
ProVis.Agent: an agent based production monitoring & control system

- A step towards real time manufacturing in automotive plants -



Fraunhofer

Institut
Informations- und
Datenverarbeitung



Leipzig, April 5, 2006



14:57
DIE
3. JUNE

Objekt	QIA	Stand	Rel	Ver	Diff	Ein	Inter	Ein	Grund	Profil
8000	TV	2,29	1,0							
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8056	H	2,29	1,0							
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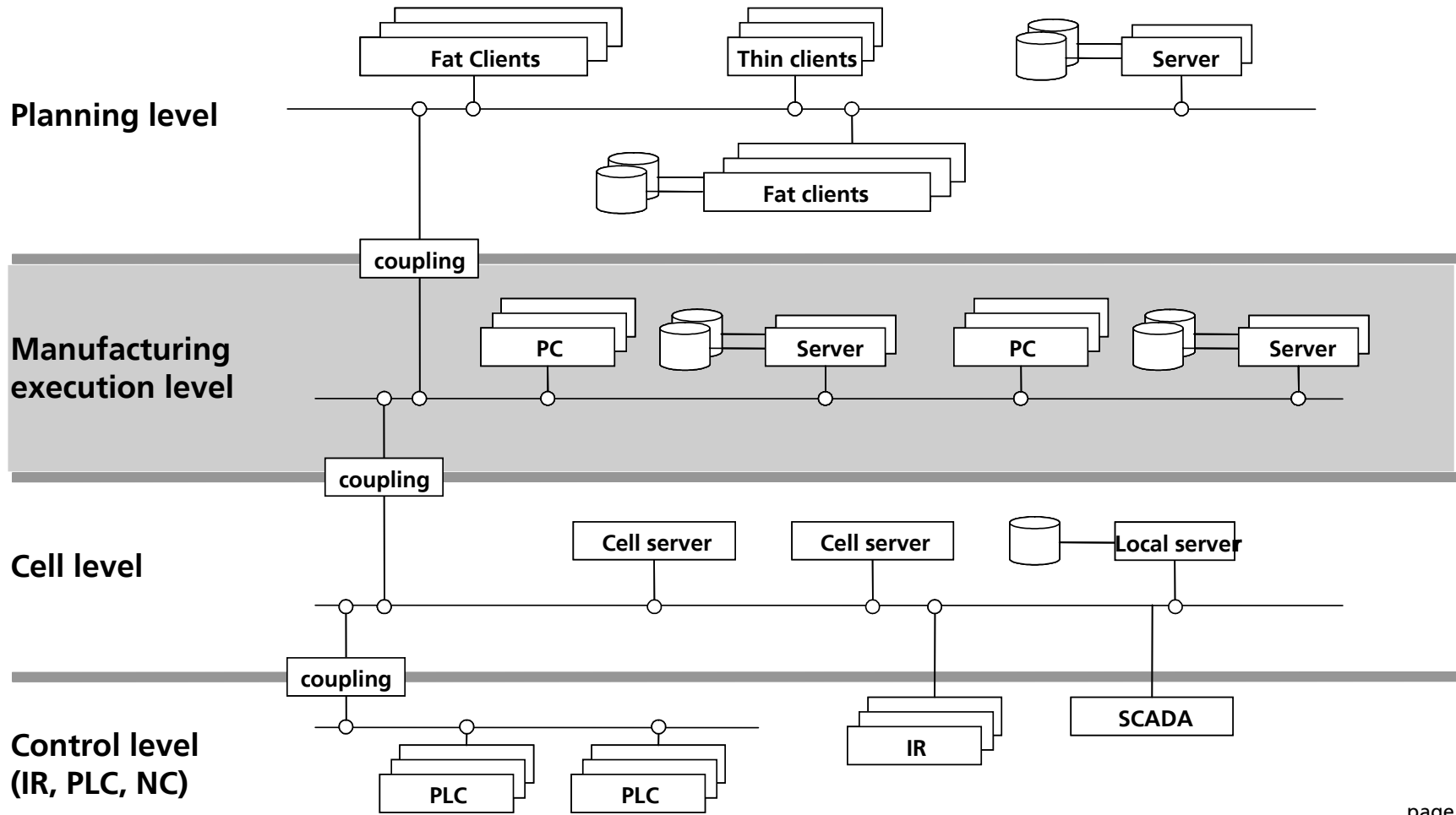
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Objekt	QIA	Stand	Rel	Ver	Diff	Ein	Inter	Ein	Grund	Pufferbereich
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Contents

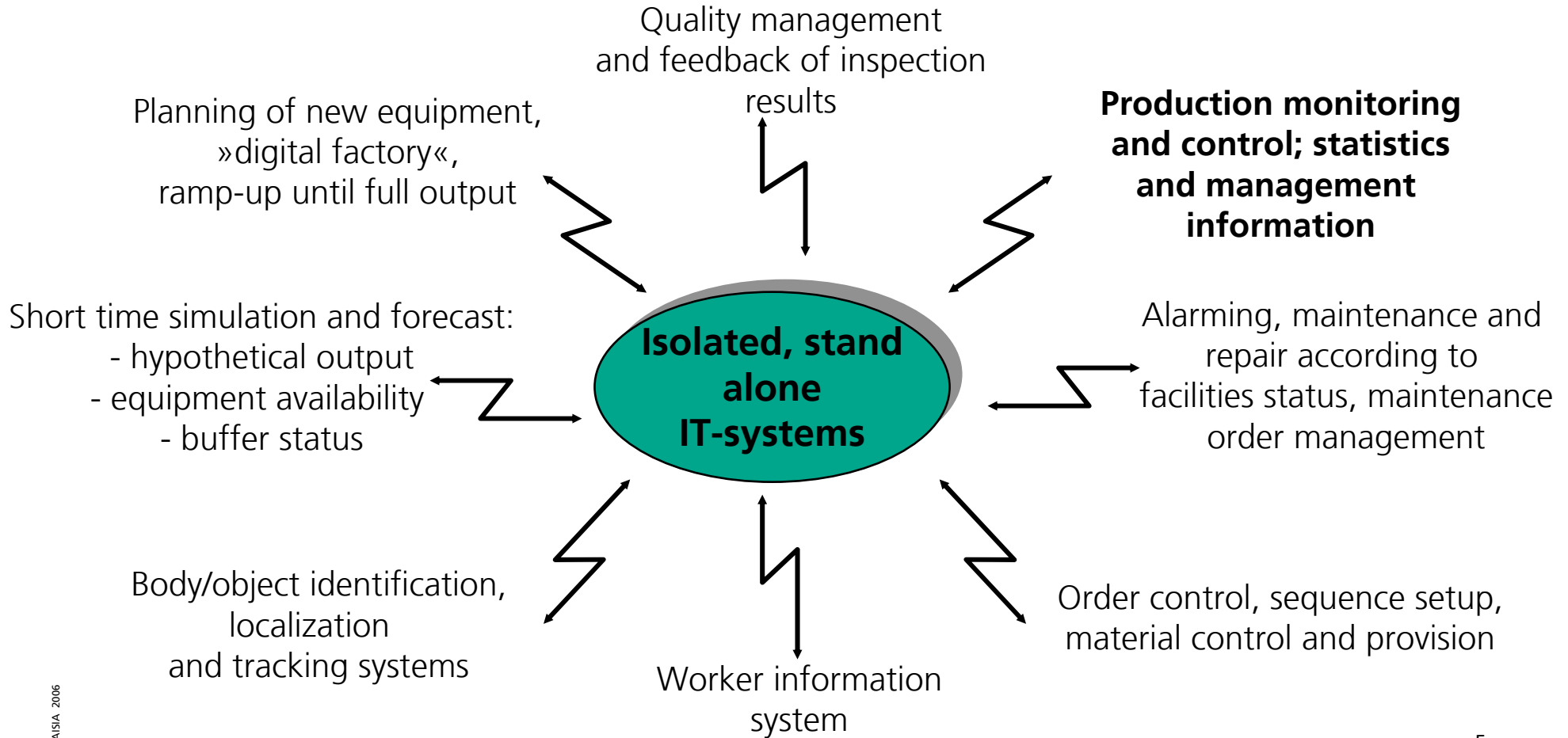
- 1. Current situation for production monitoring & control**
- 2. ProVis.Agent for DaimlerChrysler**
- 3. Applications in manufacturing and assembly**

IT resources on the different manufacturing levels (source: Betriebshütte, pp. 17-19)

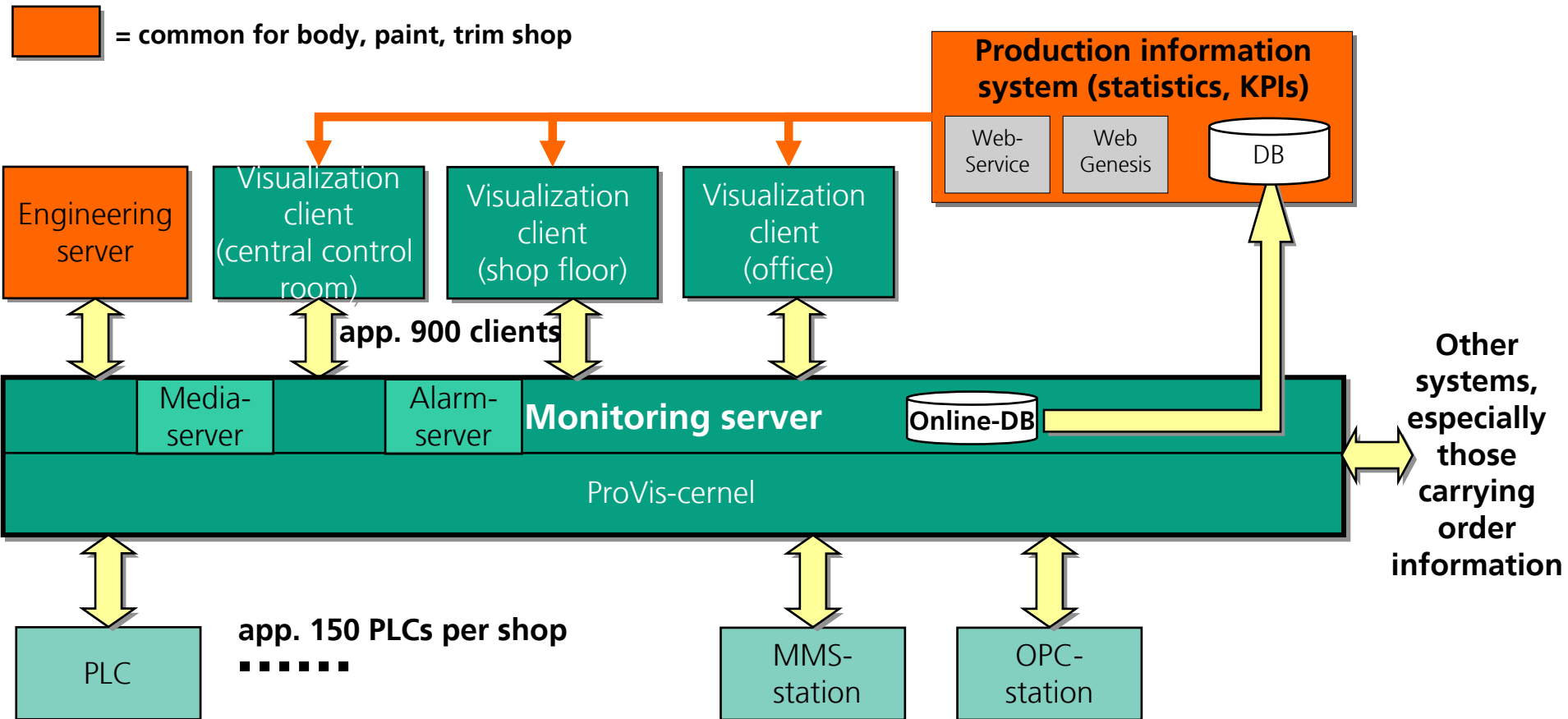


SALSA 2006

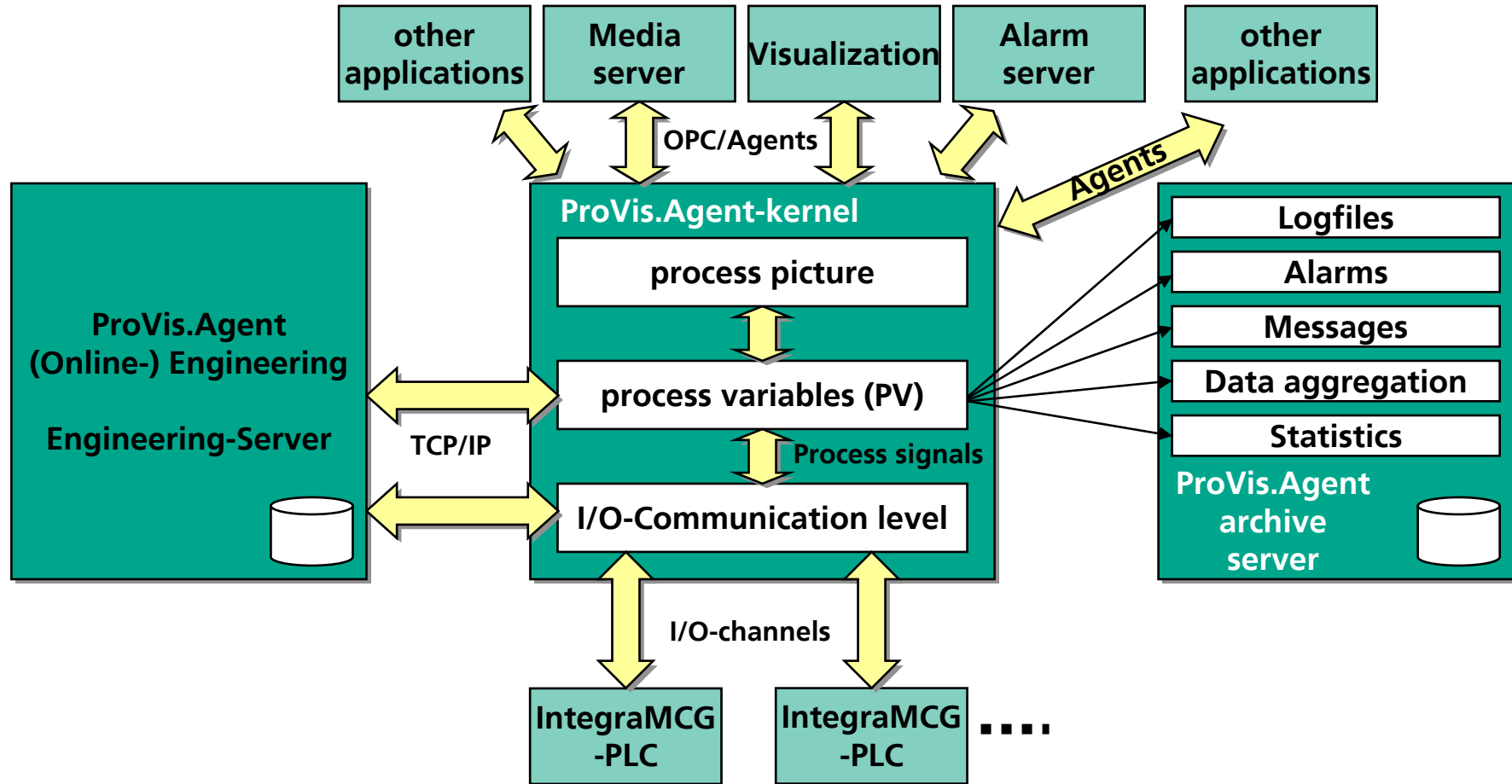
Current status in automotive factories: examples for IT-systems on the manufacturing execution level



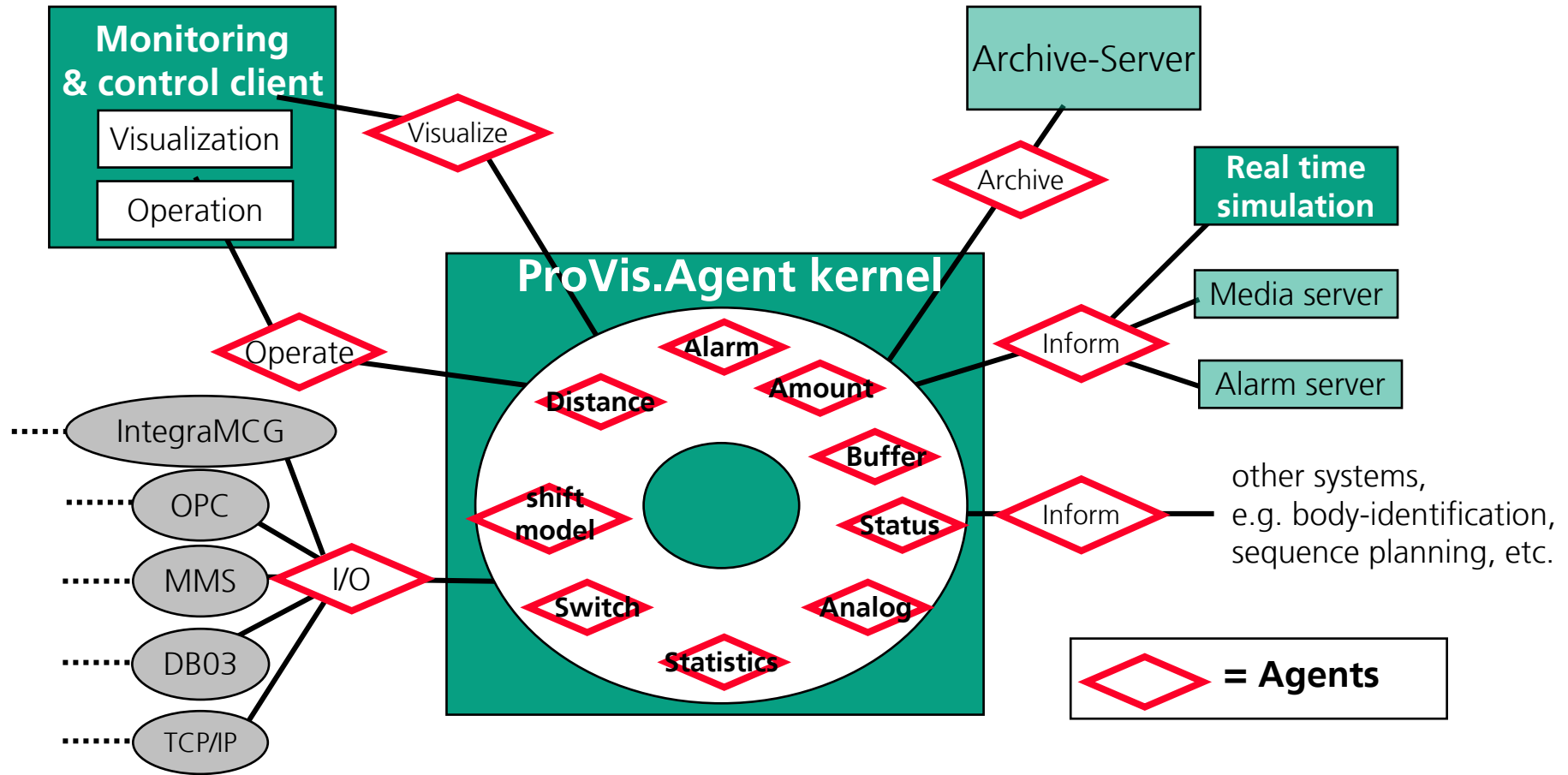
Production monitoring architecture applying software agent technology



Production monitoring architecture applying software agent technology (2)



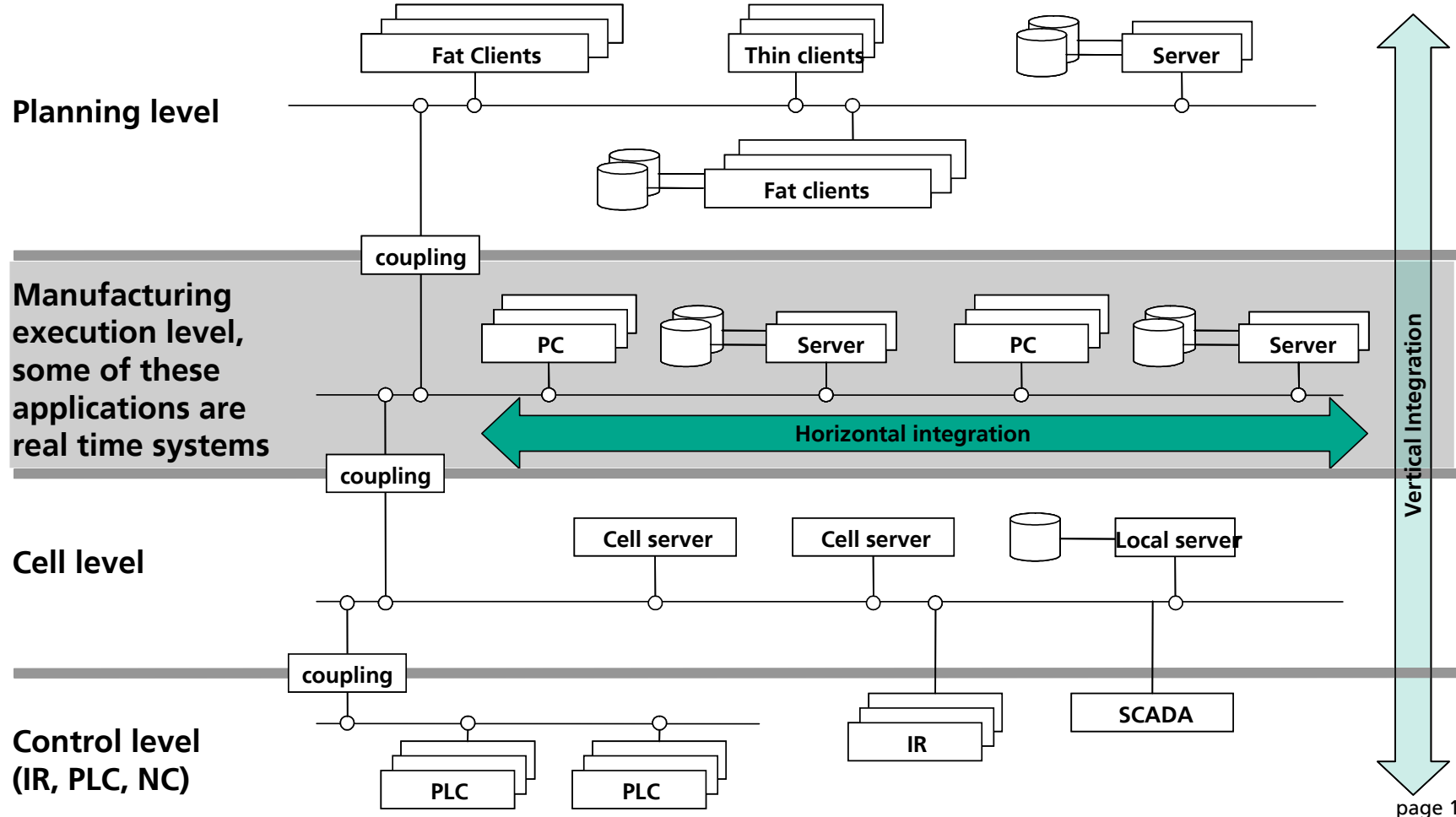
Production monitoring architecture applying software agent technology (3)



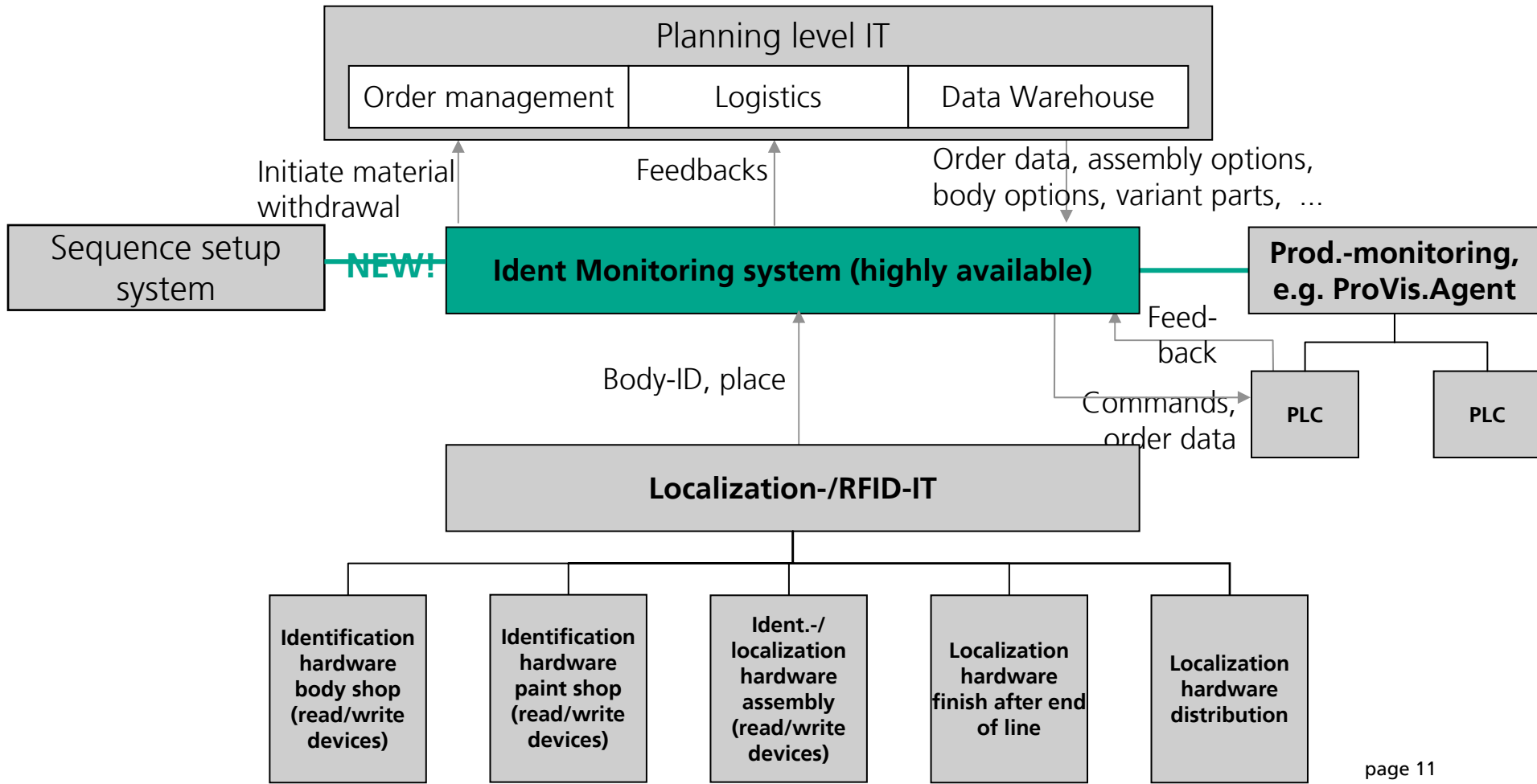
Probable applications in manufacturing, assembly and logistics

- ▶ **Horizontal integration of IT-systems on the MES-level as well as vertical integration from the shop floor to management (PLC to ERP).**
- ▶ **Production scheduling, where workpieces, material flow systems and production facilities negotiate the sequence of operations.**
- ▶ **Plug-and-produce mechanisms for adjustable factories due to fast changes of products and rising product variants.**

IT resources on the different manufacturing levels (source: Betriebshütte, pp. 17-19)



Horizontal 'integration' of production monitoring, body identification and sequence setup on the manufacturing exec. level

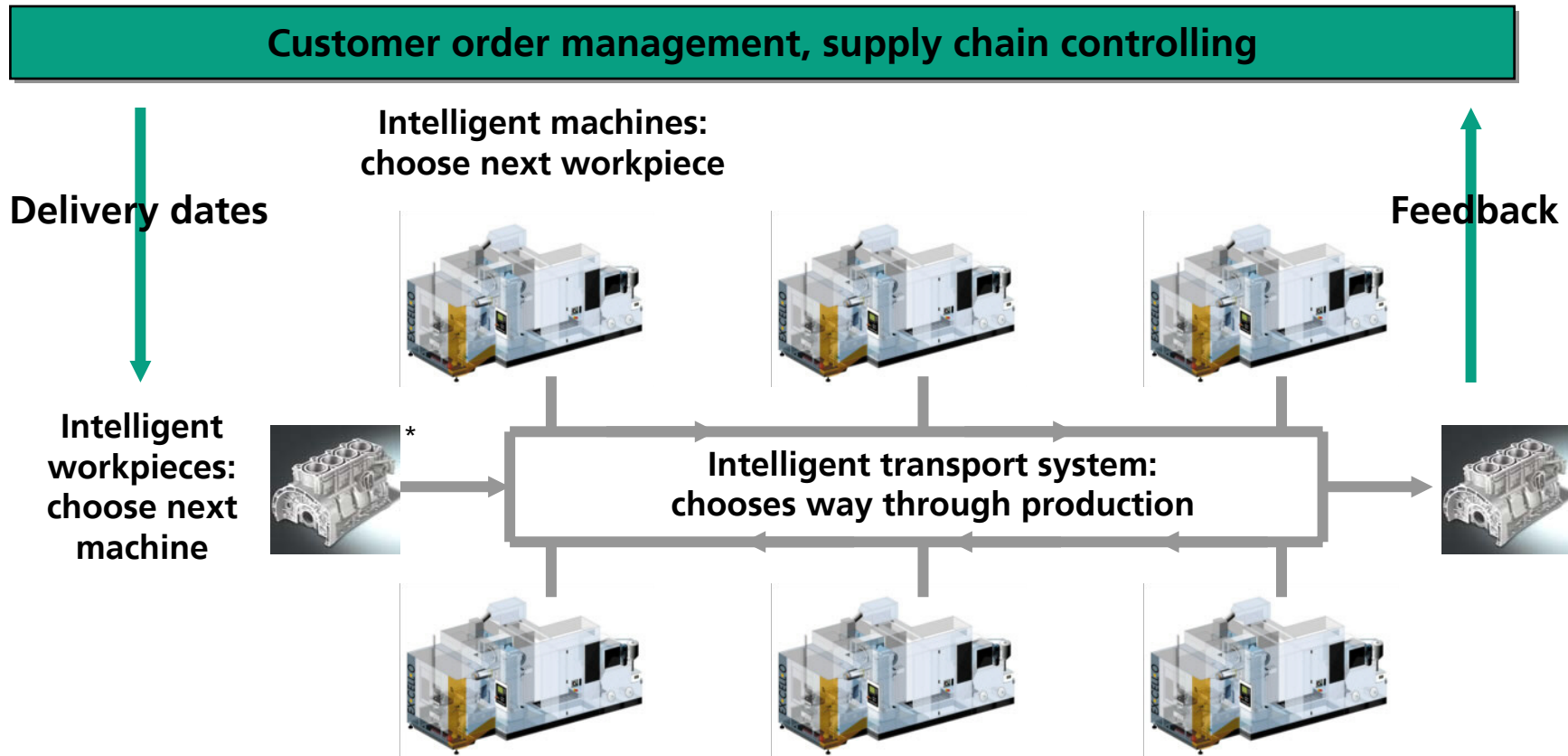


Horizontal 'integration' of production monitoring, body ident. and sequence setup on the manufacturing exec. level (2)

Benefits from integration:

- higher transparency of what happens on the shop floor
- faster reactions to unexpected disturbances

Production scheduling



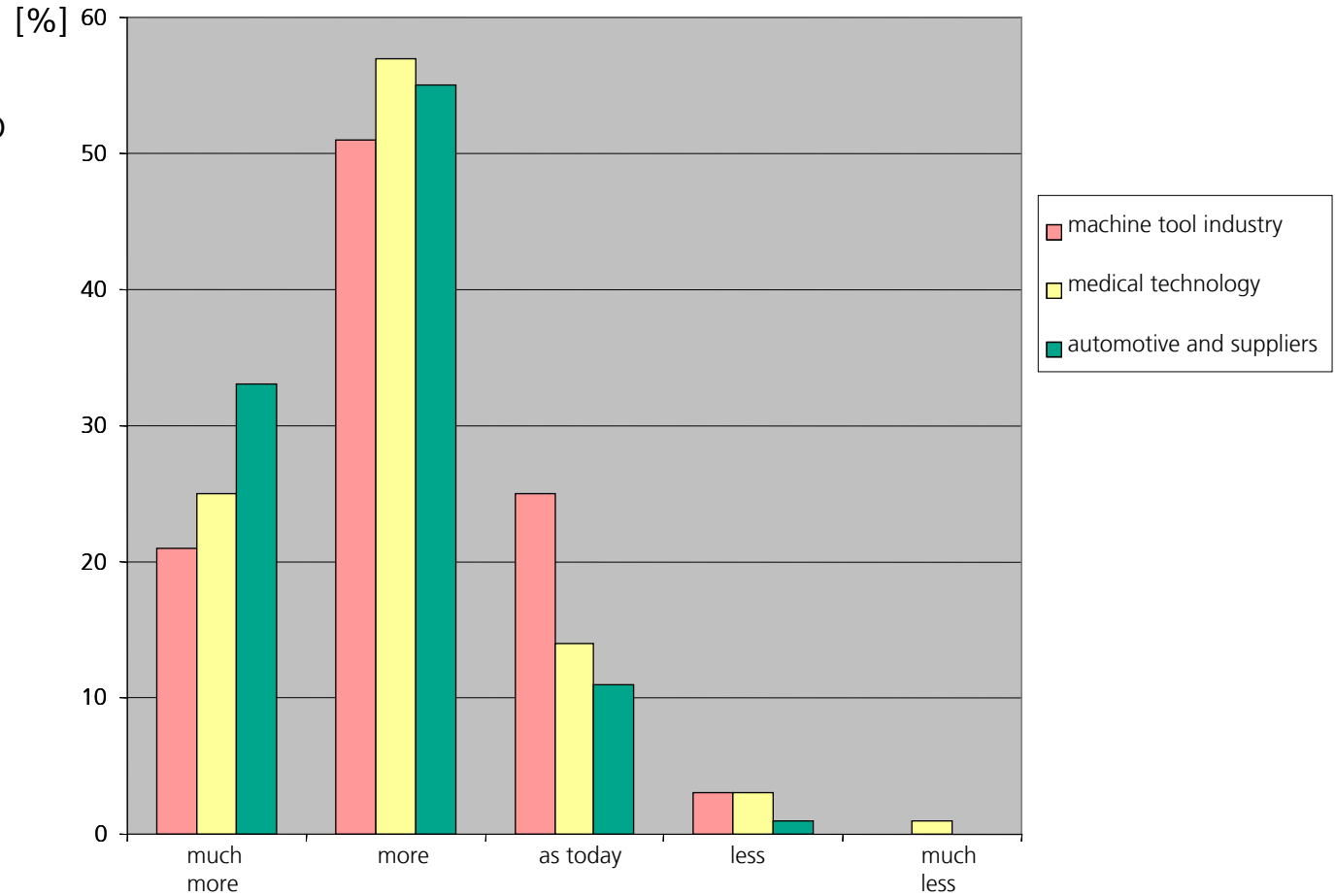
Production scheduling (2)

Benefits from decentralized negotiation:

- **fault tolerant systems through local reactions on disturbances**
- **high availability and reliability of the entire system**

Plug-and-produce mechanisms

Development of product variants (source: requirements to tomorrows manufacturing technology, Fraunhofer ISI, September 2005; n= 613



Plug-and-produce mechanisms (2)



Picture: Kuka



Plug-and-produce mechanisms (2)

Benefits from plug-and-produce:

- highly adaptive: new ‚smart players‘ offer their services to the production system
- short ramp-up-times through less engineering work

Information technology becomes a driver for new processes in production and logistics

Thank you for your attention!

If you want to know more visit:



Conference on Production
Monitoring & Control (PMC)
- Future PMC systems
- PMC in automotive industry
- PMC and Digital Factory
- PMC and Maintenance
May 2006, 11-12,
at Dorint Hotel, Karlsruhe

Imprint

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