

DAIMLERCHRYSLER

**Applications of Agent Technology
at DaimlerChrysler**

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Research Information and Communication
Manufacturing and Supply Nets

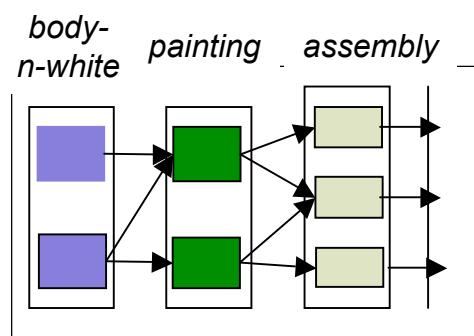
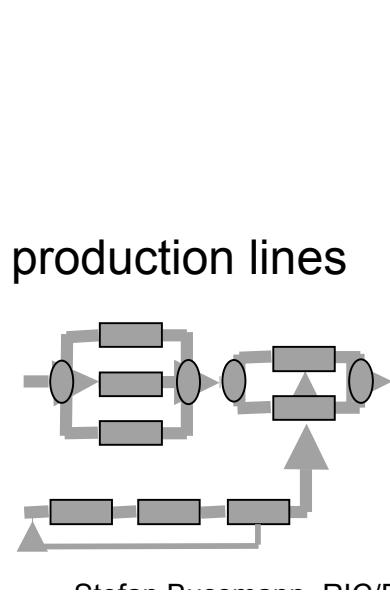
Contents of talk

- Why does DaimlerChrysler adopt agent technology?
- Example application *Production 2000+*
- Lessons learned
- Current applications

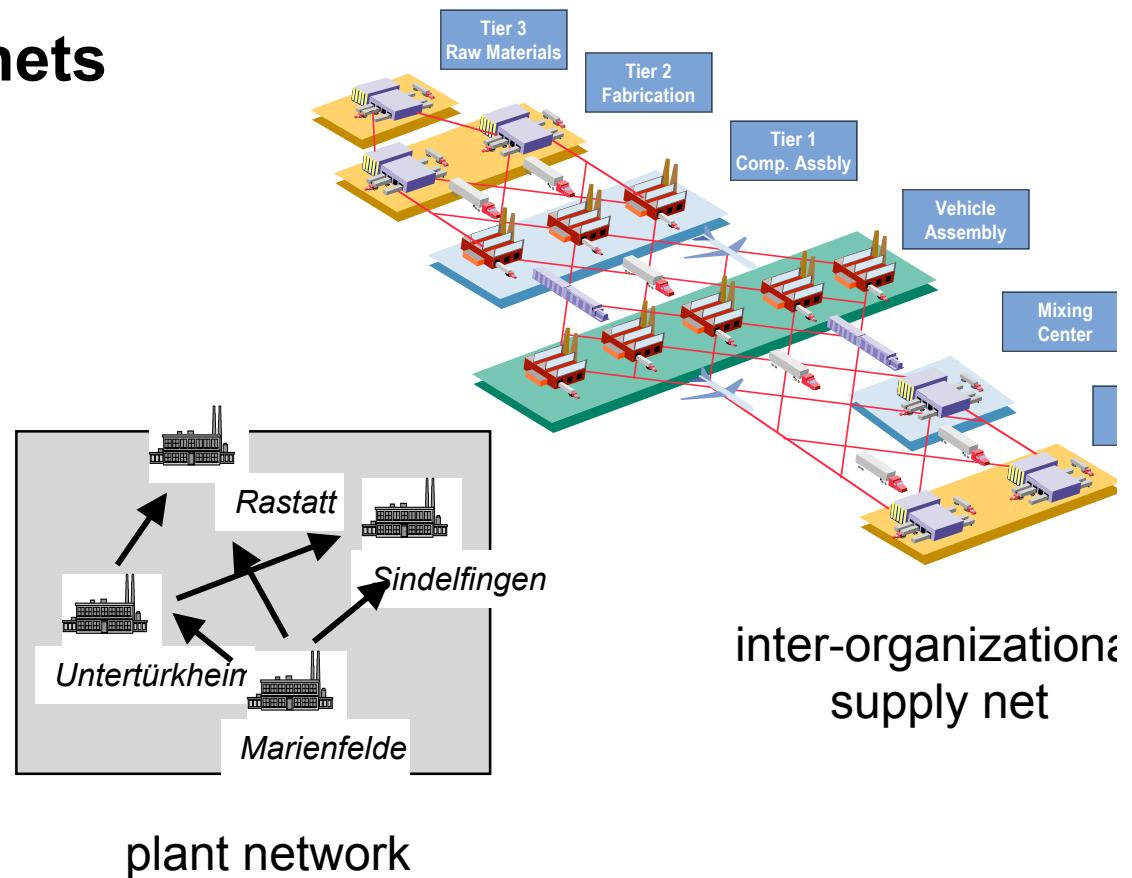
Manufacturing and supply nets

Objective

improve manufacturing
and supply processes



vehicle assembly plant

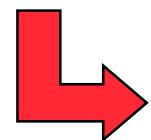


A Mercedes-Benz SL-Class Cabriolet - 2000

Motivation: *Business trends*

Growing surplus of industrial capacity and globalization lead to

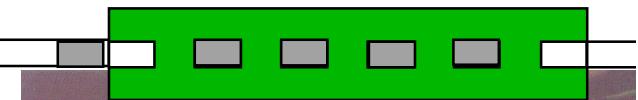
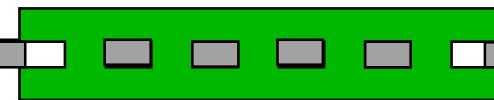
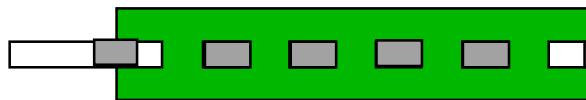
- shorter product life-cycles
- reduced time-to-market
- increased product variety
- volatile demand
- reduced investment costs



New manufacturing requirements

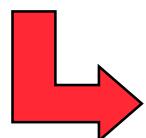
- **product flexibility**
- **volume scalability**
- **robustness**

Production 2000+: *Flexible and robust production system*



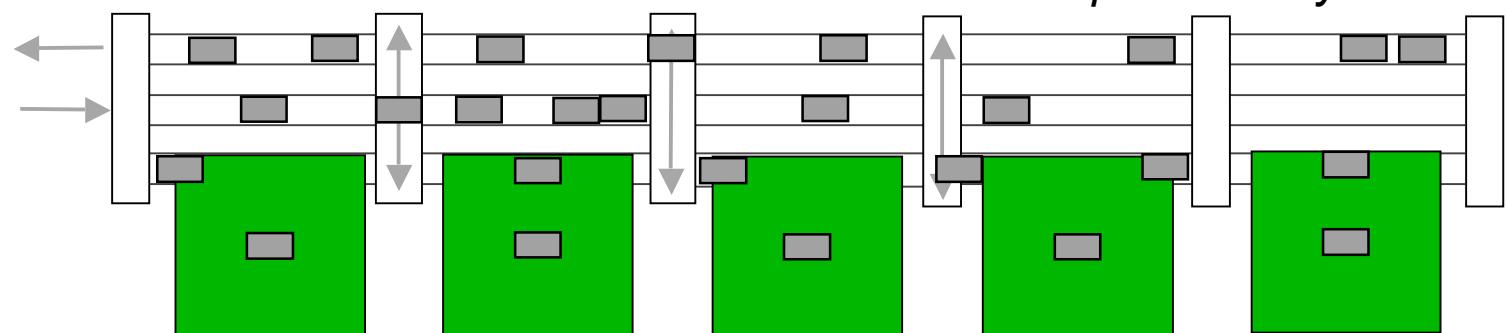
Disadvantages of transfer lines

- dedicated machines
- rigid material flow



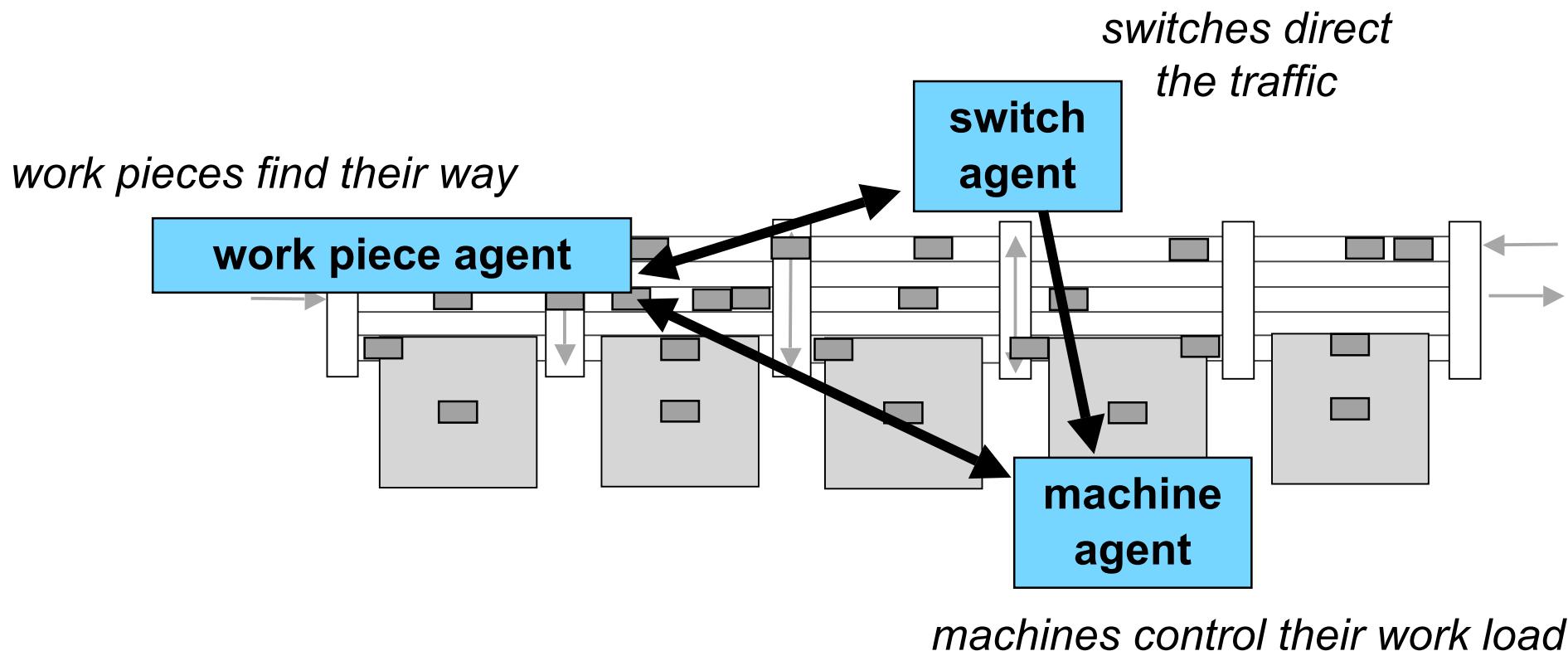
introduce more hardware flexibility

*flexible
transportation system*



*flexible
machine*

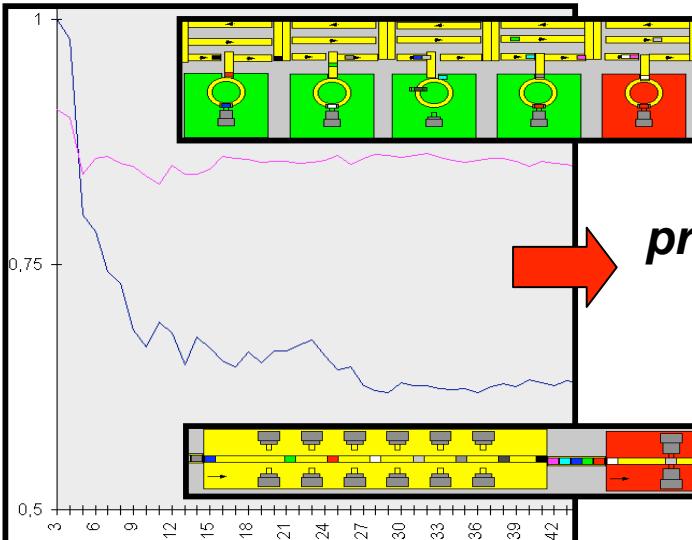
Production 2000+: An agent-based control system



Control forces:

- work pieces push themselves
- machines limit work-in-process

Production 2000+: *Field test*



**productivity increase
at least 10%**

by-pass to
existing transfer line



Schneider
Electric

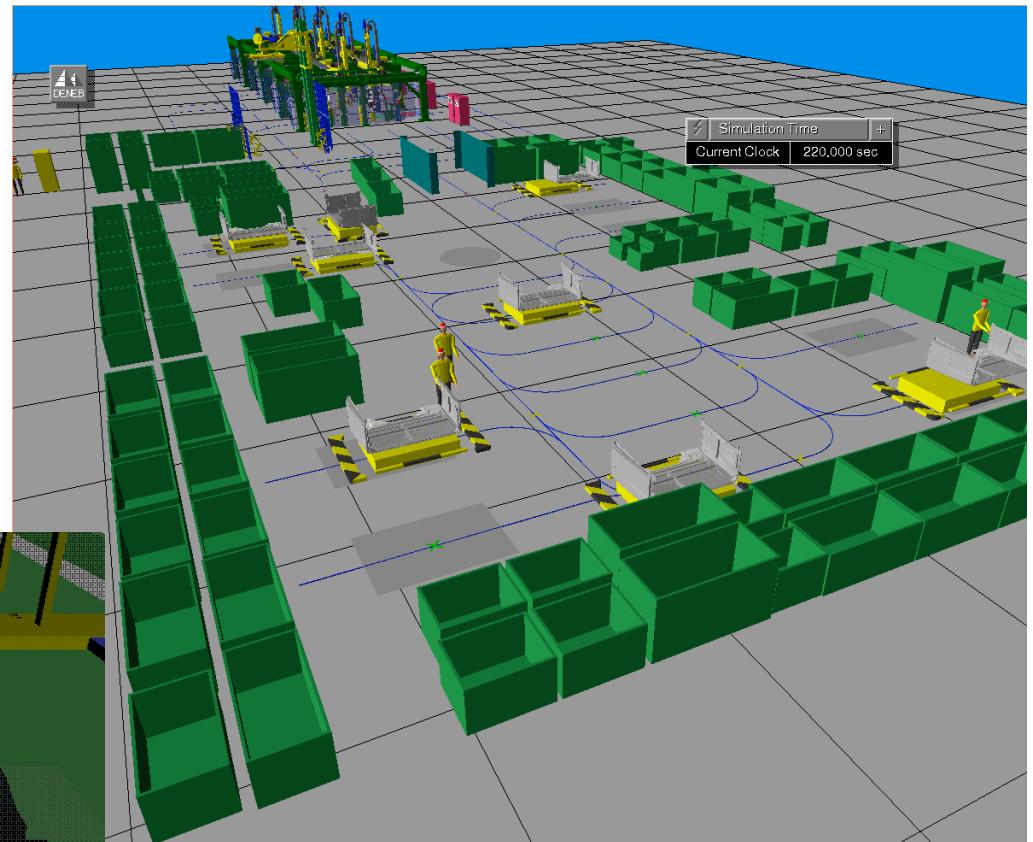
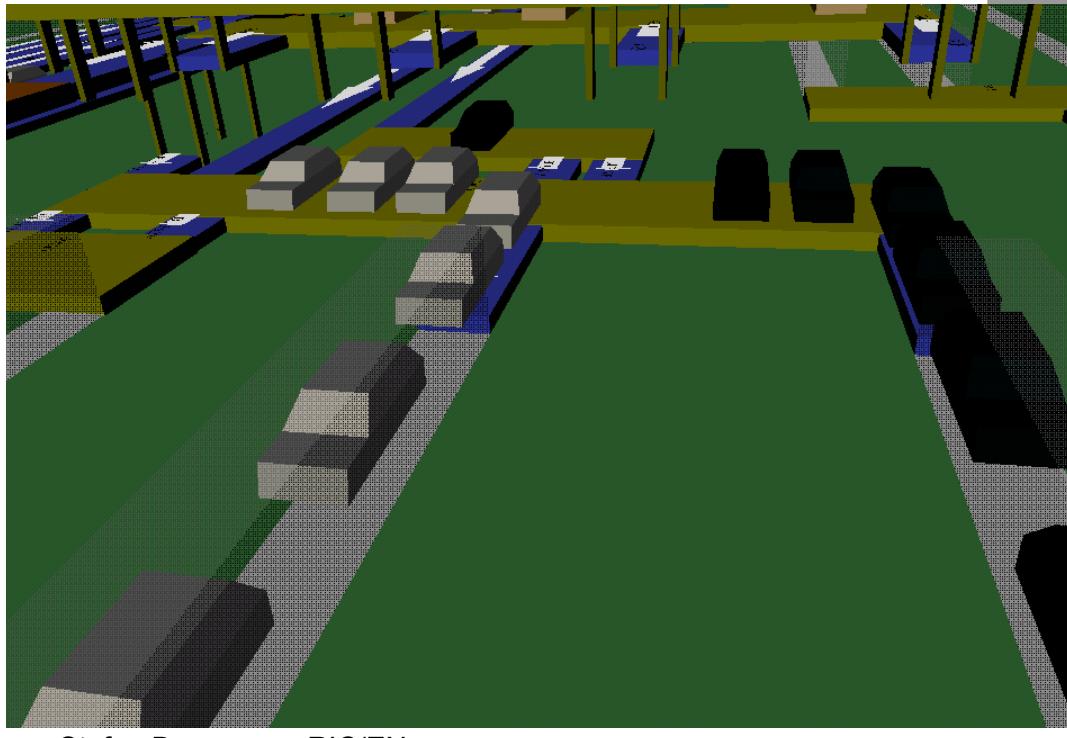
Lessons learned

Requirements for wide-spread use in industry

- show **added-value** of agent technology over existing technology
- provide development **methodology for engineers**
- provide (commercial) **tools** for agent development that comply with existing agent standards
- integrate agent technology into industrial environment
- provide migration to agent-based systems

Current applications

optimized car painting



flexible car body welding