



#InvestEUresearch

Horizon 2020 Work Programme for Research & Innovation 2018–2020

**Skills Challenges connected to
increased industrial digitization**

VL Summit Borreby Gods– 7 June 2018

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DG Research & Innovation – Industrial Technologies

Research and
Innovation





THE BOHEMIA PROJECT

- A strategic foresight study towards the proposal for the next FP R&I.
- Part of a strategy for engagement



Phase 1:

Extensive review of available foresight to produce meta-scenarios relevant for Europe (2016)

Phase 2:

Delphi survey to gain insights on future technologies, societal issues, and R&I practices based on the scenarios (May – June 2017)

Phase 3:

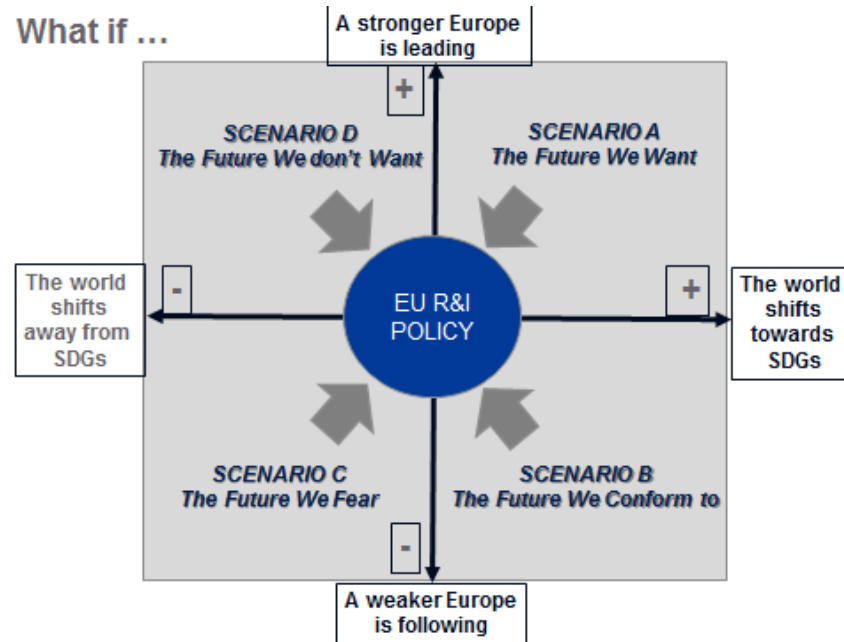
Analysis, public consultation and policy recommendations (End of 2017 : final report forthcoming)



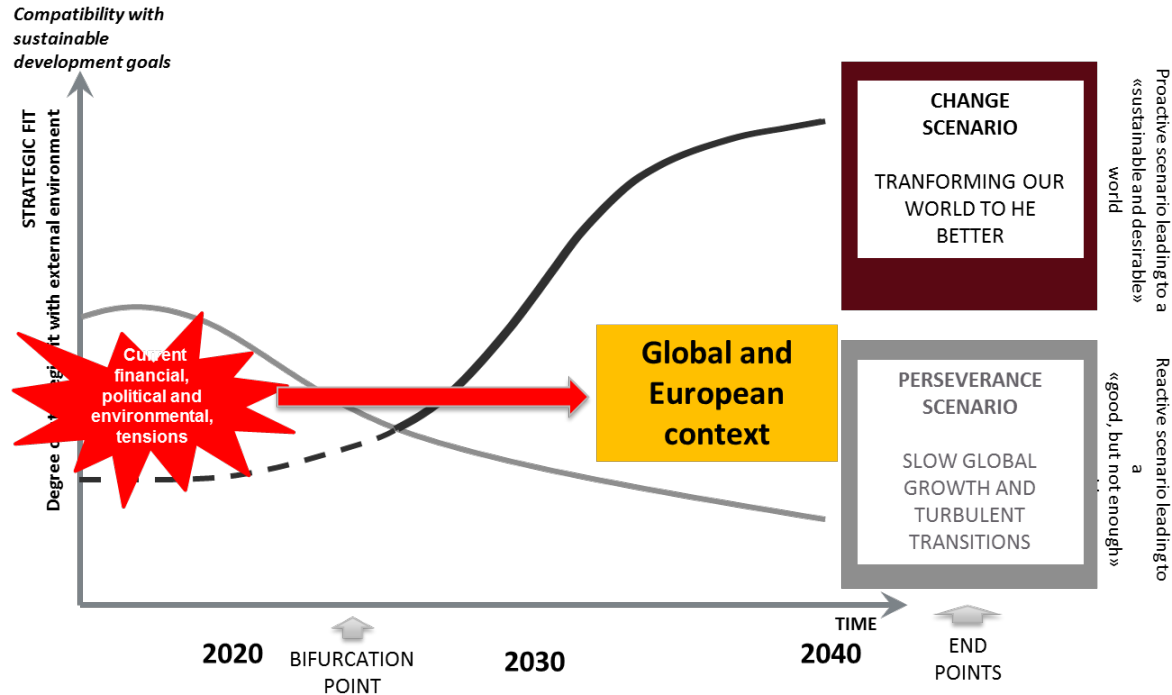
European
Commission

Research and innovation

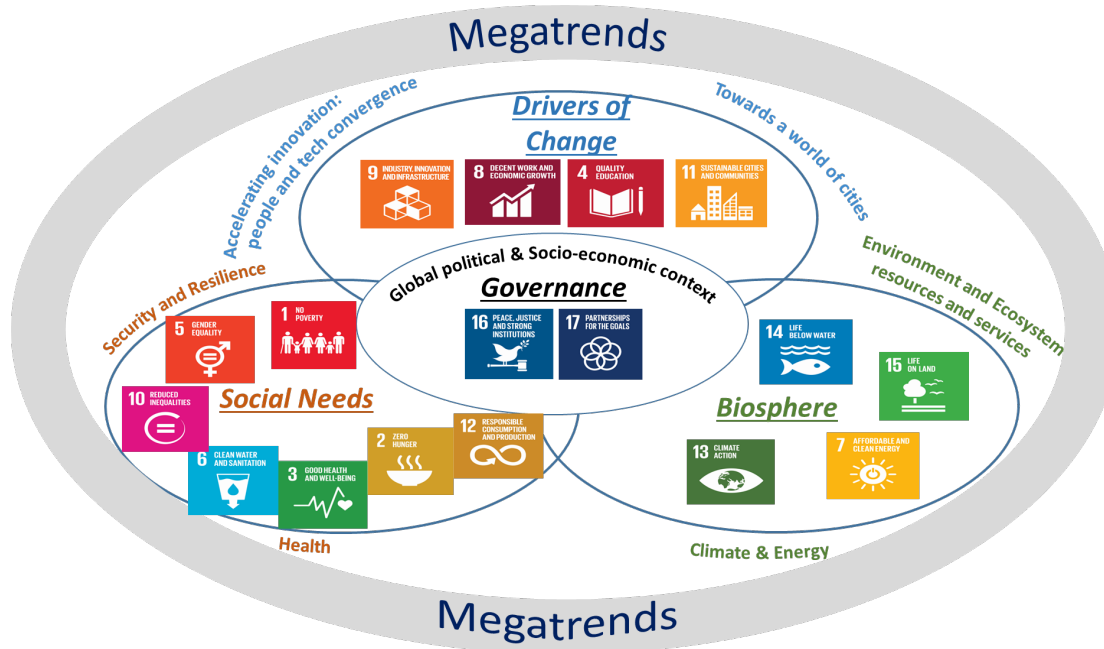
The meta-scenarios framework



The meta-scenarios framework



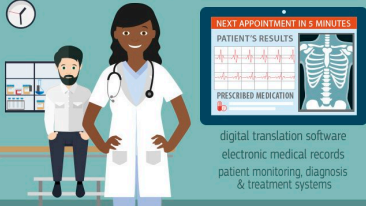
Scenarios, trends and transitions



A future build on solid research – Horizon Europe

DIGITISATION IS TRANSFORMING THE ECONOMY

Today's hospital doctors need digital skills



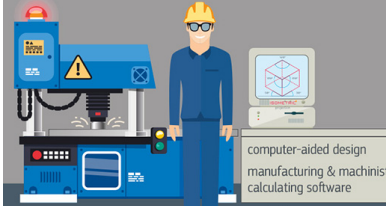
Benefits:

- facilitates communication between doctors & patients
- improves access to medical information
- allows doctors to save time and to treat more patients

digital translation software
electronic medical records
patient monitoring, diagnosis & treatment systems

European Commission #EUSkillsAgenda

Today's industrial machine operators need digital skills




Benefits:

- faster manufacturing & reduced errors
- less hard, manual, repetitive tasks
- manufacturing processes more sustainable.

computer-aided design
manufacturing & machinist
calculating software

European Commission #EUSkillsAgenda

Today's VET teachers need digital skills



Benefits:

- improved communication between teachers & students
- improved quality of learning
- increased safety

- Learning management systems
- Virtual learning platforms
- Digital simulation technologies

INTERACTIVE WHITE BOARD

European Commission #EUSkillsAgenda

Today's farmers need digital skills



Benefits:

- improved decision making
- less repetitive & physically demanding tasks
- increased flexibility, productivity & animal health

Herd vaccination
Automated irrigation
Crop monitoring
Farm management

European Commission #EUSkillsAgenda

CHALLENGES AND FUTURE TRENDS

The Future Workplace



Networked
Flexible
Integrated
Open
Innovative
Digital

Critical skills for the workforce



Social Intelligence
Novel and adaptive thinking
Cross-cultural competency
Computational thinking
Transdisciplinary
Virtual collaboration

Skills demand in 2020



Complex problem solving
Critical thinking/Creativity
People management/ Teamwork
Emotional intelligence
Judgment and decision-making
Service orientation
Negotiation

- But also stress-resistant!

PROJECTS FOR POLICY

CAPITALISING ON THE BENEFITS OF THE 4TH INDUSTRIAL REVOLUTION

WHAT IS THIS ABOUT?

- Impact on skills needs & future job profiles?
- How to prepare with “education and training 4.0”?

ACT NOW!

- Raise awareness and deepen the understanding of the potentials and risks related to the 4th Industrial Revolution;
- Promote lifelong learning in factories and new learning methods;



30 EU
Projects

SKILLS & JOBS PROFILES:

- Technical: STEM and digital
- Specific technical skill sets
- Non-technical, competence set
- New job profiles

EDUCATION & TRAINING

- New technologies to facilitate learning
- Teaching factories concept
- Starting early manufacturing education
- Extend training programs
- Collaboration industry & education & research

Fast transformation and implementation of key enabling technologies is a key to success

- Digitization is a great tool to connect and integrate technologies
- Needs a flexible educational system without bottlenecks and open for all talents
- Needs a responsive society prepared through life-long learning with a focus on integration of digital skills and new technology for societal benefit

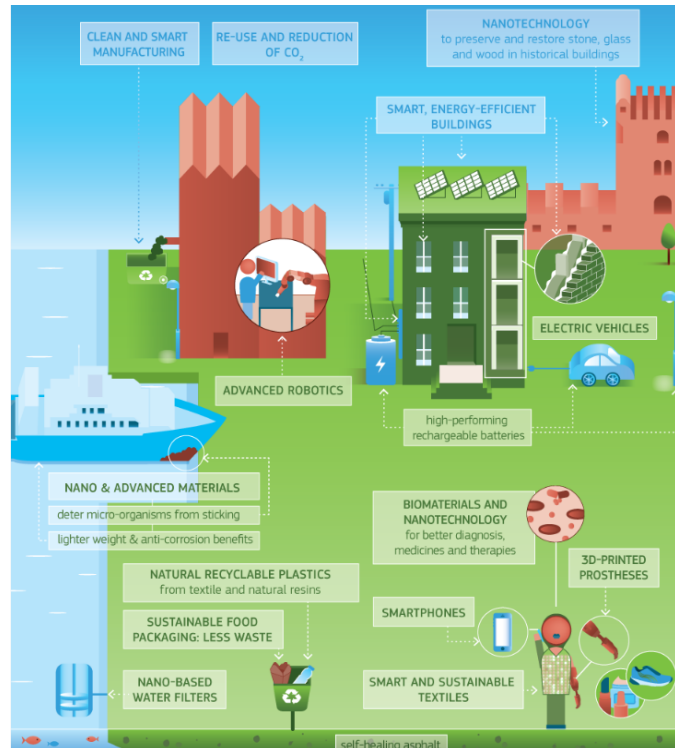


Predicting the future is difficult! However if you:

- *Follow trends*
- *Put the trends together into patterns*
- *Base research actions on the patterns to obtain solid evidence*
- *Strategy to overcome the problems*
- *Deploy the strategy to solve the problems*

*Reach the Change Scenario – Transforming our world to the
better
through integration of
Key Enabling Technologies, Data Analysis, Education, Research
and good governance*

Key Enabling Technologies at the heart of European competitiveness



KETs Info graphic (2016)





Soren BOWADT
Deputy Head of Unit

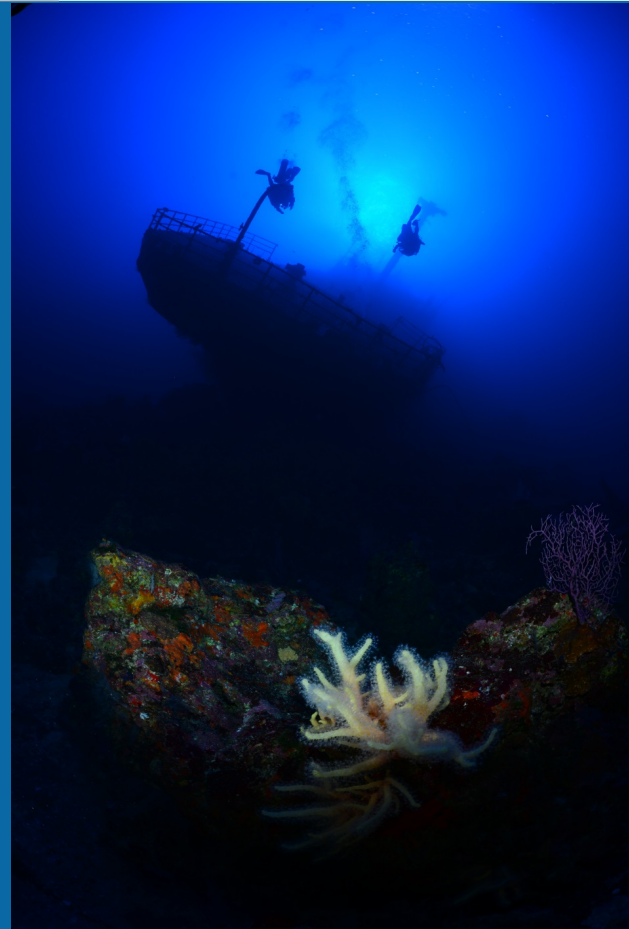
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About Horizon 2020

<http://ec.europa.eu/research/horizon2020/>

Research and
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Further information

Horizon 2020: http://ec.europa.eu/research/horizon2020/index_en.cfm

Key Enabling Technologies, R&I website :

http://ec.europa.eu/research/industrial_technologies/index_en.cfm

Participant Portal - Funding Opportunities and support services :

<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>

National Contact Points in your country (NMP)

http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html#c.contact=country/sbg//1/1/0&+person.last_name/desc

Research Enquiry Service: <http://ec.europa.eu/research/index.cfm?pg=enquiries>

CORDIS database with EU funded research projects :

http://cordis.europa.eu/projects/home_en.html

European Institute of Innovation & technology:

www.eit.europa.eu

“Projects for Policy” report: Capitalising on the 4th Industrial Revolution

https://ec.europa.eu/info/research-and-innovation/strategy/policy-support/p4p_en#what-is-projects-for-policy-p4p

Blueprint for sectorial cooperation: <http://ec.europa.eu/social/main.jsp?catId=1415&langId=en>

Digital Opportunity Traineeships:

http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-leit-ict_en.pdf
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