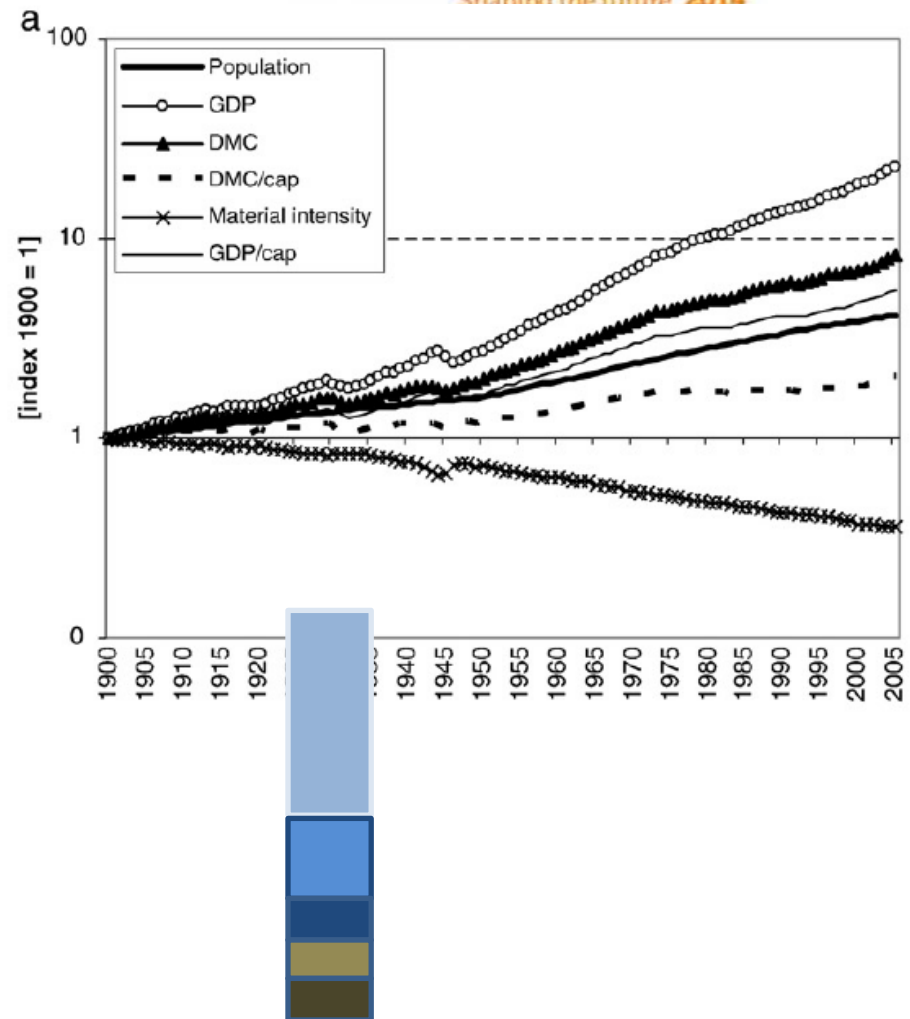
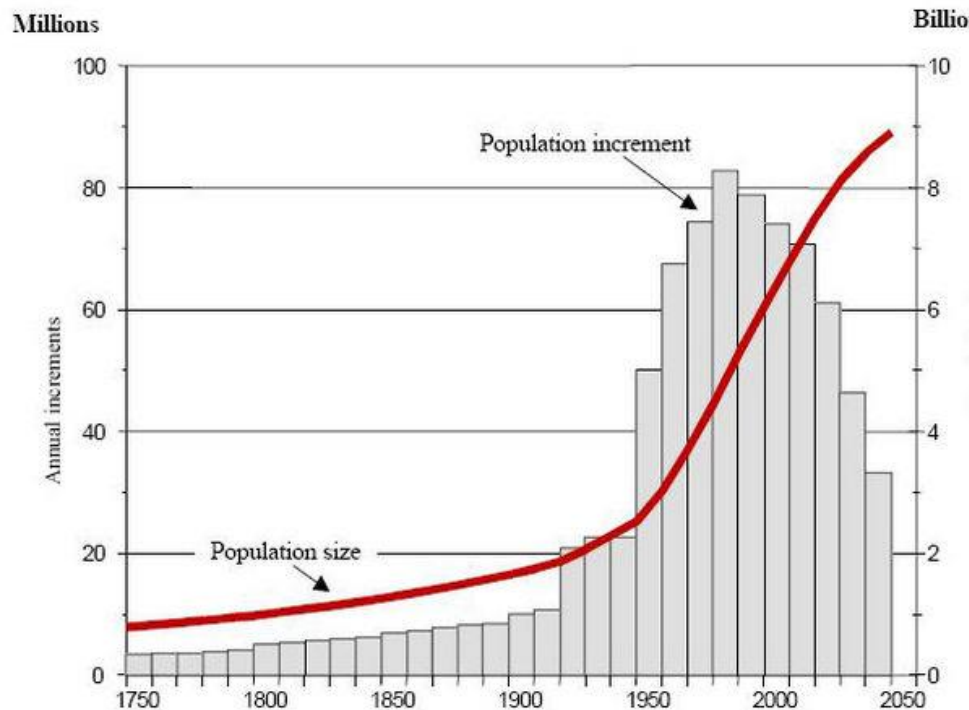


- From power to knowledge (Industry 4.0)
- Enabling technologies «6C» (customization, community, content, cyber, cloud, connectivity)
- Business model (closeshoring vs reshoring) and societal drivers (consumer-actor)



2030: 5 Billions middleclass Consumers in Asia, EU, NA, SA, AF

What are the societal change drivers ?





Factories of the Future Call Objectives

- "Re-industrialisation"
 - Ensure best use of technology to boost productivity
 - Increase market share of EU suppliers of innovative manufacturing technology
 - Raise industrial investment in equipment from 6% to 9% by 2020
- More environment-friendly and competitive manufacturing:
 - Reduction of energy consumption in manufacturing, up to 30%
 - Less waste generated by manufacturing activities, up to 20%
 - Less consumption of materials (up to 20%)
- R&I to integrate & demonstrate innovative manufacturing technologies in:
 - Adaptive and smart manufacturing equipment, 3D printing, increased production performance, collaborative and mobile enterprises, ...

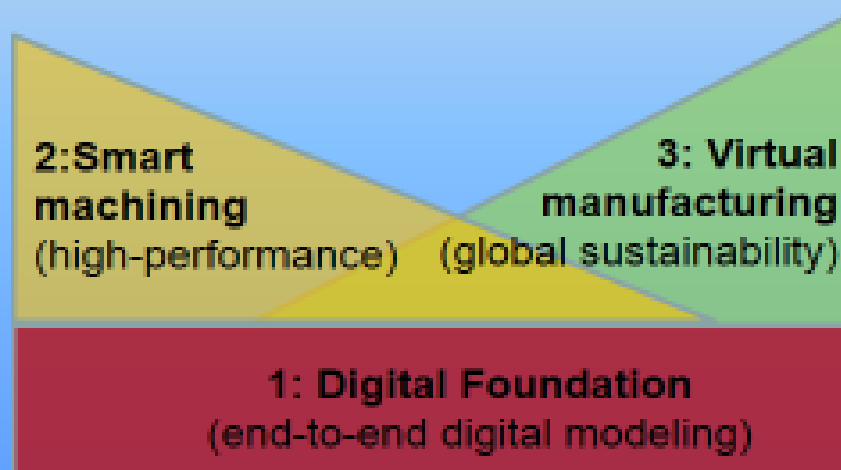
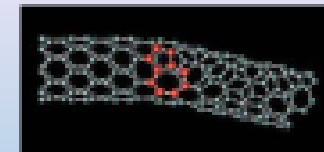
Roadmap for FoF 2020

Towards ...

- High performance manufacturing
- Sustainable manufacturing

Based on

- New materials (e.g. nano technology... for the long run)
- **ICT-enabled intelligent manufacturing** (now and tomorrow)



How ?



An integrated platform for Smart Factory ...

Information is all !

But how to deploy such a complex IT backbone to enable all these different things ?

What is Smart Manufacturing?



Key issue: Integration toward Closed-loop optimization

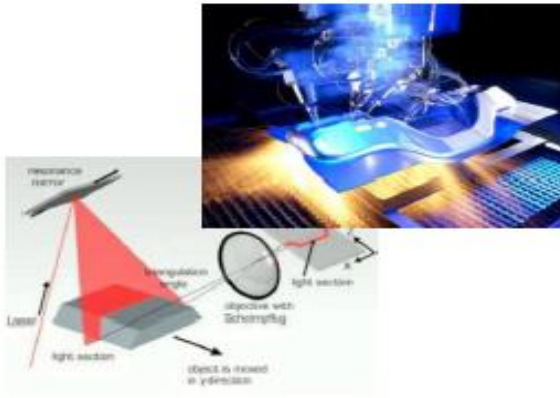


Innovative ICT makes the difference



EU Suppliers are World Market Leaders

Laser-based manufacturing

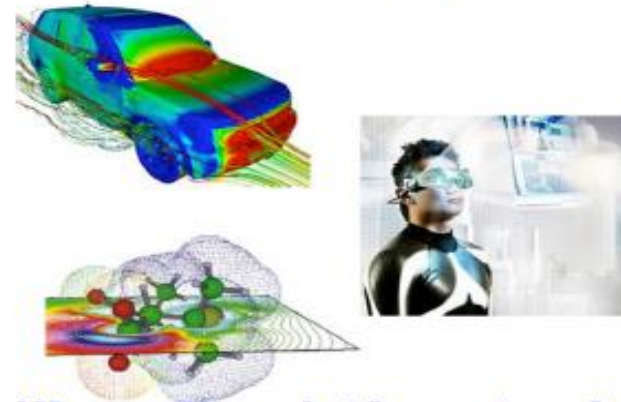


Robotics



Research and Innovation

Cyber-physical systems for process (chain) optimisation



Modelling, Simulation, Analytics



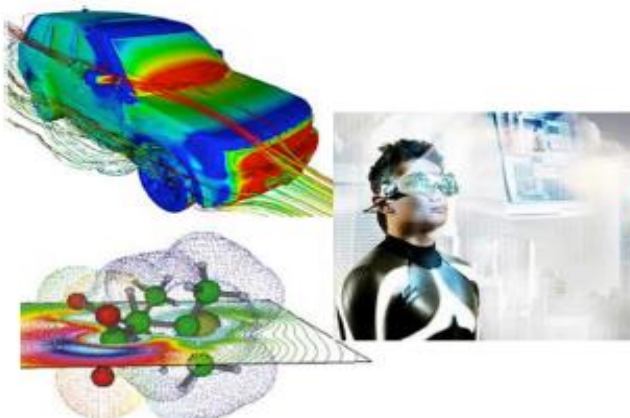
Data, Information, Knowledge, ...Wisdom

Cyber-physical systems



→ see session W2.6

- Physical world meets Internet – build on EU strengths
- New balance of the 4 dimensions of manufacturing:
capital – energy – labour - knowledge
- CPS expected to lead to 30% productivity increase



"Visual – virtual – physical"
Data are key for success

18/25



Moving Forward...



- **Runs from 2014 to 2020**
- **Covers an €80 billion budget**
- **Combines research and innovation**
- **Features new implementation schemes**

Research and
innovation

Factories of the Future From FP7 to Horizon 2020 Progress

"It is the FoF PPP that achieves the highest level of overall industrial participations when considering the combined participation of both large industry & SMEs"

Final Assessment of the Research PPPs in the Recovery Plan (EC, 2013)

- Success under FP7 has resulted not only in continuation but also evident **increased interest** in participation
- **151** projects with participation of **1,000+** organisations from **21** countries
- **200+** SMEs
- Projects have generated **spin-offs** such as **Femtoprinter**
- Majority of projects involve **demo activities**



US priority



“Our first priority is making America a magnet for new jobs and manufacturing.”

- President Barack Obama
February 12, 2013

National Network for Manufacturing Innovation

\$1 billion FY13 proposal:

“institutes of manufacturing excellence where some of our most advanced engineering schools and our most innovative manufacturers collaborate on new ideas, new technology, new methods, new processes.”

*-President Obama, Rolls-Royce
Crosspointe, Petersburg, VA,
March 9, 2012*



**President Obama at Rolls-Royce
Crosspointe, Petersburg, VA, March 9,
2012**

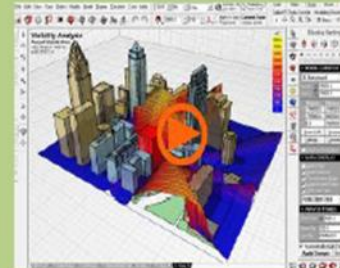


We have a dream!
Imagine

- All the people living on a green planet,
- No pollution, no waste to clean, no smog to destroy,
- The Horizon 2020 enabling a sustainable world and fair trade. *innoLAB, the living LAB towards Horizon 2020, the European Framework Programme for Research*



Eco-Factory



Energy Efficient Building



Green Cars



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Thank you !

Van Khai Nguyen