MANU*FUTURE* ETP
Overview

COMPETITIVE, SUSTAINABLE AND RESILIENT EUROPEAN MANUFACTURING

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Chairman Manu*FUTURE* ISG

ENM stakeholder meeting 2021-10-11

Overview

- Importance of Industry for Europe
- Manu*FUTURE* ETP in brief
- Manu*FUTURE* Vision and Strategy 2030
- Technology Needs
- Decentralised Technical Intelligence – evolutionary step to boost industry performance

Importance of Industry for Europe
Industry as a guarantor for prosperity, innovation and jobs

Manufacturing plays a central role in Europe's economy

Production of goods combined with high-quality services

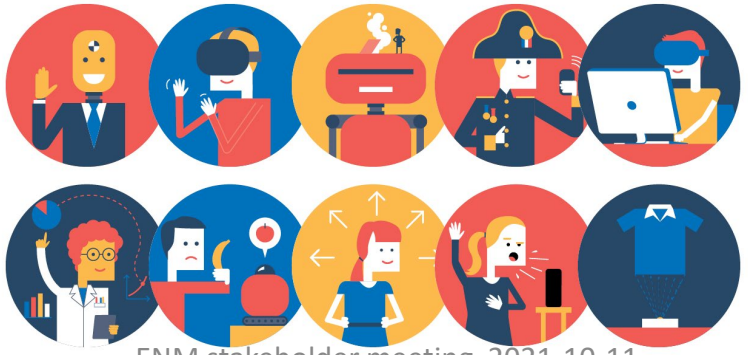
EU Manufacturing

€7 trillion turnover

30 million direct jobs

60 million indirect jobs mainly in small and medium – sized enterprises (SMEs)

80% of total EU exports



Manu*FUTURE ETP Functions*

- **Manu*FUTURE* HLG**

  Discusses the results of Implementation Support Group proposals, and takes final decisions on next steps and how to move forward.

  Manu*FUTURE* ISG (Implementation Support Group)

  Develops the relevant topics for European Manufacturing on behalf of the HLG to the decision stage.

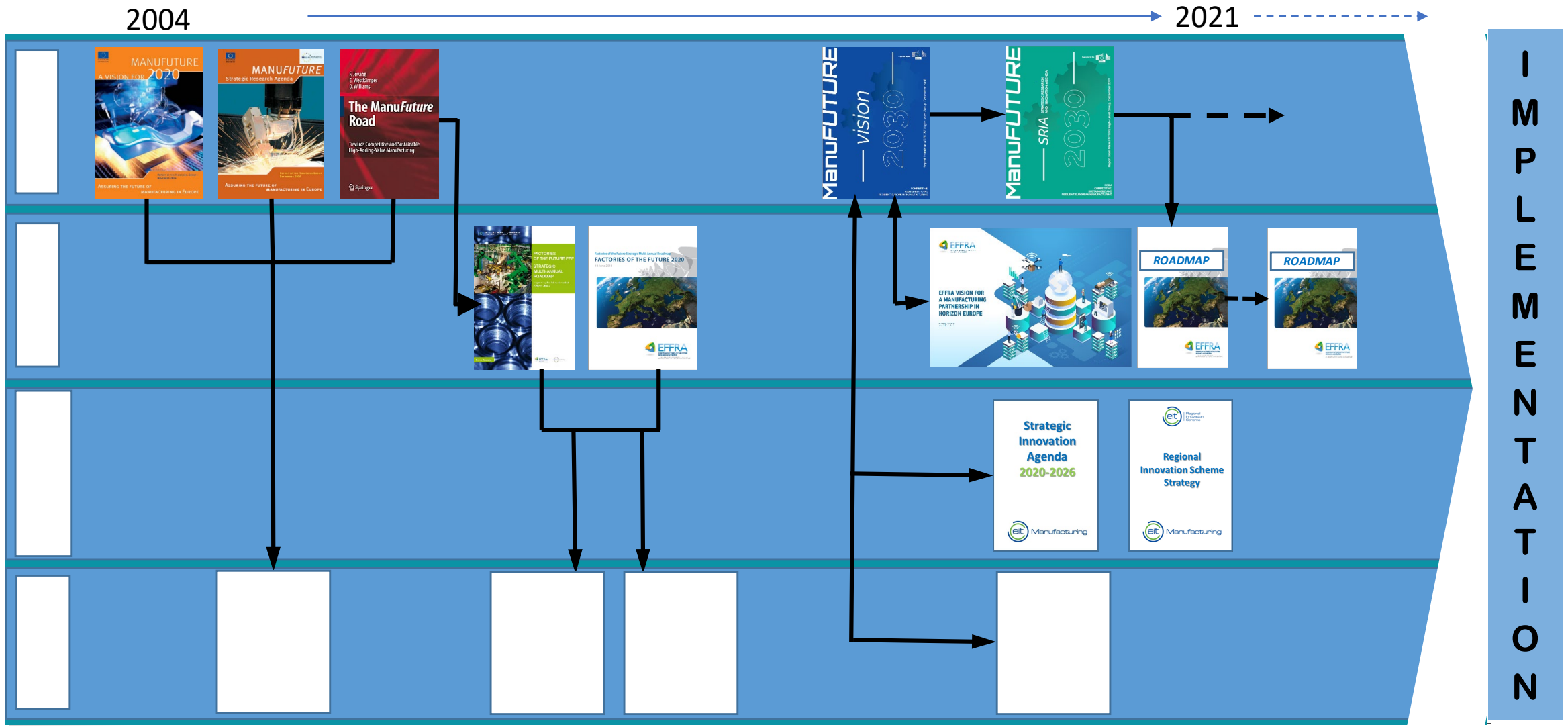
- **Manu*FUTURE* Sub-Platform and ETP Coordination**

  Coordinates the contacts to the several thematic Sub-Platforms and other related ETPs.

- **Manu*FUTURE* NRTP Group** (NRTP = National and Regional Platforms)

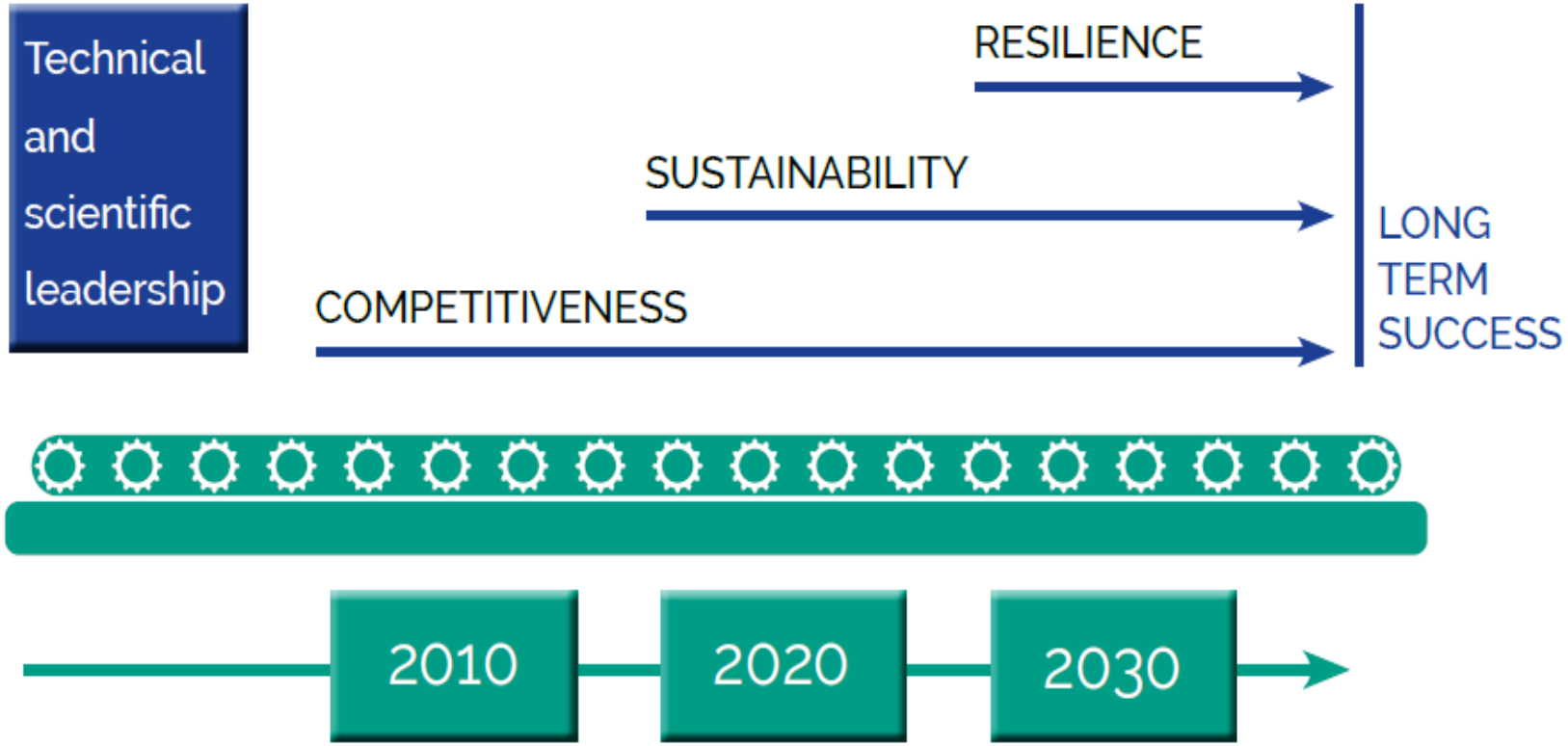
  Collects ideas of national and regional Manu*FUTURE i*nitiatives, and disseminates successful ideas across the membership (28 NRTPs).

MANU*FUTURE*
17 Years of „Strategic Intelligence“



MANU*FUTURE* Vision 2030

Competitive, Sustainable and Resilient European Manufacturing



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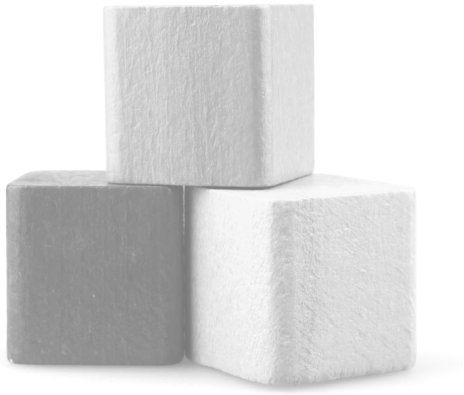
MANU*FUTURE* Strategy for 2030

Europe needs to build on its proven capabilities and **invest more to ensure its leadership**

MANU*FUTURE* Strategic Research and Innovation Agenda 2030



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SCIENCE AND TECHNOLOGY

INNOVATION AND ENTREPRENEURSHIP

EDUCATION AND TRAINING

ManuFUTURE 2030 BUILDING BLOCKS

ManuFUTURE SRIA

Chapter 3: SCIENCE AND TECHNOLOGY CHALLENGES

Chapter 4: RESEARCH AND INNOVATION PRIORITY DOMAINS

Chapter 5: INNOVATION AND ENTREPREURSHIP

Chapter 6: EDUCATION AND TRAINING

MANU*FUTURE* Strategic Research and Innovation Agenda 2030

ENABLING TECHNOLOGIES AND APPROACHES	MANUFACTURING STRATEGIES
1. Manufacturing technology and processes	6. Customer-driven manufacturing
2. Digital transformation	7. Human-centred manufacturing
3. Robotics and flexible automation	8. Agile manufacturing systems design and management
4. Nanotechnology and new materials	9. Circular economy, resource and energy efficiency
5. Biological transformation of products, processes and value creation	10. New business models and logistics networks

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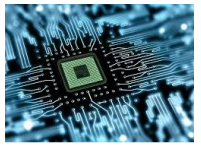
Manu*FUTURE ETP Working Groups*

- **Strengthen Upstream Links**
- **Strengthen Downstream Links**
- **Sustainable, Circular and Accountable Manufacturing**
- **Decentralized Technical Intelligence**
- **The Need for Resilient Manufacturing**
- **Open Data – A balanced approach Between IPRs and Open Science**
- **Innovation Infrastructures and Ecosystems**
- **State Aid, in the scope of Research and Innovation**

Future Competitiveness needs Progress in relevant Technologies

Manufacturing
is interdisciplinary and
has an integrating role

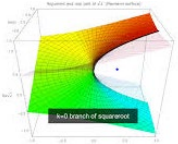
Micro- and Nano Electronics



Materials Technologies

Robotics

Mathematical Methods
- big data/smart data
- artifical intelligence
- machine learning



Sensor Technologies

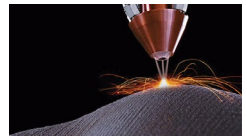
Information and Communication Technologies (ICT)
- Cyber-physical systems
- Interfaces

Photonics

Bio Technologies

Progression of classical technologies beyond today's borders
- ultraprecision to the nano-range
- resilient manufacturing processes

Additive manufacturing

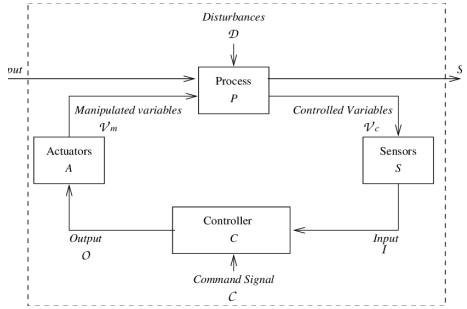


Decentralised Technical Intelligence (DTI)

Next evolutionary step to boost industry performance

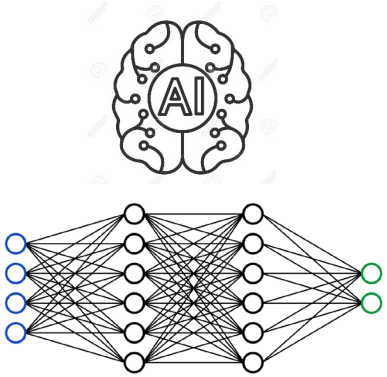
Control Theory & (Systems) Engineering

Feedback loops with sensors, actuators & controllers



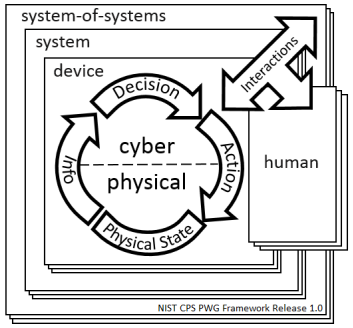
Artificial Intelligence

Simulation of some human intelligence processes by computer systems



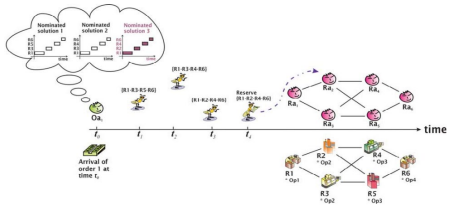
Cyber Physical Systems

Interconnection of 'cyber' (informatic, software) components with 'physical' (mechanical and electronic) parts that communicate via a data infrastructure, e.g. Internet-of-Things



agent-based/holonic manufacturing

Autonomous & cooperative agents provide manufacturing systems with flexibility, adaptability, agility, and dynamic reconfigurability …



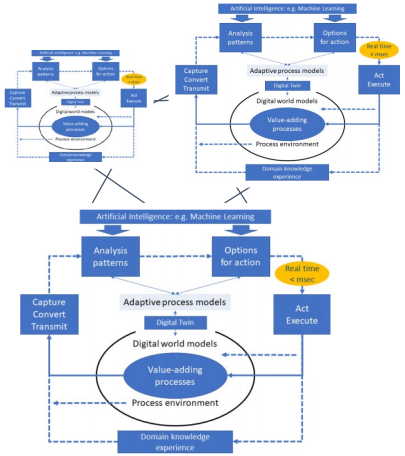
Decentralised Technical Intelligence

Next evolutionary step to revolutionise industry performance – going beyond the limits of today in an interdisciplinary approach.

⇒ self-x in real time

⇒ distributed, knowledge-based intelligence

⇒ process optimization in manufacturing systems



Thank you for your attention