

Integrating the mobile worker in industrial collaboration scenarios



— Prof. Dr.-Ing. Clemens Westerkamp
Distributed and Mobile Systems & Applications
University of Applied Sciences
Head of Institute of Computer Engineering, cwe@fhos.de

— National/EU projects (Tele-Engineering/Service):

- Telec (Volkswagen ZF etc.)
- EOS (Volkswagen, Beckhoff etc.)
- Indet (Airbus, Alenia, etc.)
- MMA (Airbus, Siemens, Höft&Wessel, o₂)

— Before 8yrs industrial experience in Germany and the U.S.

1 | Prof. Dr.-Ing. Clemens Westerkamp, UAS Osnabrück, CWE in Manufacturing Bruxelles, cwe@fhos.de

Requirements and the need for CWE in Manufacturing



- - Increasingly adaptive Manufacturing requires reduced re-configuration and down-times
- - New efficiency levels can be reached by integrating mobile engineers in off-/online collaboration scenarios
- - Partners involved are Manufacturers, their Customers and Suppliers, specialized system houses for adaptation, machines, robots etc.

==> Research is needed!

2 | Prof. Dr.-Ing. Clemens Westerkamp, UAS Osnabrück, CWE in Manufacturing Bruxelles, cwe@fhos.de

Research Challenges CWE in Manufacturing



1. Improved support for mobile and nomadic workers like shop-floor teams or visiting adaptation engineers.
 - Network-specific QoS Management for audio, video, context data, 3D / visualization streams
 - Choosing the right mobile HW/SW platform (can be wearable, but choice is application-specific)
 - Interfacing with heterogeneous IT and Middleware
=> Provide generic upperware collaboration layer with service, access, rights, security management

3 | Prof. Dr.-Ing. Clemens Westerkamp, UAS Osnabrück, CWE in Manufacturing Bruxelles, cwe@fhos.de

Research Challenges CWE in Manufacturing



2. Leveraging new possibilities in Cross-VPNs, intelligent Upperware as well as underlying IMS (IP based Multimedia Subsystem) e.g. in 3G
3. Integrating extended context information from RFID, intelligent sensors, test and measuring equipment and positioning and work flow information (local IT).

Thank you for your attention and an interesting discussion!

Contact: cwe@fhos.de

4 | Prof. Dr.-Ing. Clemens Westerkamp, UAS Osnabrück, CWE in Manufacturing Bruxelles, cwe@fhos.de