

Info Day
8 October 2010, Brussels

The Factories of the Future
ICT Objectives 7.3 and 7.4

Dr Erastos Filos, FoF ICT Coordinator



Factories of the Future (FoF): Context

- **What:**
 - Part of the Recovery Plan
 - To help manufacturing, in particular SMEs, across a broad range of sectors be competitive after the crisis is over
- **How:**
 - Industry-driven R&D projects
 - 4 annual co-ordinated calls until 2013 between the two relevant FP7 Themes, ICT and NMP
 - Total FP7 budget (2010-2013): 245 M€ (ICT) + 400 M€ (NMP)
- **Who:**
 - Industry in the lead:
 - R&D priority setting
 - Experts to evaluate proposals
 - Implementation of industry-driven projects
 - Technology providers & industrial users (large & SME), academic researchers



FoF in ICT: Expected Impact

- **Technology leaders to gain market share, e.g.**
 - Automation/industrial robotics & laser technology solutions for factory environments
 - Product/production design tools (eg software for modelling, simulation, visualisation)
 - Software for enterprise/supply-chain management
- **European industrial end users to**
 - Integrate latest technology into their production environments
 - Build on new competencies (knowledge, organisation, skills, business models)
 - Use technologies that enable energy-efficient and “waste-less” production

Factories of the Future Multi-Annual Roadmap 2010-2013

Sub-Domains:

1. Sustainable Manufacturing
2. ICT-enabled intelligent manufacturing
3. High-performance manufacturing
4. Exploiting new materials through manufacturing



http://ec.europa.eu/research/industrial_technologies/pdf/ppp-factories-of-the-future-strategic-multiannual-roadmap-info-day_en.pdf

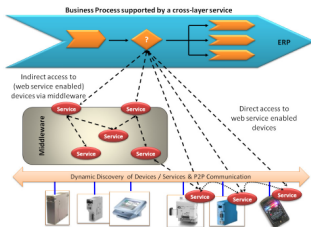


First FoF ICT Call (2009)

Key Figures & Essentials

- Focus on “Smart Factories”
- Proposals were expected to:
 - use advanced ICT-based technologies in production
 - be industry-driven
 - Have a strong validation element with quantifiable targets
- 34 eligible proposals received
- Requested funding ca. € 160 million (vs. € 35 million available)
(-> ratio 1:5)
- “Downstream research”: Industrial implementation horizon 2013-15

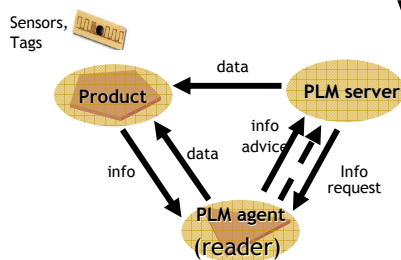
Vision: ICT is key to Factories of the Future



Smart Factories:

- Goal:
More automation, better control & optimisation of factory processes
- Means:
Software, lasers & intelligent devices embedded in machines & factory infrastructure

- Less waste
- Less energy use
- Faster time-to-market
- Better quality



Virtual Factories:

- Goal:
To manage supply chains; to create value by integrating products & services
- Means:
Software to holistically interconnect & manage distributed factory assets; new business models & value propositions

- High-value products
- Keep jobs in Europe
- Process transparency
- IPR security
- Lower CO₂ footprint

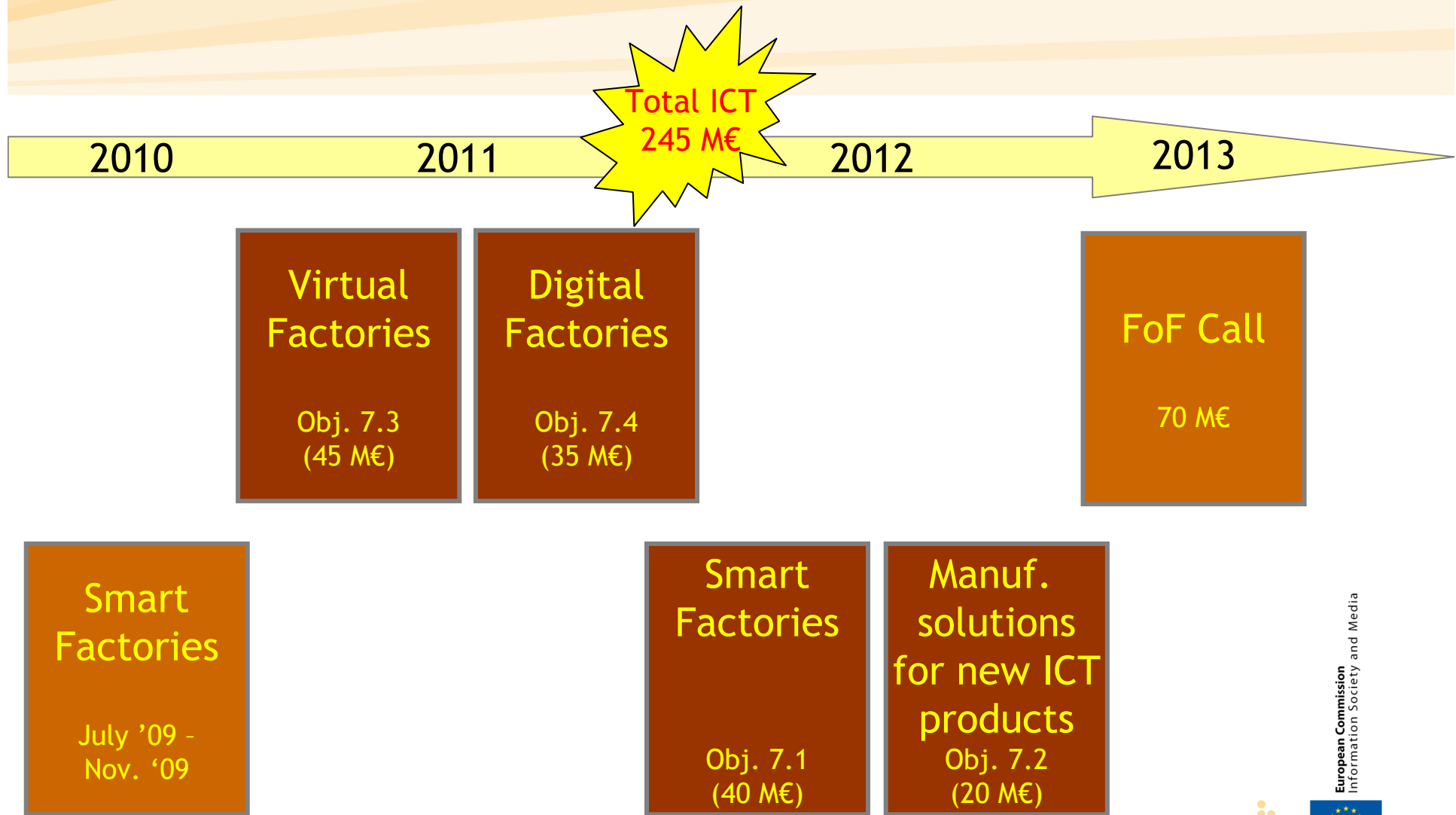


Digital Factories:

- Goal:
To “see” the product before it is produced
- Means:
Software for the digital representation & test of products & processes prior to their manufacture & use

- Reduce design errors
- Better & efficient products
- Less waste + rework
- Faster time-to-market

Factories of the Future & ICT Work Programme



Objective 7.3

Virtual Factories & Enterprises

Target outcomes

- a) Distributed, adaptive, interoperable virtual enterprise environments
 - Integration of novel management methods & ICT to help virtual factories/enterprises move beyond existing operational capability
- b) Real-time management of volatile manufacturing assets
 - Manage inventories, stakeholder relationships, product configurations, knowledge & skills across the value chain
- c) Component-based tools & architectures enabling innovative & dynamic composition of services
 - Sustainable lifecycle management of product-based services
- d) Internet-based user-centric collaboration, sharing and/or mixed reality tools for the networked enterprise
 - Incl. new manufacturing business models & practices to enhance & sustain product-based services across the value chain

Call FoF in 2010

45 M€

IPs/STREPs



Objective 7.4: Digital Factories

Manufacturing design & product lifecycle management

Target outcomes

a. Comprehensive engineering platforms

- Cross-disciplinary information sharing, workflow integration, knowledge capture

b. Simulation & virtual prototyping tools for product/process design

- E.g. better models with forward & backward compatibility, model auto-generation, meshing, optimisation
- Combination of cross-disciplinary models such as CAD, CAE, VR, volume, fluid, structure, polygonal and process models

c. Holistic modelling & simulation of full complex products/processes

- With multi-physics features, allowing tolerance changes
- Product/process behaviour simulation from micro to macro scale

Call FoF in 2010

35 M€

IPs/STREPs/CSA

**Closing:
02 Dec '10**

Call Topics of NMP Programme FP7-FOF-NMP-2011

- **Attention: Different Instruments** (*Large, Small, SMETargeted*)
 - **FoF.NMP.2011-1**
The eco-factory: cleaner and more resource-efficient production in manufacturing - Large
 - **FoF.NMP.2011-2**
Cooperative machines and open-architecture control systems - Small
 - **FoF.NMP.2011-3**
Robots for automation of post-production & other auxiliary processes - Small
 - **FoF.NMP.2011-4**
High tech solutions in the production processes for customised, green, safe and healthy consumer products - SMETargeted
 - **FoF.NMP.2011-5** Towards zero-defect manufacturing - Large
 - **FoF.NMP.2011-6**
Manufacturing chains for nano-phased components and coatings - Large

FoF ICT Objectives 7.3 & 7.4

Must Have

- “Virtual Factories” (7.3) focus:
 - Integration of the distributed manufacturing enterprise (incl. supply chains)
 - Integration of products & services
 - Management of volatile manufacturing assets
- “Digital Factories” (7.4) focus:
 - Engineering platforms
 - Tools for simulation & virtual prototyping
 - Tools for complex products & process modelling & simulation

- **Proposals must:**
 - use advanced ICT-based technologies in production
 - be industry-driven
 - have a strong validation element with quantifiable targets
- “Downstream research”:
 - Industrial implementation horizon 2013-15

Thank You

FoF on the web:

http://ec.europa.eu/research/industrial_technologies/lists/factories-of-the-future_en.html

FoF ICT projects launched in 2010:

http://cordis.europa.eu/fp7/ict/micro-nanosystems/docs/ict-fof-project-summaries-2010_en.pdf

FoF call & contacts:

<http://cordis.europa.eu/fp7/dc/>

7.3 Objective: Cristina.Martinez@ec.europa.eu
Alain.Jaume@ec.europa.eu
Erastos.Filos@ec.europa.eu

7.4 Objective: Rolf.Riemenschneider@ec.europa.eu
Alkis.Konstantellos@ec.europa.eu
Erastos.Filos@ec.europa.eu