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Factories of the Future: Education, Research & Industry



Speaker:
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Chairman



Factories of the Future: Education, Research & Industry Importance of Manufacturing

April 2, 2014 9:13 pm

Manufacturing powers eurozone's nascent recovery

By Claire Jones in Frankfurt and Sarah Gordon in Milan

The eurozone's factories are driving the currency bloc's recovery, with companies in the metals, transport, and food and drink industries spearheading the region's growth revival, according to a breakdown of data from an influential poll of purchasing managers.

After two years of crisis, the eurozone economy is growing finally. Following six quarters of outright contraction, the region has expanded since the middle of last year, with the pace of growth expected to quicken further in the first three months of 2014.

Financial Times, 2nd April 2014

ft.com > world >

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March 3, 2014 9:59 am

Eurozone manufacturing continues to fuel recovery

By Claire Jones in Frankfurt and Tobias Buck in Madrid

Factory activity in the eurozone expanded for the eighth straight month and, although the pace of recovery slowed from January's two-and-a-half year high, there were further signs that the improvement in the region's core was spreading to the periphery.

The final estimate of a poll of purchasing managers confirmed that the region's manufacturers continued to contribute to the currency bloc's nascent recovery. The manufacturing purchasing managers' index, compiled by data company Markit, hit 53.2 in February, still above the crucial 50 mark that signals growth but below the January high of 54.

Financial Times, 3rd March 2014

- Industry, & manufacturing in particular, high on political agenda
- Importance of manufacturing clear
- Manufacturing reliant on research, development & innovation
- Education, knowledge & skills essential for success of industry in Europe
- Clear need for deep collaboration between industry, research & education
- 'Factories of the Future' encompasses this collaboration



Factories of the Future: Education, Research & Industry

Achievements to Date

150+ PROJECTS

- Public-private partnership supporting research & innovation in production technologies
- Launched in 2009
- 1,000+ organisations from across Europe
- High involvement of SMEs: 200+ to date
- Expanding – increasing involvement from across all of Europe
- Majority of projects feature demo activities



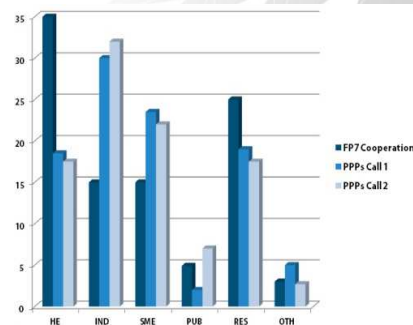
Success = Continuation under Horizon 2020
 Formal agreement between EU & EFFRA = €1.15 billion
 'Factories of the Future 2020' – strategic research roadmap



Factories of the Future: Education, Research & Industry

Achievements to Date: Projects

- Since the start of the partnership, projects have been launched to address multiple challenges
- Projects are multi-sector
- High involvement of SMEs
- Themes under FP7:
 - Sustainable manufacturing
 - ICT-enabled manufacturing
 - High performance manufacturing
 - Exploiting new materials through manufacturing
- Success = technology breakthroughs, spin-offs
- Continuation of partnership under Horizon 2020



Factories of the Future: Education, Research & Industry

Actions Taken

- EFFRA has incorporated importance of collaboration between industry, research & education into 'Factories of the Future 2020'
- Previously highly successful collaboration in the partnership under FP7 & will be under Horizon 2020
- EFFRA worked with partners to argue for EIT KIC (European Institute of Technology – Knowledge and Innovation community) on Added-Value Manufacturing (KIC AVM) & 2016 launch
- Close collaboration between EFFRA, 'Factories of the Future' partnership & KIC AVM a priority



FoF Project Examples



Factories of the Future Projects – Knowledge, Skills & Education

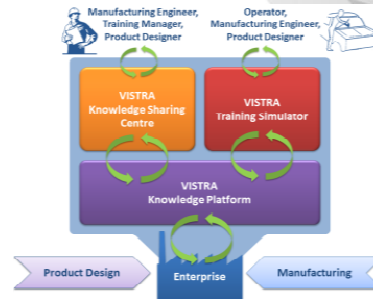
VISTRA

“Virtual Simulation and Training of Assembly and Service Processes in Digital Factories”

- VISTRA aims at the development of a comprehensive platform for simulation and training of manual assembly processes.

Project Consortium

- Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI)
- ADAM OPEL AG
- Fraunhofer IGD
- Serious Games Interactive
- Stiftelsen Fraunhofer-Chalmers Centrum For Industrimatematik



Total Budget: € 5.3 million

www.vistra-project.eu



Factories of the Future Projects – Knowledge, Skills & Education

MANUSKILLS

“Envisioning an advanced ICT-supported build-up of manufacturing skills for the Factories of the Future”

- Studying the use of enhanced ICT-based technologies and training methodologies to facilitate an increase of young talent interest in manufacturing and to support their training of new manufacturing skills.

Project Consortium

- Politecnico di Milano
- Aalborg Universitet
- Dassault Systemes SA
- Ecole Polytechnique Federale de Lausanne (EPFL)
- Highskillz Ltd.
- Stiftelsen Sintef
- University of Patras



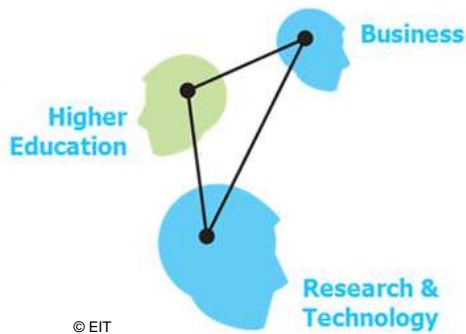
Total Budget: € 1.4 million

www.manuskills.org



Education Key: Knowledge Triangle

Address Need for Employment: Implementation of Added-Value Manufacturing
KIC is vital for providing needed skilled graduates & employment with long-term careers.



- Established 'Factories of the Future' network – business, RTOs, universities & associated organisations
- 'Factories of the Future 2020' – to contribute to strategic agenda for a KIC
- Bridge with other initiatives & strategic areas (e.g. KETs, Smart Specialisation)
- Build on existing links with regional programmes (e.g. Regional Innovation & Implementation Centres [RICs])

Factories of the Future 2020

- At the centre of the 'Factories of the Future' partnership
- Developed by EFFRA with input from stakeholders from across Europe (companies [including SMEs], research organisations, universities, platforms, associations etc).
- Development included two pan-European consultations in which RTOs & universities played an important part
 - Identifies challenges & opportunities facing manufacturing
 - Identifies existing technologies & enablers needed
 - Defines research & innovation priorities to use technologies & enablers to meet the challenges
- Call topics are based upon these research & innovation priorities

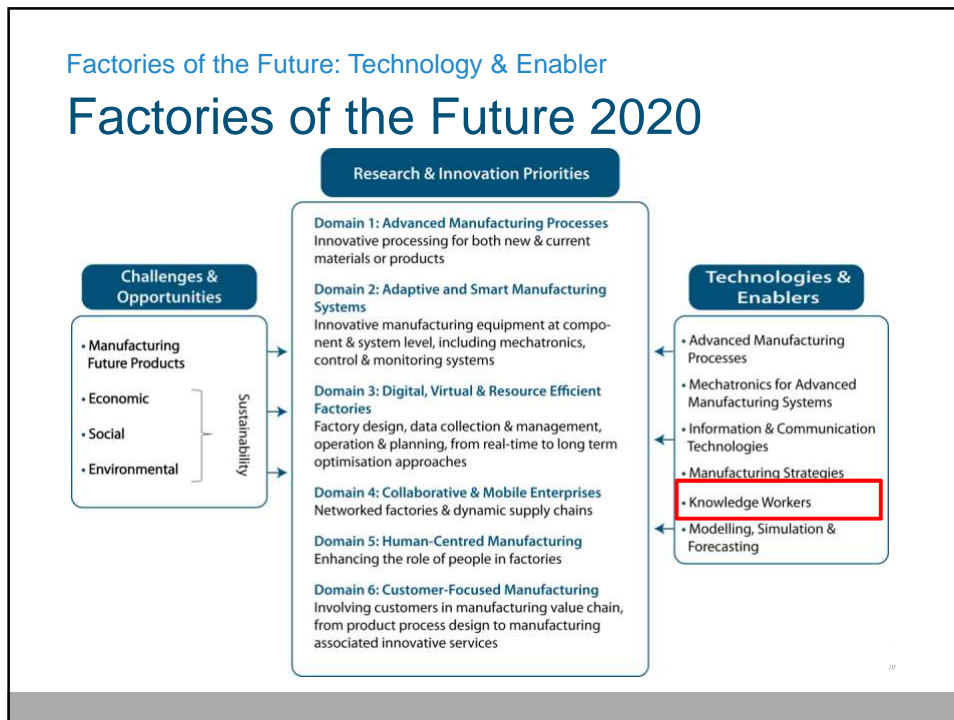


FACTORIES OF THE FUTURE
Multi-national meetings for the conceptual phase under Horizon 2020

Presented by



Factories of the Future 2020



'Factories of the Future 2020'

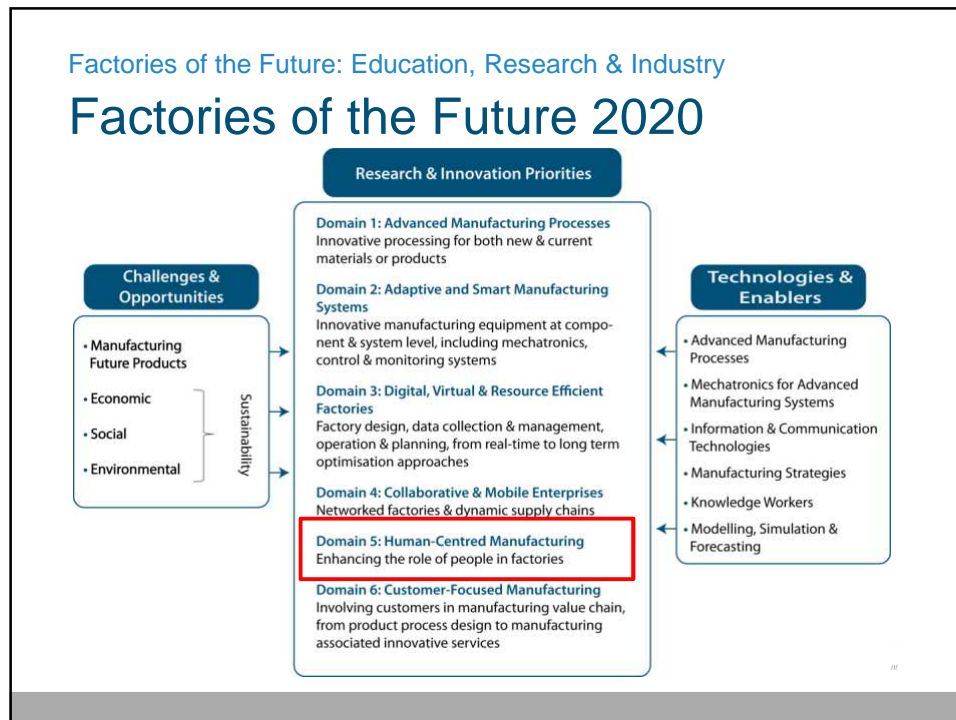
Knowledge Workers

European 'Factories of the Future' are not only expected to provide global manufacturing competitiveness, but also to create a large amount of employment opportunities for citizens

A key enabler in achieving transformation of the factory to meet challenges & ensure competitiveness

- Tech-based approaches (ICT & automation): accommodate age-related limitations
- Technical, educational & organisational ways to increase the attractiveness of factory work
- Approaches to skill & competence development, as well as skill and knowledge management
- Ways to organise & compensate factory knowledge workers.
- Human-centred work-environments based on safety and comfort
- Ways to integrate future factory work in global and local societal agendas & social patterns

Factories of the Future 2020



'Factories of the Future 2020': Research & Innovation Priority

Human-Centred Manufacturing

Objective - Enhancing the role and utilising the potential of people working in factories.

Concerns:

- How people work and learn
- How people interact with technology
- How people add value to manufacturing

Priority Actions

- Recruitment of highly-skilled people
- Continuous development of skills and competencies
- Active skills transfer (skills & knowledge sharing)
- Safer workplaces
- Human-robot interaction: Assist older & disabled workers



'Factories of the Future 2020'

Education

Factories of the Future 2020: "Bring a majority of manufacturing engineering graduates & doctorate holders into manufacturing employment and increase the opportunities for technician employment"

2008 - 14.1% of EU tertiary students in engineering, manufacturing & construction education

Recurrent issue of skills shortage

Solutions

- Relevant, indepth & practical eduction for students (highly skilled graduates)
- Advanced long-life training of skilled workers
- Efficient take-up of new manufacturing knowledge
- Active engagement of ageing or disabled workers



Factories of the Future

The Future

- Adaptable workplaces for changing worker demographic
- Continuous skills improvements:
 - Multi-skilled jobs
- Factories closer to customers
- Energy & resource efficient



- Innovative SMEs
- High-level of customisation & quality
- Rapid adaptable production lines
- Re-manufacturing
- Focused on zero defects
- Interconnectivity, communication & data:
 - Storage via cloud



European Factories of the Future Research Association (EFFRA)

Who We Are



- Non profit, industry-driven European association
- Representative of private side in public-private partnership
- 125+ members
- Members:
 - Small, medium & large enterprises
 - RTOs & Universities
 - European associations

- Shape the research agenda 'roadmapping'
- Promote the partnership & projects
- EFFRA Innovation Portal
- Support members



Thank You

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