



Industry 4.0 – how to reach business value in a smart and profitable way

CEPS seminar Industry 4.0 Implications for an EU industrial policy
25th of Januar 2018

Industry 4.0 - can unlock considerable business value



Robotics and automation

Machines to take on manually conducted tasks



Advanced analytics

Predictive models leveraging machine learning



Process digitalization

Digital tools to boost process efficiency



Commercial excellence

Data-driven commercial and sales excellence

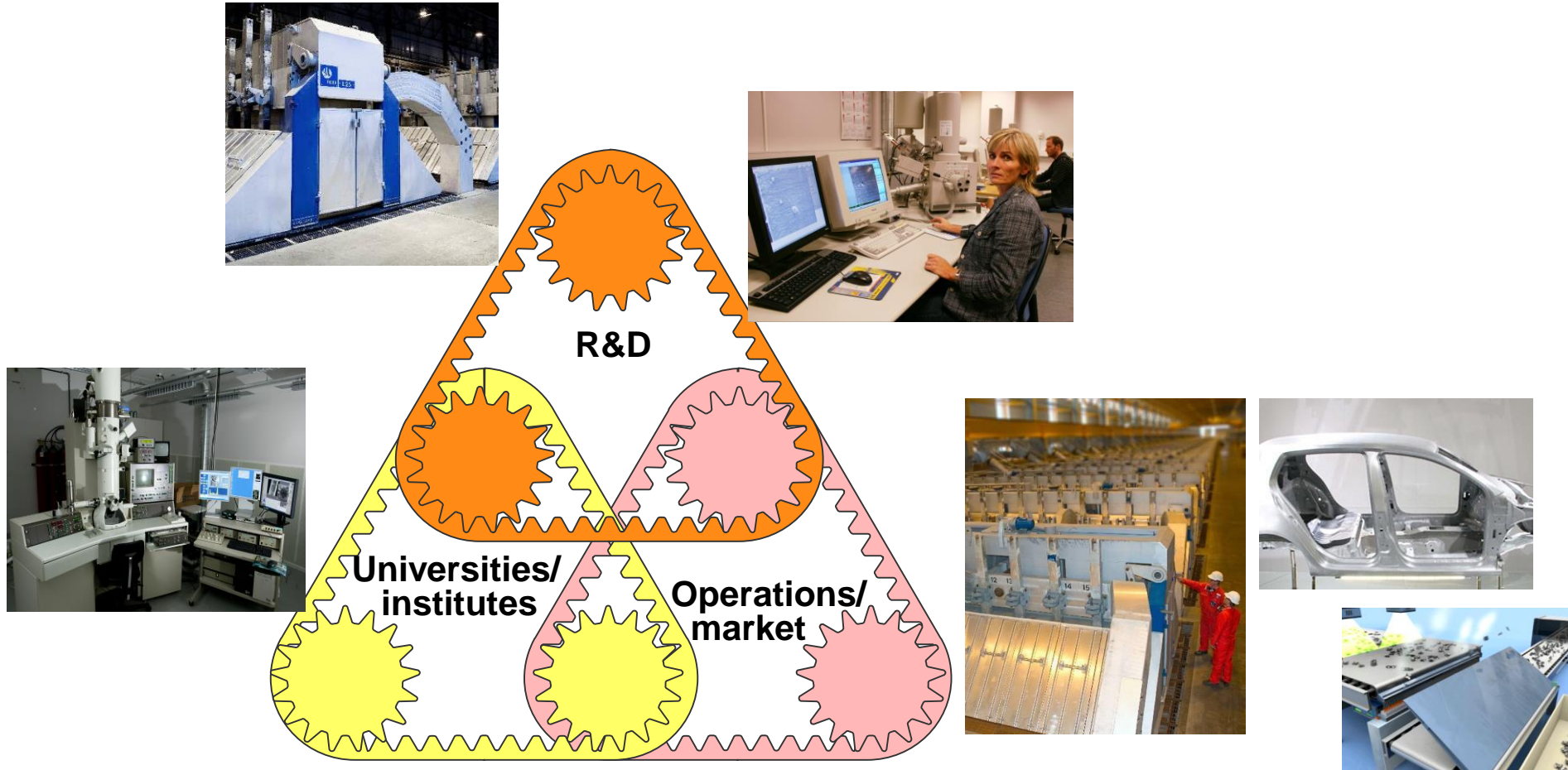


Digital value propositions

Digital solutions tailored to customer needs

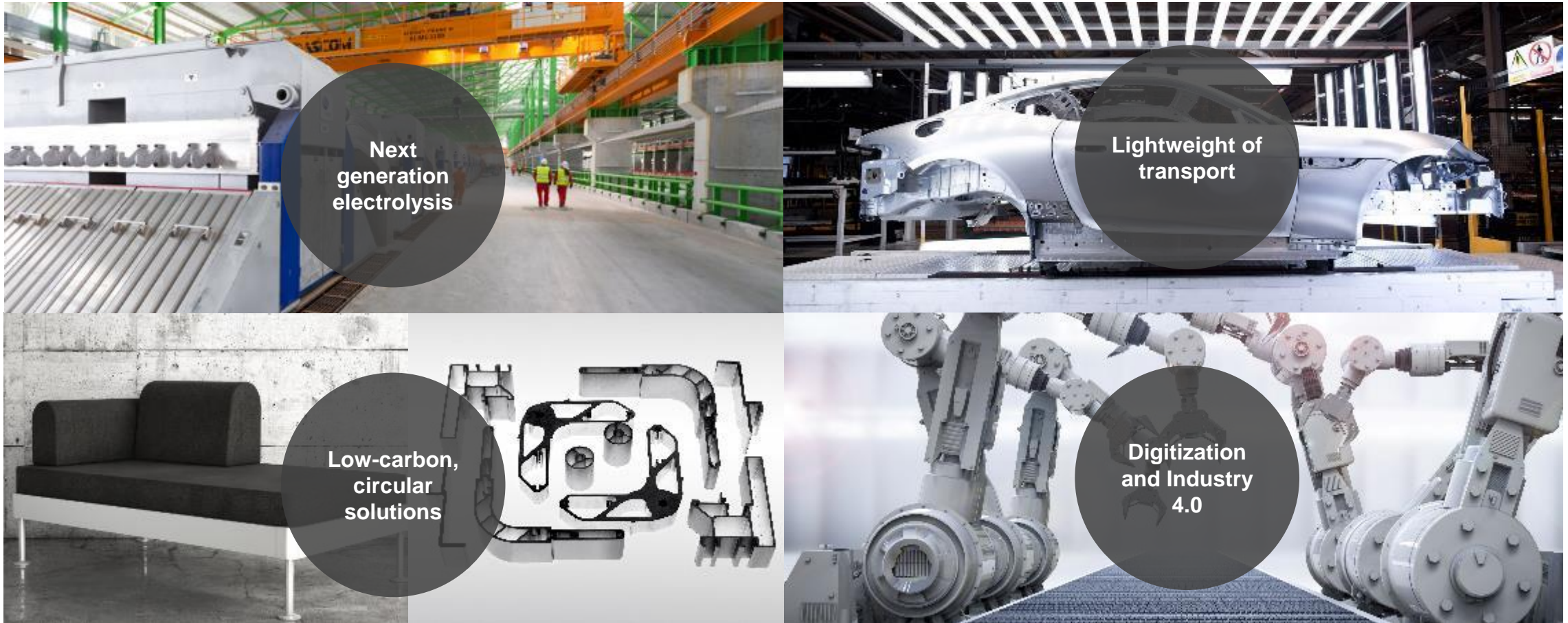


R&D key part of our value chain – from laboratory to end product



Industry 4.0 throughout the value chain

The customer ask for smart solutions – **improvement programs** throughout the value chain



Innovation and investments – hand in hand with climate ambitions

Value creating, climate friendly investments



Karmøy technology pilot

Norway, R&D for years, innovation support, CO₂-compensation

Automotive line 3

Germany, car industry asks for lightweight

UBC recycling line

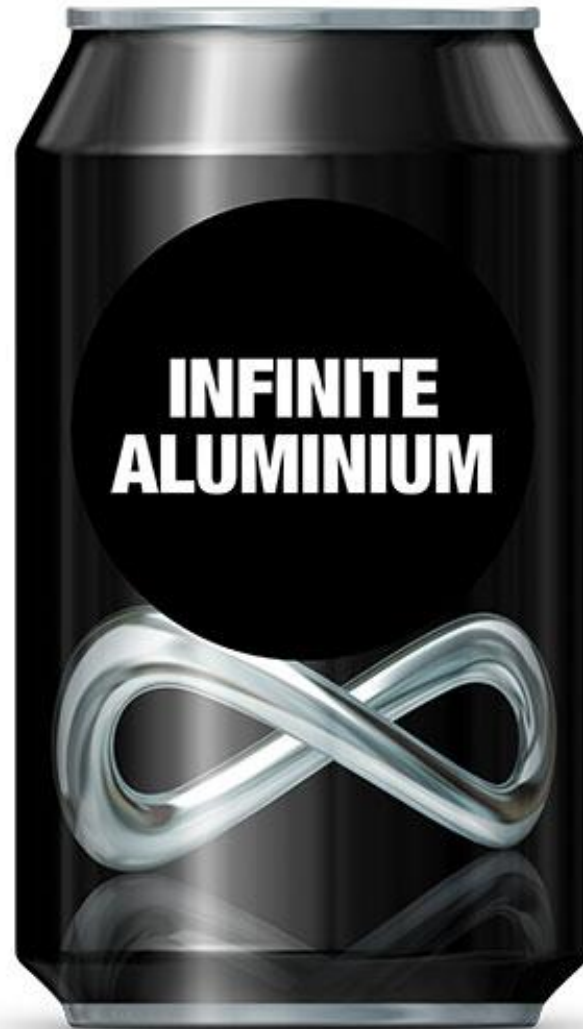
Germany, circular economy

Wind power

Nordic, PPA's with wind developers

Innovative Industry – EU policy decisive for global competitiveness

- Digital investments not profitable by default
 - Needs to be harmonized throughout the process and value chain, at minimized cost
 - Cyber risk must be controlled
- Active industries drive development and innovation – in order to compete globally
 - Close cooperation with R&D institutes & Universities
 - Close cooperation throughout the value chain – from the laboratory to the end product
 - Driven by quality requested by the consumer & need to stay competitive globally
- A strong EU industrial policy decisive for global competitiveness
 - R&D programs relevant for industry
 - Innovation support; support to investments in pilot technology
 - Regulatory framework; industry competing in global markets cannot pass on extra EU cost to customer – exemptions/compensation decisive for further investments
 - Long term and stable



Questions from CEPS

- 1) Impacts and benefits of industry 4.0 – Good examples from Hydro
- 2) High value-added services affecting manufacturing supply chains..
- 3) Local versus global aspects..
- 4) Industry 4.0 favour small and medium sized companies?
- 5) Industry 4.0 favour incumbent large companies? – challenges to report?
- 6) Regional innovation systems..
- 7) EU and national innovation systems
 - a. R&D support and cooperation
 - b. Investment support for new technology
 - c. Framework maintaining global competitiveness
- 8) Cooperation between firms..
- 9) Workforce skills – Cooperation R&D&Education institutions ++
- 10) Activities to reshore and onshore..

The MAKERS Policy Workshop aims to address key questions:

1. How can policy raise awareness of the **impact and benefits of Industry 4.0**? Which industries can be early adopters? What technological shift is necessary for adoption? How will the value chain change in specific industries? Which sectors and technologies should and could European regions aspire to retain and grow?
2. How will **high value-added services** affect the composition and performance of manufacturing supply chains in the EU? What form would this take and how could it be promoted regionally and nationally?
3. To what degree will firms manage demand and suppliers that are **locally anchored** and **globally diffused**? Will industry 4.0 enable rural and urban convergence in manufacturing intensity?



MAKERS

4. How will Industry 4.0 favour **small and medium sized companies**? What can be the role of disruptive small new entrants?
5. How will Industry 4.0 favour **incumbent large companies**? What initiatives can encourage them to lead the change and bring their supply chain along? How are firms connected along the value chain in the new model?
6. How can **regional innovation systems** facilitate and accelerate technology adoption in existing regional clusters or favour the emergence of new industries?
7. What is the role of the **EU and national innovation systems** and the corresponding innovation policies to promote technological awareness, adoption and adaptation?
8. How can policy promote **cooperation** between firms and other key stakeholders that is critical to speed the adoption of the Industry 4.0 model?
9. Are the necessary **workforce skills** being developed for the new manufacturing?
10. What activities could be reshored? What activities could remain onshored? And how can policy assist or unblock the **reshoring of manufacturing activity**?

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