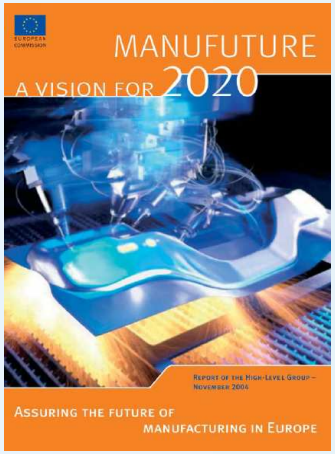
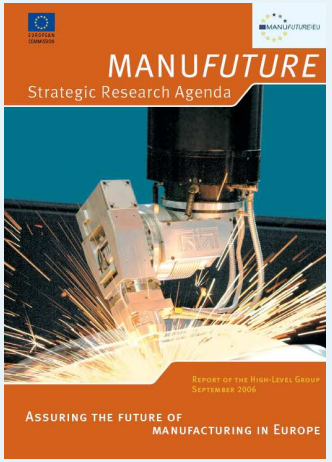


Wireless communication and research for the Factory of the Future: Manufuture perspective.

Marc Engels, FMTC on behalf of Chris Decubber, Agoria / Manufuture

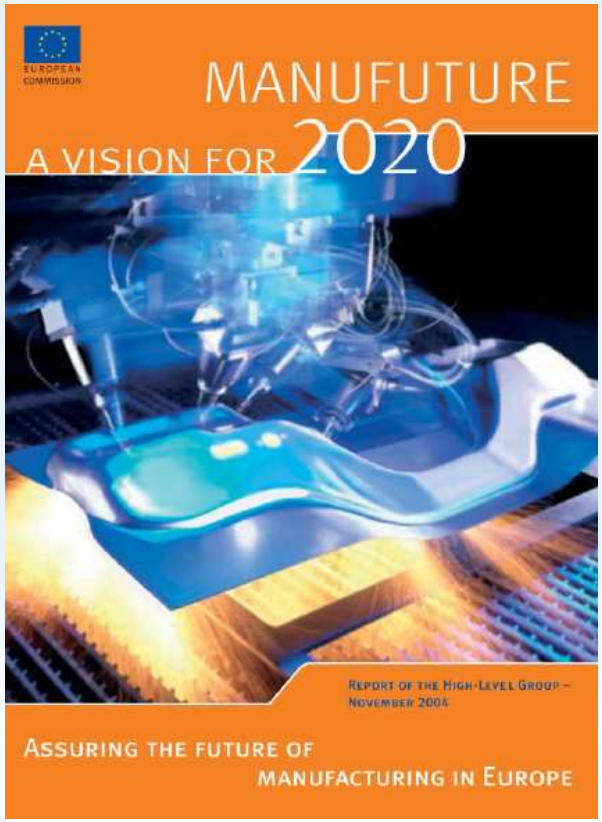
marc.engels@fmtc.be
chris.decubber@agoria.be

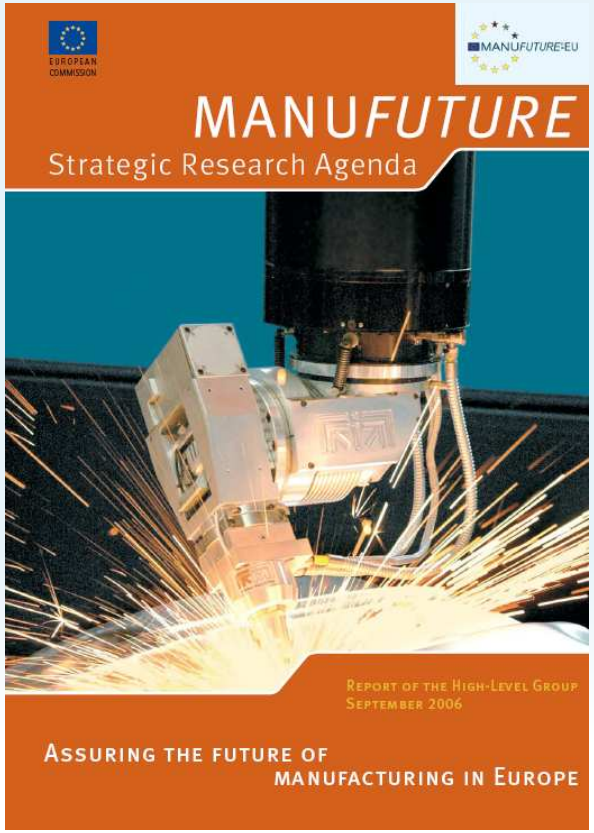


ETSI
Wireless Factory Automation meeting
20-21 October 2009

The Manufuture Technology Platform

The mission of MANU*FUTURE* is to propose a strategy based on research and innovation capable of speeding up the rate of industrial *transformation* in Europe, securing high added value employment and winning a major share of world manufacturing output in the future knowledge-driven economy.





www.manufuture.org

Specific Roadmaps established to fill in Strategic Research Agenda

Technology Platform

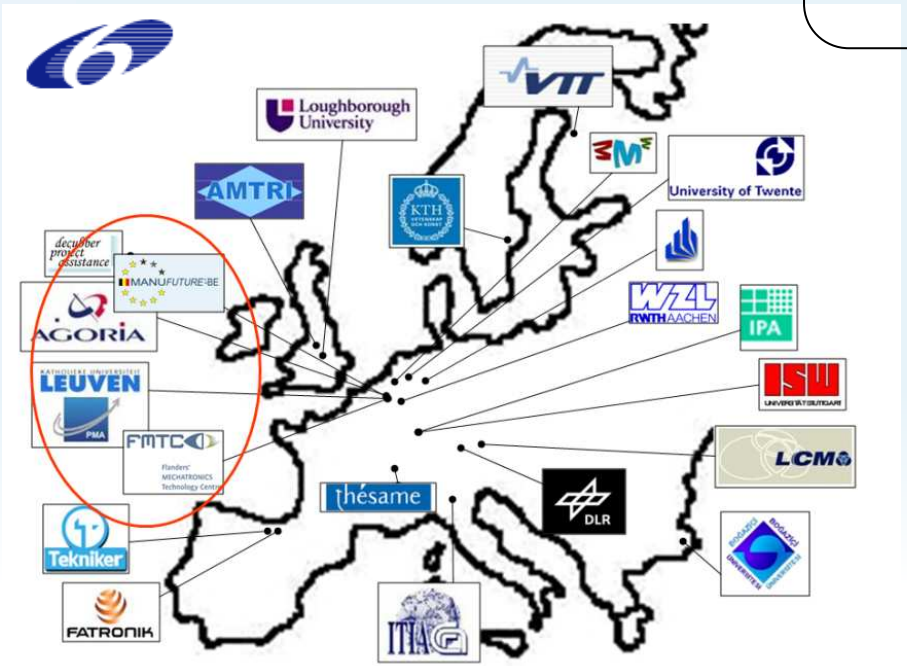
Strategic Research Agenda
(Presented in December 2005)

eumecha pro
european mechatronics for a new generation of production systems
www.eumecha.org

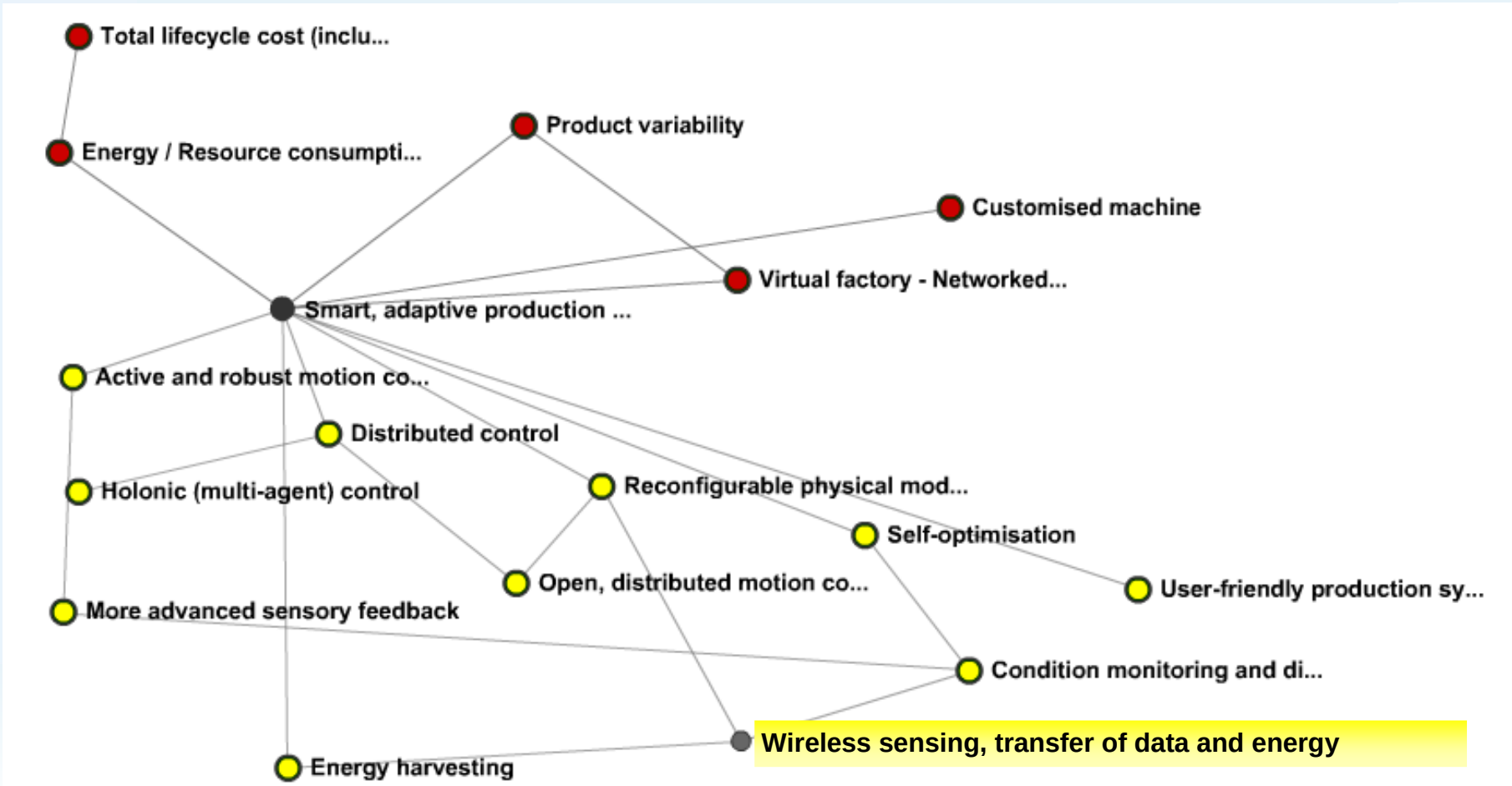
Industry roadmaps

Research roadmaps

eumecha-pro Structured Roadmaps



Eumecha-pro roadmap already stressed importance of wireless technologies



SRA Implementation through collective action

European Manufacturing Innovation and Research Area (EMIRA)

Global scientific and technological RTD and innovation network

European technology platforms

European level

Manufuture platform

EUREKA

FACTORY network

National level

National MF platform 1

National MF platform 2

MANUFUTURE-BE

Regional level

Regional MF platform 1

Regional MF platform 2

Regional MF platform 3

Regional MF platform 4

Regional MF platform ..

Factories of the Future (FoF) Public Private Partnership

European Commission - Research: Industrial technologies - FP7 Information day for the Public Pr - Windows Internet Explorer pro

http://ec.europa.eu/research/industrial_technologies/lists/events-fp7-information-day_en.html

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16/07/2009

- Programme
- Brokerage activities
- Practical information
- Presentations

Public Private Partnerships (PPPs)

FP7 Information day for the Public Private Partnerships ' Energy Efficient Buildings, Factories of the Future and Green Cars' - Great Success
13 July 2009, Brussels

In order to support the preparation of proposals, the Directorates General for Research, Information Society and Media, and Energy and Transport of the European Commission held a Joint **Information Day on Research PPPs on 13 July 2009 in Brussels**. More than 800 participants attended the event. The event was opened by Commissioners Potočnik and Reding. Afterwards a good overview of the activities going on in the PPPs was given by industrial representatives. The aim of this event was also to provide information about the first Cross-thematic Coordinated Calls related to the PPPs. In particular, the research areas open and the conditions for participation were explained. The event was oversubsribed and for that reason the presentations have been recorded.

List of Participants

Towards the research work programme of the Factories of the Future Public PPP

- **13 July 2009 (first DRAFT) Factories of the Future PPP 'Strategic Multi-annual Roadmap'**
  - Sustainable Manufacturing
  - ICT Enabled Intelligent Manufacturing
  - High quality and high performance manufacturing
  - Exploiting new materials through manufacturing
- Final draft: end of November.
- Work programma (call topics) will be derived from this FoF Strategic Multi-annual Roadmap
- http://ec.europa.eu/research/industrial_technologies/pdf/ppp-factories-of-the-future-strategic-multiannual-roadmap-info-day.pdf

Wireless technology in the FOF Strategic Multi-annual Roadmap

- Chapter 2: ICT Enabled Intelligent Manufacturing

"ICT is a key enabler for improving manufacturing at three levels":

- ICT for **agile manufacturing and customisation including process automation control**, simulation and optimisation technologies, robotics, and tools for sustainable manufacturing **(smart factories).**

- ICT to support value creation from global networked operations including global supply chain management, product-service linkage and management of distributed manufacturing assets **(virtual factories).**

- ICT for better understanding and design of manufacturing systems and for better product life cycle management including simulation, modelling and knowledge management from product conception level down to manufacturing, operations, maintenance and disassembly/recycling **(digital factories).**

Wireless technology in the FOF Strategic Multi-annual Roadmap → Smart Factories

The expected impact would be:

On '**Smart Factories**':

(a) **A higher level of intelligence on the shop floor through context aware, fault-tolerant, adaptable, reconfigurable interoperable, wireless and robust ICT**.

(b) **Opening up new market areas for next-generation automation equipment** and advanced industrial robots providing a boost to both the European industrial automation and robot suppliers as well as the end user industry.

(c) **Development of an early European market for advanced technologies** such as electronic and photonic devices, automation equipment, and robot systems.

(d) The penetration of **advanced automation into small-scale manufacturing and crafts**, especially through the introduction of new assistive automation and robot systems.

(e) Increased productivity in labour intensive industries through a scalable automation approach, thus providing competitive solutions for new manufacturing paradigms, new products and innovative business models.

From the draft Multi Annual Roadmap:

- New metrology tools and methods for large-scale and real-time handling of manufacturing information:
  - Intelligent devices and systems, embedded in high-tech machines and equipment (including process plants), for:
    - ✓ reliable, remote, efficient and precise in-situ measurement of complex process parameters,
    - ✓ simultaneous characterisation of dimensions, shapes and compositions down to the atomic scale
    - ✓ **with wireless communication capabilities where necessary**.
- **Standardisation efforts will be encouraged.**

From the draft Multi Annual Roadmap:

- Within '**Virtual Factories**':

- **ICT to support value creation from global networked manufacturing and logistics:**
  - ICT if integrated end-to-end can provide clear insight and exact knowledge from data thereby supporting decision making and creating value from global networked operations ('virtual factories'). R&D activities include:
    - ✓ Increasing management efficiency of global networked manufacturing: Enabling technologies under the emergent Internet of Things (IoT), such as RFID, **wireless sensor networks**, and machine-to-machine communication, significantly contributing to increased logistics efficiency, real-time monitoring of material flows and resource use.
  - (…)

From the draft Multi Annual Roadmap:

- Within chapter ‘High quality and high performance manufacturing’

  → “development of flexible signal processing methods, and wireless communication mechanisms and flexible system busses with integrated power supply”

Conclusions

- Within the Manufuture Platform, wireless communication is increasingly considered as a strategic enabling technology
- As mentioned in the draft Multi-Annual Roadmap for the Factories of the Future Public Private Partnership, '*standardisation efforts are encouraged*'.

→ Good communications with and involvement of the standardisation stakeholders is important.