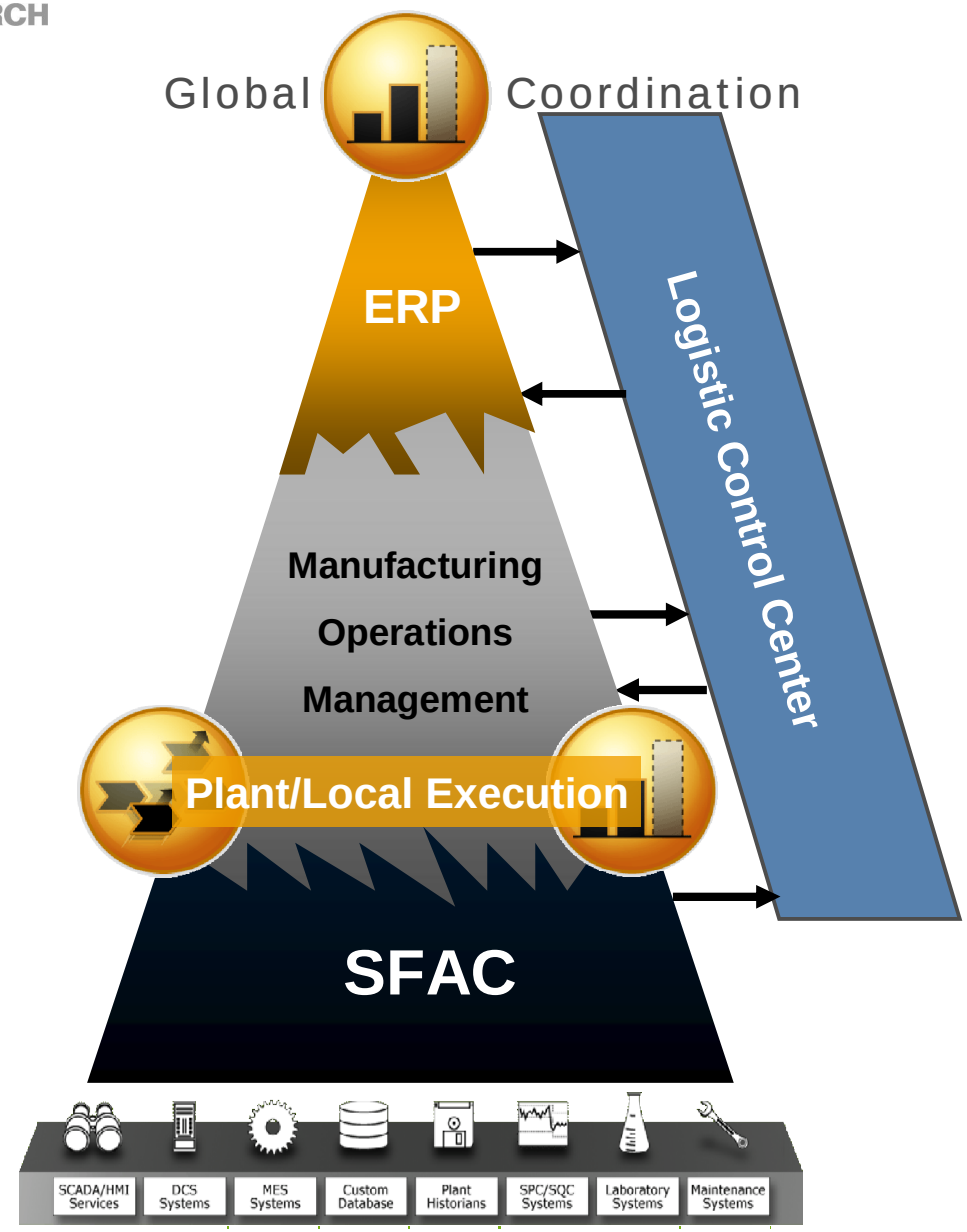

Monitoring:

- **Production Orders**
- **Material Flow**
- **Resources Business View**
- **Resources Technical View, but no replacement for SCADA**
- **Maintenance of Resources**
- **...**

Controlling:

- **Production Planning**
- **Production Process**
- **...**

... because there are gaps to be bridged due to different granularities ...

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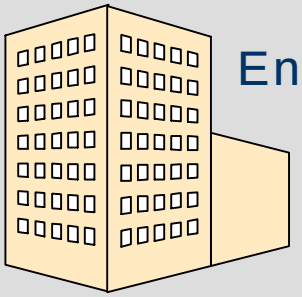
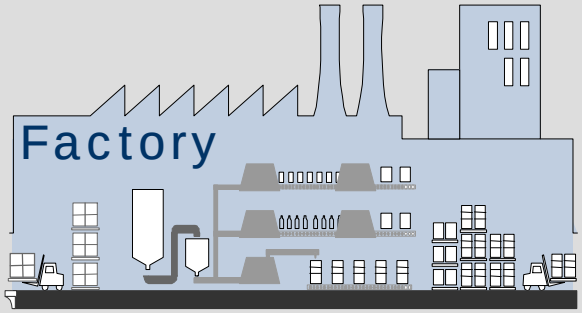
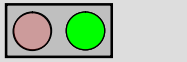


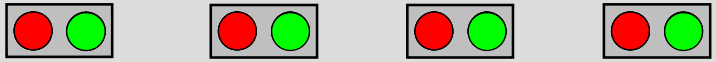
Enterprise

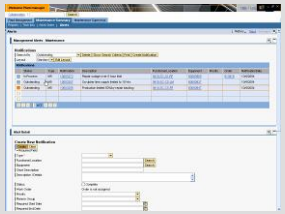


Resources



Resources Status





User Interfaces

Produce Activities

Production Order, planned Quantities, ...

other Entities

Production Lot, Bin Quantities, ...

... additionally aggregation rules have to be established ...

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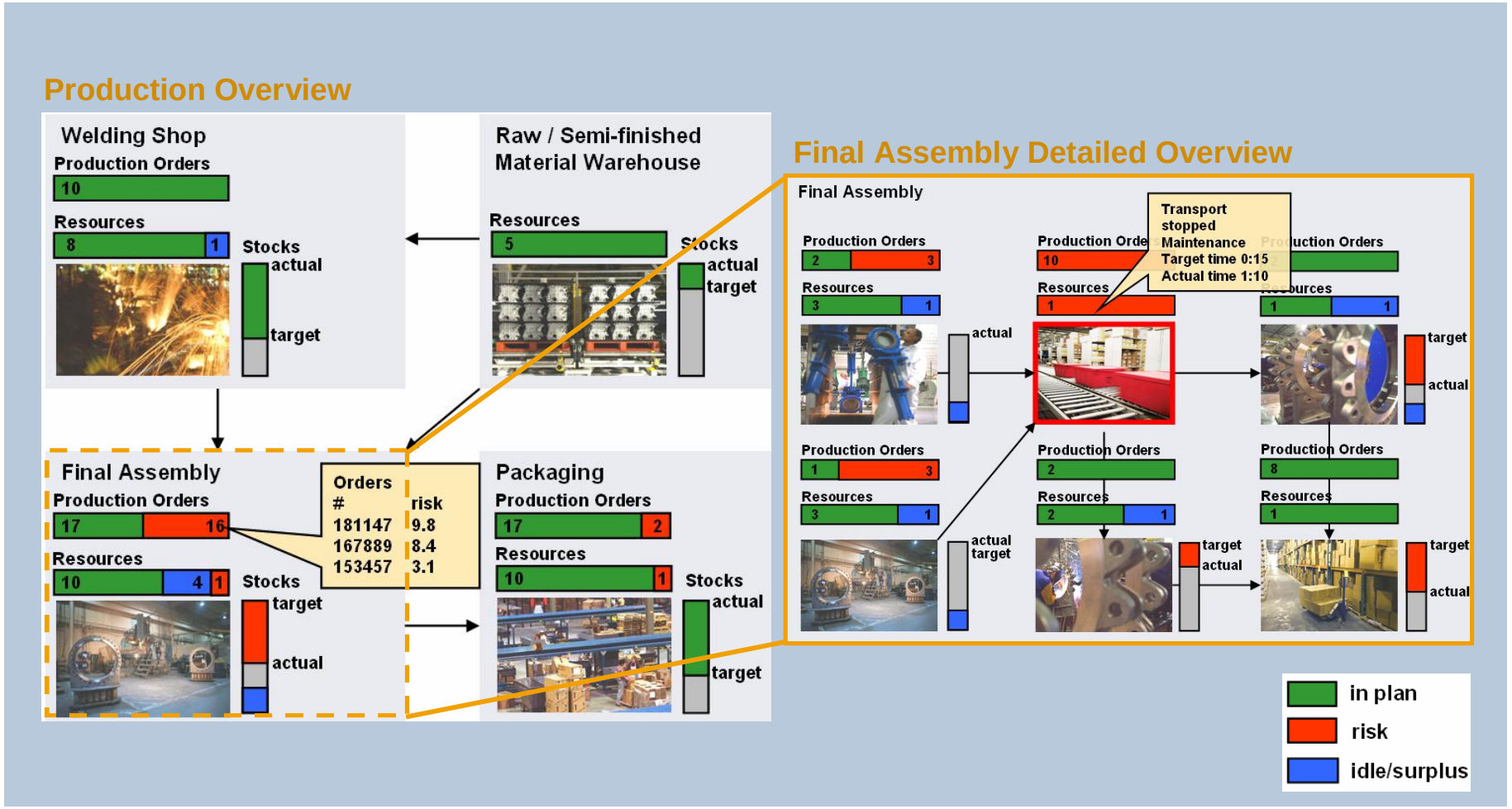
Aggregated factory/warehouse



The user can interfere to correct production flow in response to real time machine conditions

… and also the UI behavior and interactions must be mapped

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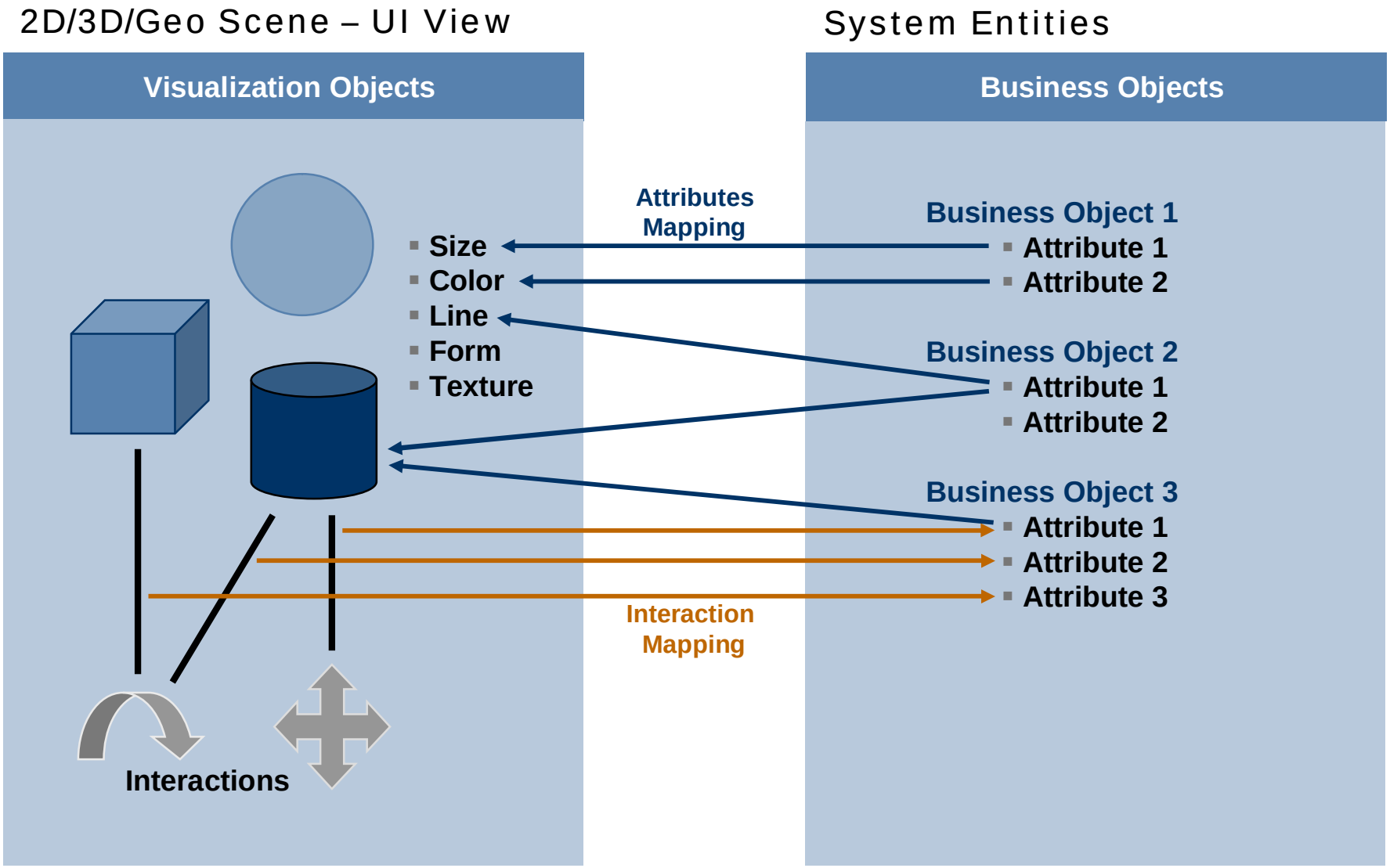

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Demo of a Prototype

PRODUCTION –
REAL-TIME PRODUCTION PROCESSES AND 3-D PRODUCTION CONTROL

The manufacturing industry is one of the most important in Germany. Companies must be able to respond quickly to changes in the highly dynamic business environment if they are to remain competitive in the global market. Being able to rapidly adapt their own business processes to such changes can give companies a vital competitive edge. Just a few seconds after such events have happened, employees and decision makers can access all information about them in the SAP system, no matter whether the information comes from the supplier network or the production environment.

The demonstrated prototype shows how SAP software monitors the execution of production orders on a production line thanks to the end-to-end, bidirectional integration between the SAP system and the machines used in production. Order-related messages – for example, on material consumption – and other data about the warehouse and machines are available in real time. A new 3D-display enables companies to efficiently manage their entire factory using the wide range of data at their disposal.

Future Factory visitors can trigger production orders in a model plant by adding various radio frequency identification (RFID) tags at the end of the assembly line (in accordance with the kanban principle). They can then observe the entire production process both in the plant and on the computer screen – from withdrawal of parts to their assembly. The system displays the up-to-date order details, including all confirmations and follow-on orders for these machines.

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