Road 4 FAME

A Roadmap for Future Architectures and Services for Manufacturing

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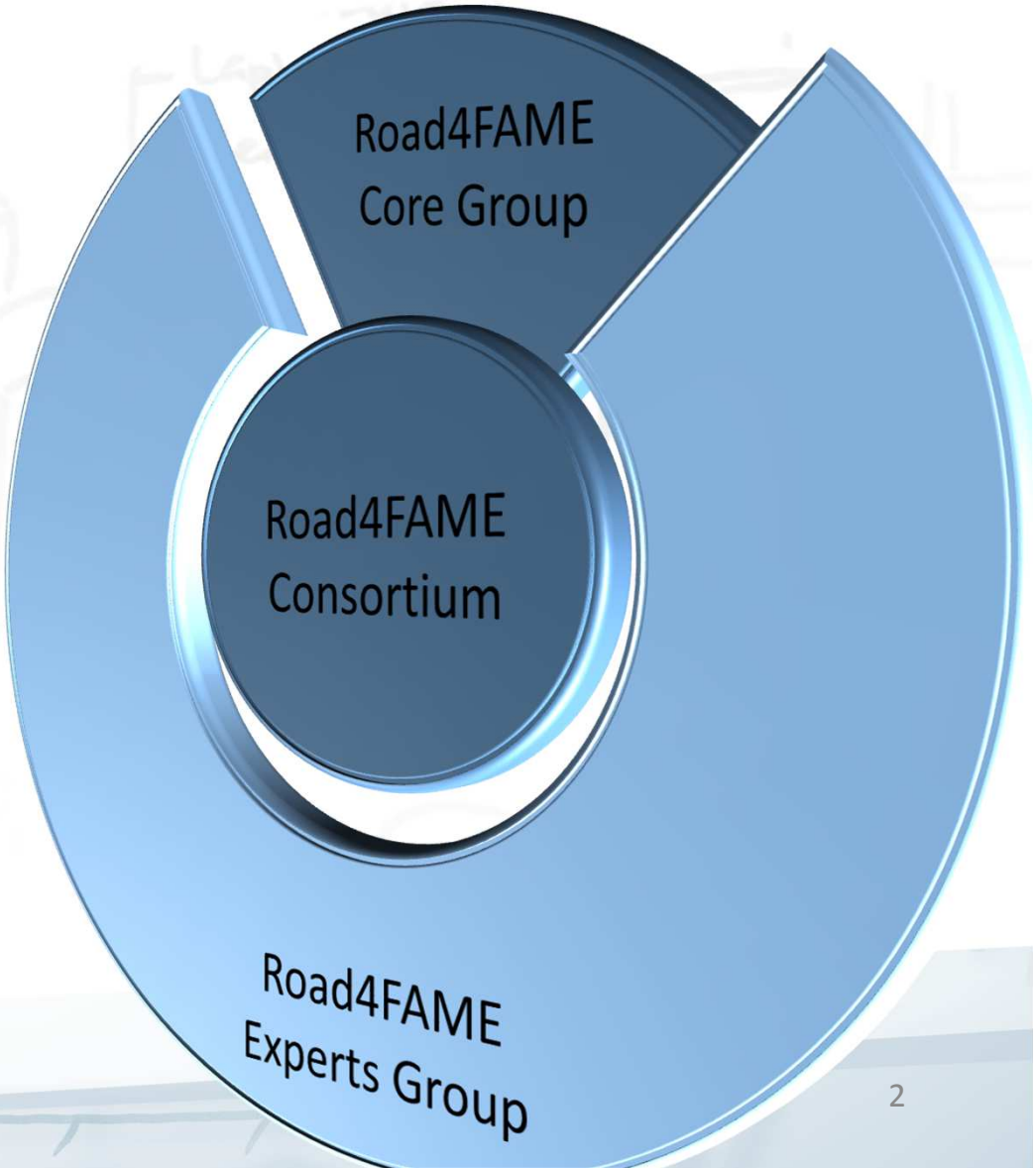
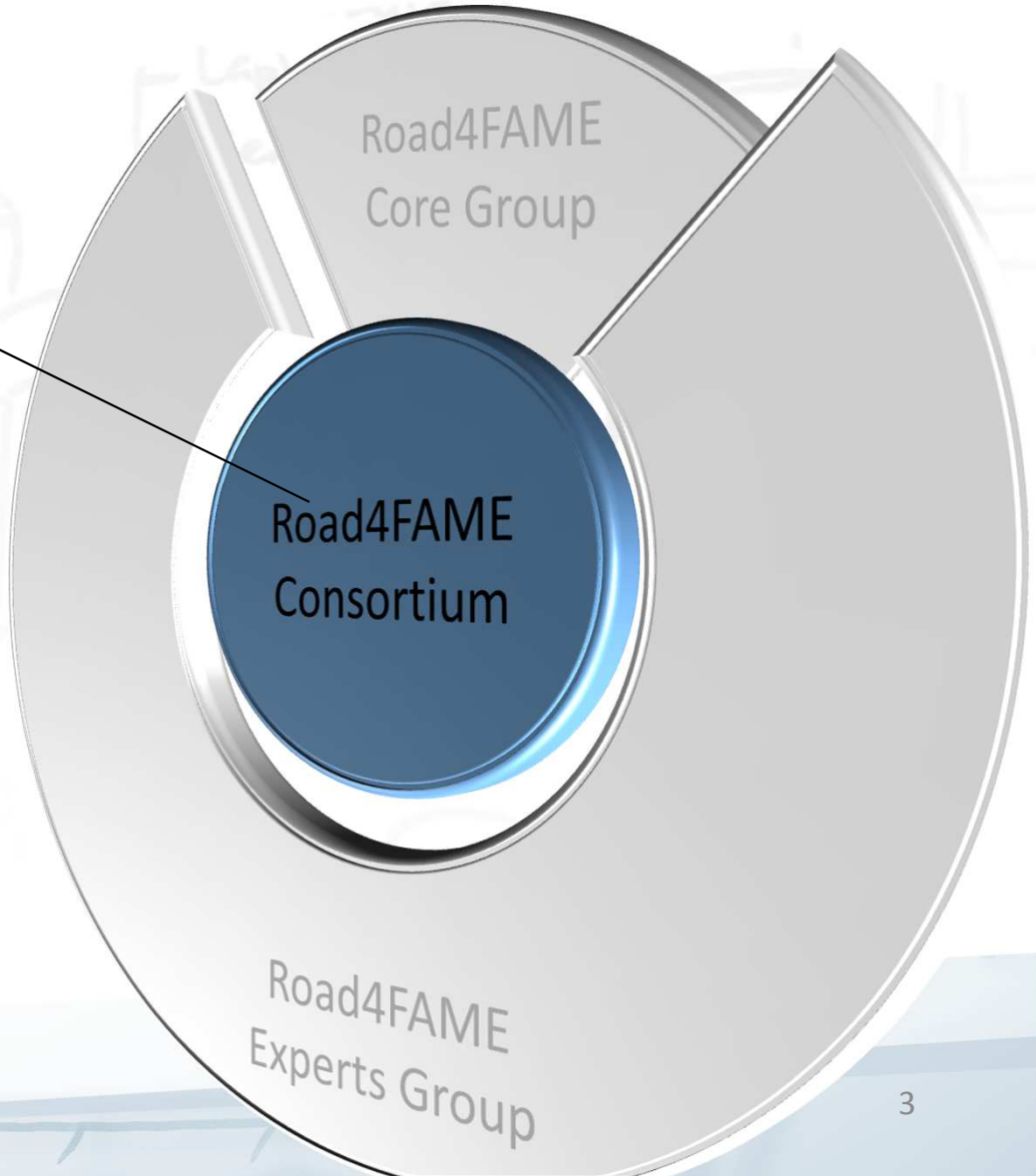
Road4FAME in a nutshell

- **Road4FAME** = Development of a Strategic Research and Innovation **Road**map for **F**uture **A**rchitectures and Services for **M**anufacturing in **E**urope
- Coordination Action, co-financed under the Factories of the Future PPP, FP7-ICT: ICT for the Enterprise and Manufacturing
- Project duration: June 2013 - Oct 2015, 29 months
- Total budget: EUR 1.216.272
- Total EC contribution: EUR 859.968
- GA No. 609167



Road4FAME in a nutshell

Principal players in manufacturing IT, leading manufacturing research centers, and strategy and roadmap developers



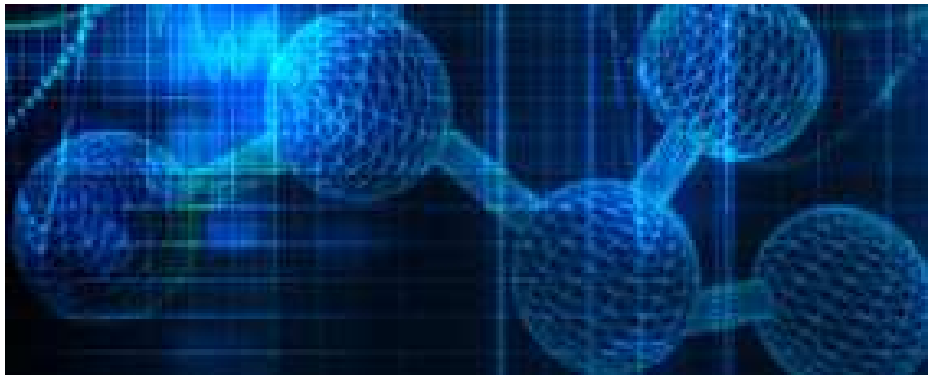
Medium-term
Long-term
The Business Model Canvas
Key Partners

Trends, Drivers, Needs

Trends, drivers, needs

Megatrends

- Demographic change
- Climate change
- Urbanisation
- Globalisation…



(Mega) trends related to FoF, CPS & IoT

- Digitalisation of economy & connectivity
- Rise of the individual, personalisation
- Sustainability, green thinking (sharing global responsibility)
- Knowledge as a key enabler (global knowledge society)

Trends, drivers, needs

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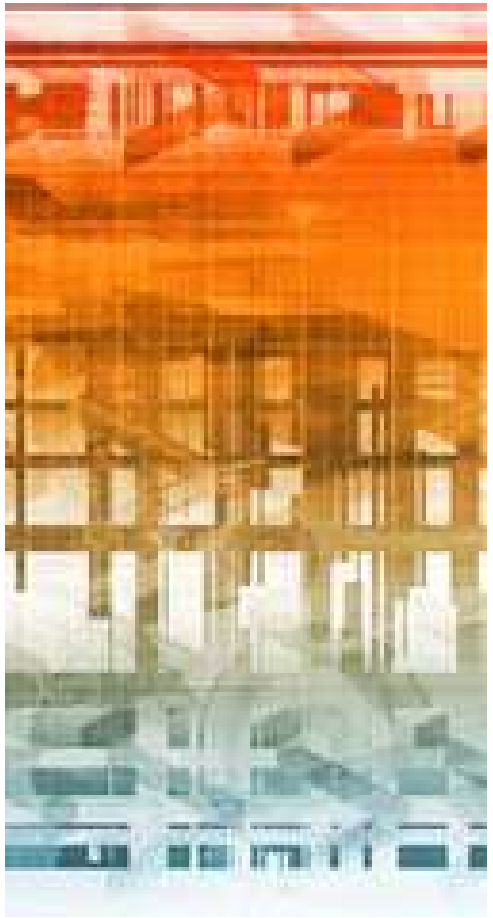
Manufacturing-related trends

- Continuous drive for manufacturing **efficiency and quality** (requiring optimisation tools and decision support)
- Rapidly evolving and **pervasive ICT technologies** (digitisation, visualisation, virtualisation)
- Demand by customers for **individualized / highly configurable products**
- Increasing **hybrid cross-over products/embedded IT** and integrated services
- Increasing **complexity** of products, processes, and supply networks



Trends, drivers, needs

Manufacturing Business Needs

- Reduction of **costs**, start-up times, fast scale-up
- Increasing **flexibility** of production environments
- Identify/anticipate **changes in demand**

- Reduction of effort for **integration of new equipment & tools**
- **Traceability** – cradle to grave
- Monitoring, optimisation and **predictive maintenance**
- More **intuitive system interaction / mobile devices**

BUT: Digitalisation (especially in SMEs) is mainly driven by IT solution providers and less strongly demanded by manufacturing companies (potential underestimated)

Key Barriers and Showstoppers

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- **Manufacturing IT landscape is a 'wild garden'.**
  - History of point solutions creating a heterogeneous manufacturing IT landscape
  - Difficult to support and add capabilities
- **Manufacturing IT technologies are out of reach**
  - Especially for SMEs, due to the very high implementation costs
  - Here future architectures could contribute to alleviating such issues, making manufacturing IT innovation more accessible
- **Security and privacy**
  - Number one show stopper

Recommendations

Recommendations

- Seamless **integration** of systems and components
- **Interoperability**, standardisation, **reference architectures** and tools
- **Platforms** (organisational, technological, operational, customer,..)

- Acquisition and use of **big data in real time** & handling of complexity
- Visualisation, virtualisation, situational awareness, **decision support**
- Multidisciplinary **modelling** & simulation

Priorities for Manufacturing

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- Machine Learning and Adaptive Systems to enable flexible and adaptive manufacturing
- **Scalable Cyber-Physical System architectures** for adaptive and smart manufacturing
- **Network-centric communication and collaboration** between players, humans and systems across the entire value chain
- **ICT platform** for advanced supply chain decision support
- Modelling of **virtual enterprises**

Cross-cutting Challenges

- Security, privacy, trust
- Regulatory issues, IP
- Demonstrations, living labs
- Business models

- De-fragmentation, cross-fertilisation
- Raise awareness
- Socio-technical issues
- Training and education
- Commitment of large industries
- Enhance involvement of SMEs

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For more information contact
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