

Road 4 FAME

A Roadmap for Future Architectures and Services for Manufacturing

Dr. xx

Road4FAME-Final-Conference

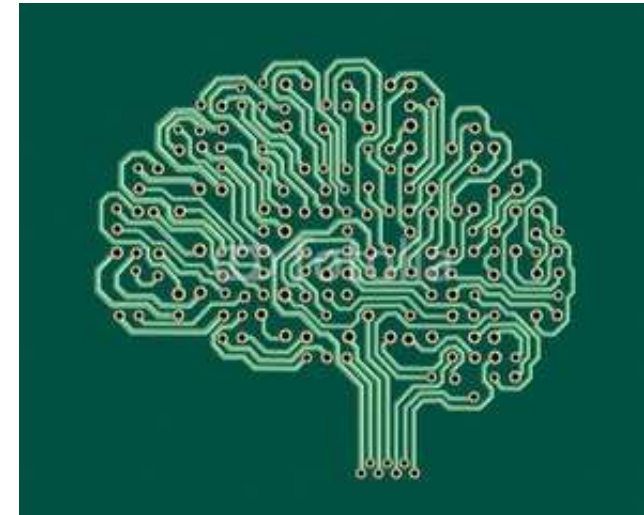
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Roadmapping

Top ICT Solutions

- **Real time data** acquisition and analysis/
Big data analysis and use for quality control
 - **Flexible production equipment** and interconnections
 - **Engineering Platform** for design/operations continuum
 - Joint **Cognitive Systems** for decision support
 - Supply chain visibility and decision assistance/
ICT platform for advanced **supply chain decision support**
 - **Security** solutions for collaborative networks
 - Modelling of **virtual enterprise**
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- **Interoperability**, standards, **reference architectures** and tools
 - **Open data and system integration platform** for unstructured data environment
 - IT-OT convergence: **integrated architecture PLM-MES-ERP**
 - Problem and **context-centric display** of only crucial information to the users
 - Customer and **demand data gathering** for analysis
 - Product and service **co-design** with customer



ICT Solutions

Recommendations



Integration

- **Integration approaches for existing ICT systems and information** (tackling the “wild garden”)
- **Integration of new smart components** (e.g. new improved low cost, miniaturised sensors) **for data collection, analysis and visualisation**
- Development/promotion of **standardisation and reference ICT architectures** as well as **interoperability** and harmonization of different interfaces

Data and Information

- **Unified engineering exchange of data** considering provenance, accuracy, contextual awareness and semantic content of unstructured data
- **Big Data capture** (live streaming for situational awareness), storage (event driven databases) and analysis (data mining – ideally in real time)
- **Distributed processing algorithms** for data and systems in real time supported by resilient “industrial strength” **cloud computing** for the plant floor
- **Visualisation techniques** and specifically context-aware responsive visualisation of data
- **Decision support systems** to reduce operator load

Machine Learning and Adaptive Systems to Enable Flexible and Adaptive Manufacturing

- Environments and infrastructures for **machine learning, self-adapting and reconfigurable** manufacturing
- **Intra-and inter- machine communication standards**
- **Human-centric adaptive interfaces** to enhance usability

Multidisciplinary Modelling

- **Modelling** of factories, information modelling and work domain modelling of socio-technological systems

Security and Privacy

- **Robust Machine-to-Machine** (M2M) security protocols that guarantee operational safety and reliability
- Affordable **security for privacy**, especially within manufacturing supply networks

Demonstrators & Education

- To **convince the conservative manufacturing sector** of the cost/benefits of new ICT architectures and services
- **Education initiatives** and training materials to increase awareness