European Commission

Commission proposal for

Horizon Europe

THE NEXT EU RESEARCH & INNOVATION PROGRAMME (2021 – 2027)

#HorizonEU

Societal Elements in Cluster « Digital and Industry »

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European Commmission

Research and Innovation

Horizon Europe

is the Commission proposal for a **€ 100 billion** research and innovation funding programme for seven years (2021-2027)

to strengthen the EU's scientific and technological bases

to boost Europe's innovation capacity, competitiveness and jobs

to deliver on citizens' priorities and sustain our socio-economic model and values

€ 4.1 billion are proposed to be allocated for defence research, in a separate proposal for a European Defence Fund

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Lessons Learned
from Horizon 2020 Interim Evaluation

Key Novelties
in Horizon Europe

Support breakthrough innovation	European Innovation Council
Create more impact through mission-orientation and citizens' involvement	R&I Missions
Strengthen international cooperation	Extended association possibilities
Reinforce openness	Open science policy
Rationalise the funding landscape	New approach to Partnerships

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CLUSTER 3 Digital and Industry: why combined in a cluster?

- **Digitisation, Key Enabling Technologies** and **Space** are major drivers and enablers
- This cluster will develop **technological and industrial capacities** for industrial competitiveness and the capacity to address global challenges
- It will support the **digitised, circular, low-carbon** and **low-emission economy**
- **Universities, research institutes and SSH players** are essential
- **European social and ethical values**, e.g. human element in manufacturing, sustainability, AI and citizens, skills

CLUSTER 3 Digital and Industry: facts and figures

- EU industry provides 1 out of 5 jobs, 80% of EU exports, two thirds of private sector R&D.
- ICT sector: 5 % of the EU economy, 25 % of total business expenditure is ICT-related. Leading in next generation digital technologies is vital.
- The Circular Economy: 580,000 EU jobs and possibly € 600 billion in savings for EU businesses (8% of their annual turnover).
- Energy-intensive industries: 20% of global greenhouse gas emissions – Require new breakthrough technologies to meet climate action targets.
- The space sector: 230,000 EU jobs, ~ € 50 billion. Space technologies are key enablers.

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CLUSTER 3 Digital and Industry: Priorities

- Reshaping economies and societies through key enabling technologies (KETs) and digital transformation
  - for sovereignty in KETs; and
  - for addressing global challenges
- Industry producing in Europe / Human-centred
- Circular and Low-carbon Industry
- Industrially-oriented infrastructures (KETs / Digital)
- Generation and valorisation of big data
- "… by design" / Life Cycle Analysis

CLUSTER 3 Digital and Industry: what?

9 intervention areas:

- Manufacturing technologies
- Key digital technologies
- Advanced materials
- Artificial intelligence and robotics
- Next generation internet
- Advanced computing and big data
- Circular industries
- Low carbon and clean industries
- Space

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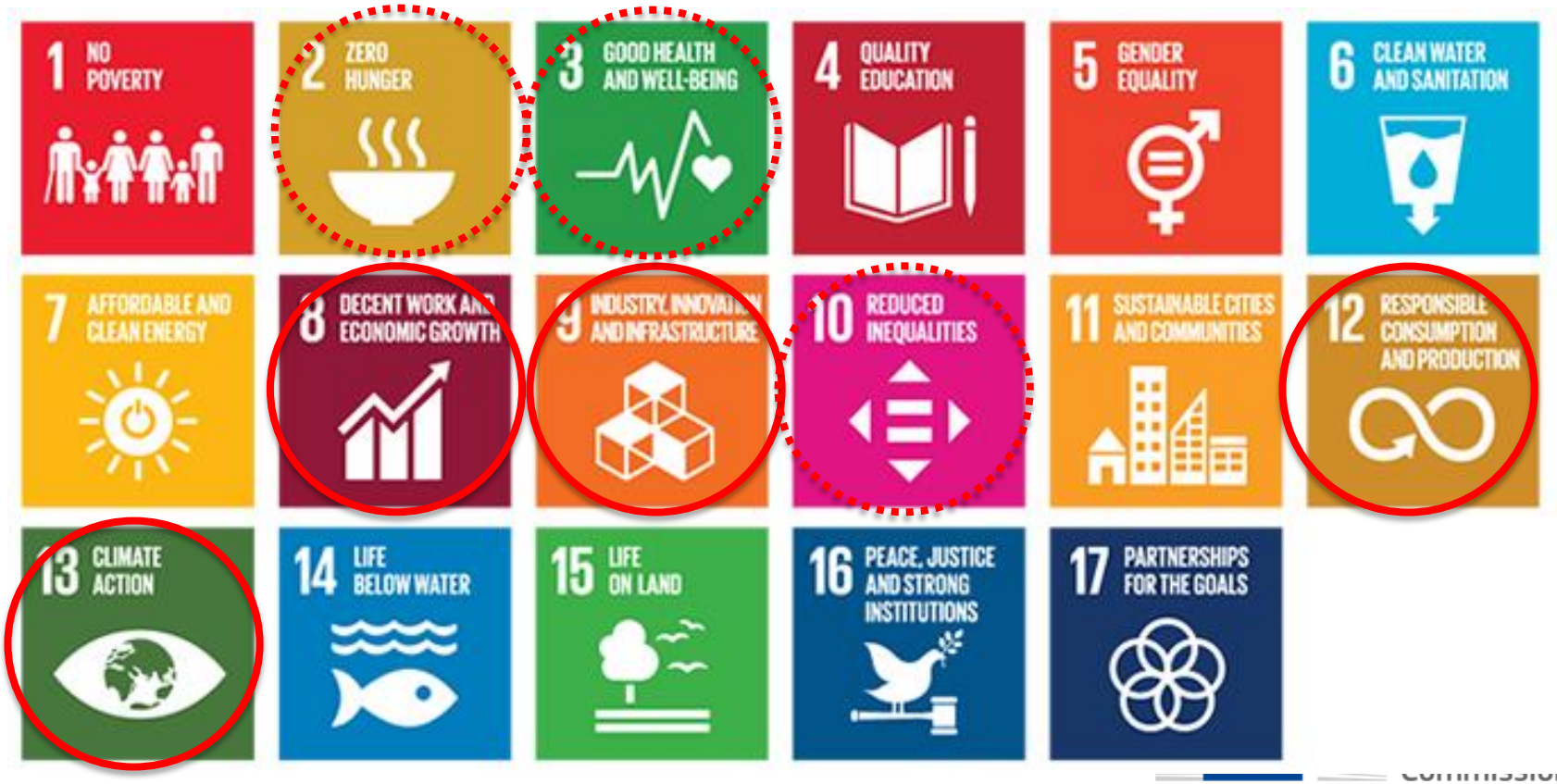
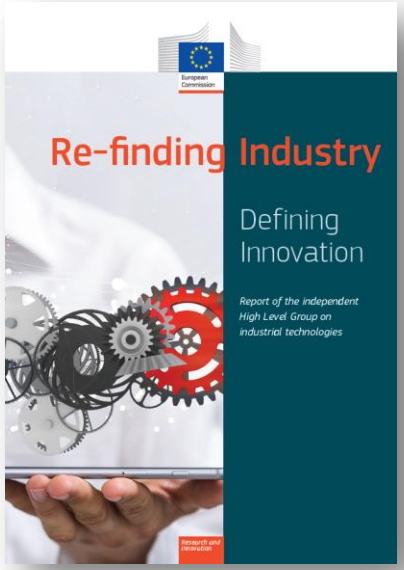
CLUSTER 3 Digital and Industry

Cluster 3 will contribute to many Sustainable Development Goals



Key Enabling Technologies (KETs) at the heart of European Industry and Society



High-level Strategy Group on Industrial Technologies (2018)

Re-finding Industry – Defining Innovation

Updated criteria for KETs

- Enabling – multiple cross sectoral, society, environment, circular economy, green growth
- Key capacity – impact on people, society, safety & security, connectivity
- Relevant – research, development, production, underpinning societal participation and democratic engagement, European sovereignty

Updated list of KETs: Existing KETs are still relevant, but

- Merge Nanotechnologies and Advanced Materials
- Merge Photonics and Micro/nanoelectronics
- Widen scope of Biotechnology to Life-Science Technologies

Two new KETs:

- Artificial Intelligence
- Security and connectivity technologies

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Social Sciences and Humanities in Digital and Industry

"Societal understanding and acceptance are key ingredients for success,

as well as a new agenda for industry-relevant skills"

How will this principle be made a reality in the activities?

- *Dialogue is needed, taking needs and concerns into account.*
- *Examples from Horizon 2020:*

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SSH in H2020 LEIT - I

- Societal Engagement in Nanotechnology – understanding and dialogue

2013 Nanodiode Outreach and dialogue

2014 SEEINGNANO Novel visualisation tools for ‘Seeing at the Nanoscale’

2015 NANO2ALL Nanotechnology Mutual Learning Action Plan

2017 GONANO Governing Nanotechnologies through Societal Engagement - improve the responsiveness of R&I processes to public values and concerns.

2020 How can these approaches be generalised,

to bring citizens close to industrial and key enabling technologies?

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SSH in H2020 LEIT - II

- Human-centred approaches to Factories

Facts4Workers Worker-Centric Workplaces for Smart Factories

SatisFactory Augmented-reality approaches to make factories productive and attractive to workers

Factory2Fit Making the factory environment flexible and adaptable – enhance worker motivation, satisfaction and productivity – knowledge workers in smart factories with fulfilling careers

MANUWORK Balancing Human and Automation for the future

Capitalising on the 4th Industrial Revolution

Starting in 2018 / 2019:

- Skills needed for new Manufacturing jobs (support action)
- Effective Industrial Human-Robot Collaboration
- ERASMUS+ Blueprint for Sectoral Cooperation on Skills, e.g. in additive manufacturing, construction, batteries

SSH in H2020 LEIT - III

- Reconfigurable and reusable customised products

Repro-Light Re-usable and re-configurable parts for sustainable LED-based lighting systems

FreeWheel Smart Mobility Platform for the social inclusion of the disabled and elderly

- Cultural heritage

NanoRestArt Nanotechnologies to restore contemporary art

SSH in H2020 LEIT - IV

- Society and Artificial Intelligence

SIENNA Ethics of AI and Robotics, Human Enhancement and Genomics; to develop ethical codes

SHERPA Impact of smart systems on ethics and human rights

K-PLEX Big data approaches to knowledge creation, e.g. 'Will historians ever have big data?'

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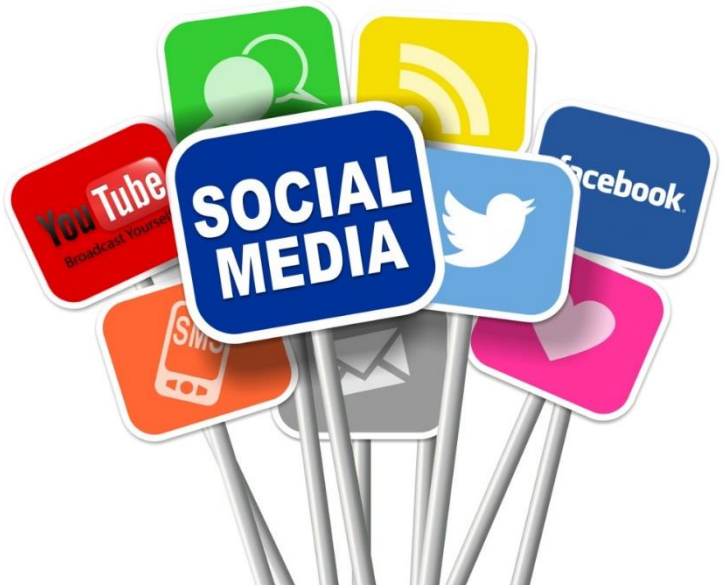
Horizon Europe dedicated website
http://ec.europa.eu/horizon-europe

European Innovation Council
http://ec.europa.eu/research/eic

EU budget for the future
http://ec.europa.eu/budget/mff/index_en.cfm



Thank you!

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