

Industry 4.0+ and Implications for European Regions

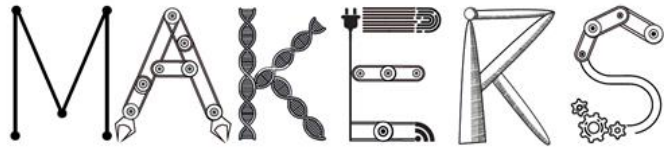
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MAKERS' Workshop, Brussels 25th January 2018

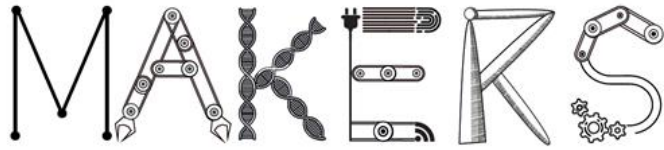
MAKERS - Smart Manufacturing for EU growth and prosperity is a project funded by the Horizon 2020-
MSCA- RISE - Grant agreement number 691192.





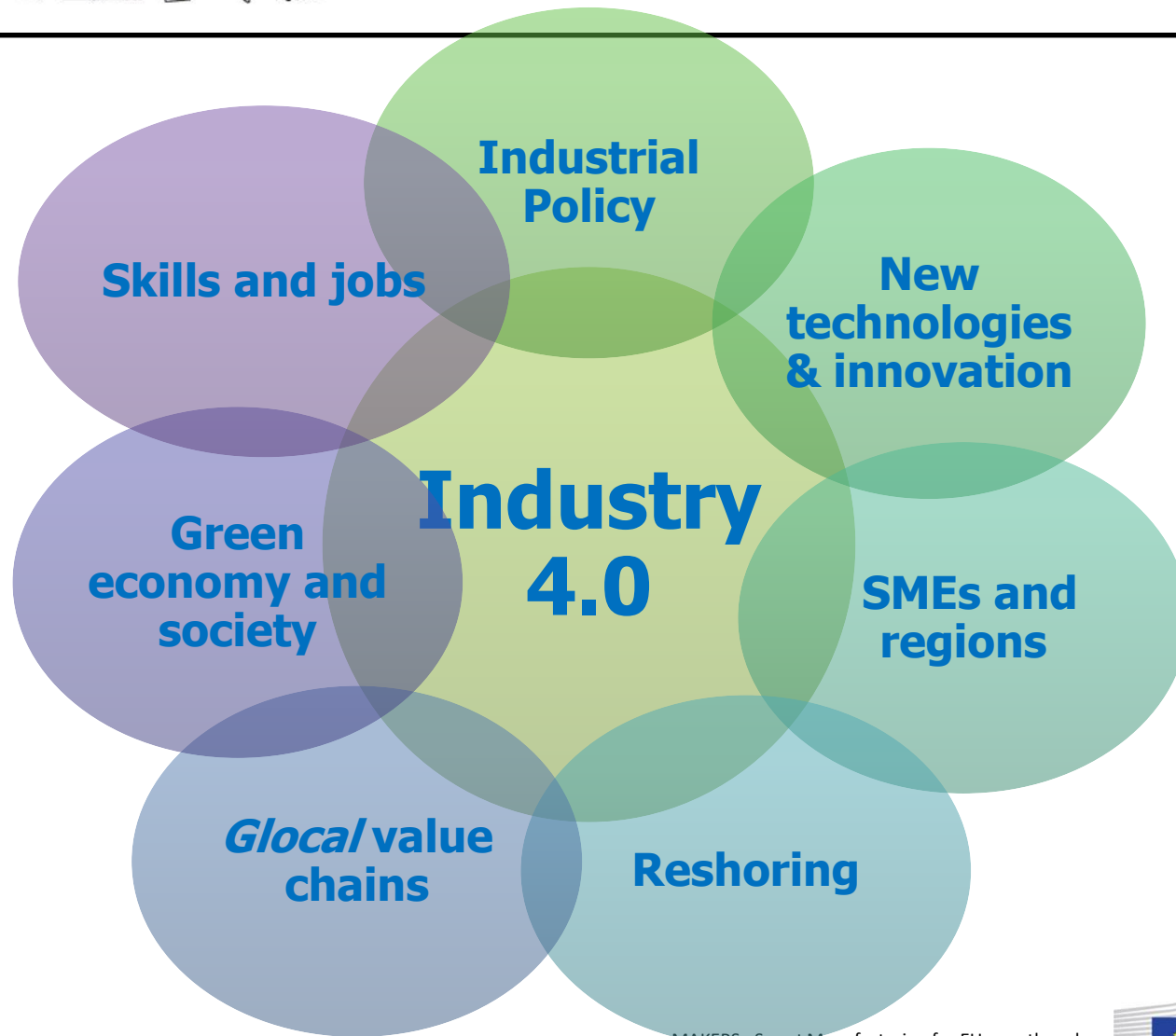
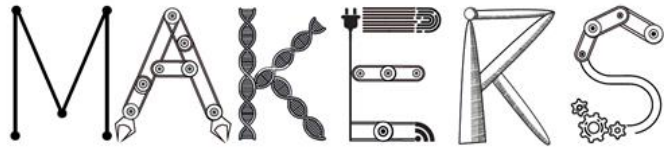
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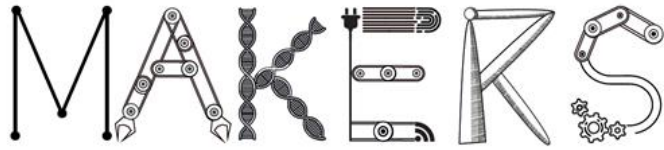
What is MAKERS?

- A network of business, academia and policy
- In UK, France, Italy, Spain, Sweden, US, Singapore, Switzerland
- Research agenda: to understand the drivers, enablers and dynamics of a new manufacturing model for Europe.

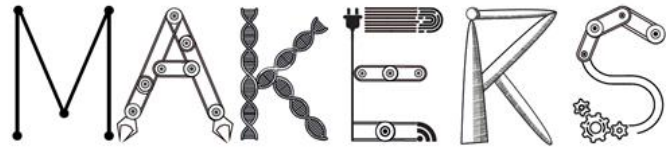


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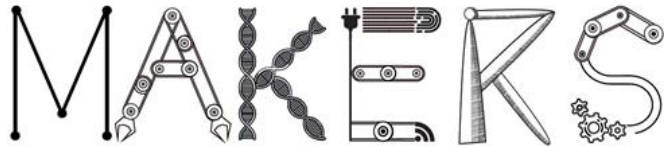


Technological change



4th Industrial revolution

**Biotech, nanotech,
neurotech, green &
renewables, ICT & mobile
tech, 3D, AI, Robotics,
sensing & space tech,
drones**



EU def of Industry 4.0

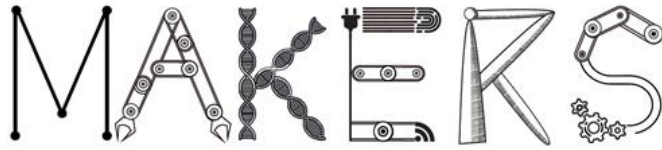
Industry 4.0 describes the organisation of production processes based on technology and devices autonomously communicating with each other along the value chain in virtual computer models.

Industry 4.0 involves a series of disruptive innovations in production and leaps in industrial processes resulting in significantly higher productivity.

Efficiency driven arguments→

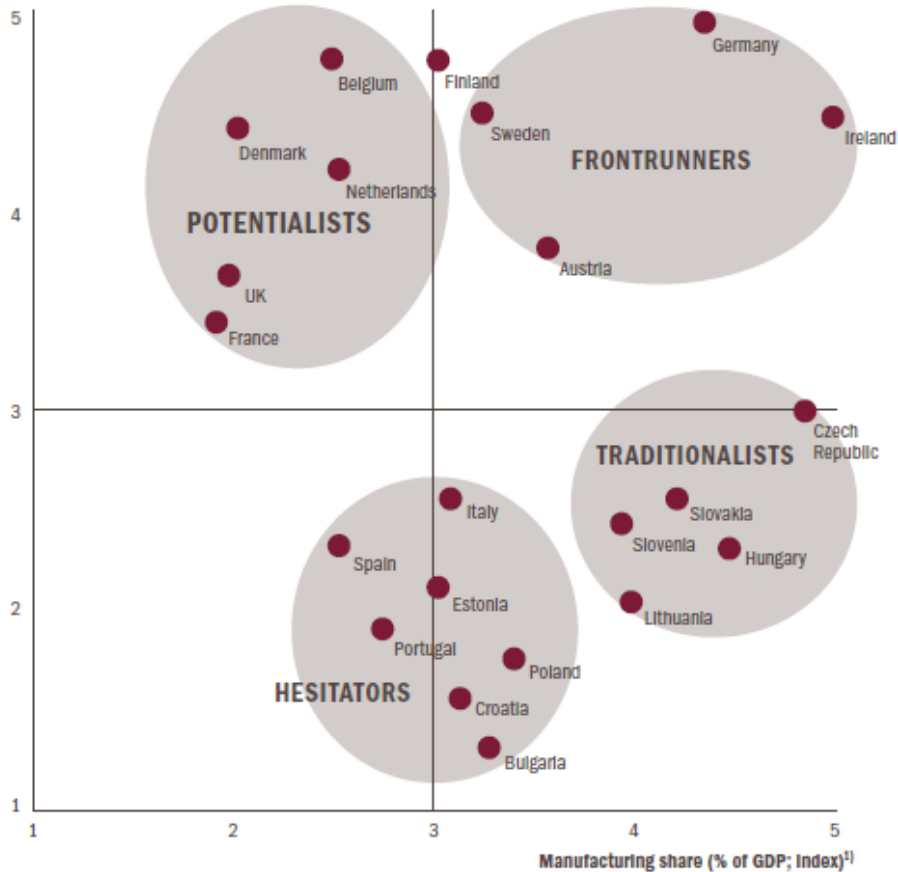
- **Smart and webbed factories**
- Large plants
- Large firms or multi-national firms
- **Mass customisation**

- AI- IoT – robotics- automation
- Cyber-physical systems (smart ordering, scheduling, control and delivery systems, 'big data'.
- New combination capital & labour
- Lower inventory upstream, in process and downstream.
- Max productivity



Berger 2014- Industry 4.0

RB Industry 4.0
Readiness Index^{1,2)}



1) 1 - low, 5 - high

2) Adjusted for outliers Cyprus, Latvia, Luxemburg, Romania, Greece

- Industrial excellence
 - production process sophistication
 - Degree of automation
 - Workforce readiness
 - Innovation intensity
- Value network
 - VA
 - Industry openness
 - Innovation network
 - Internet sophistication

Berger 2014

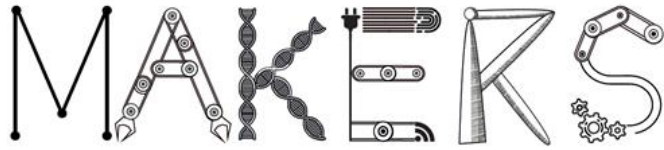
MAKERS

In MAKERS → Broader



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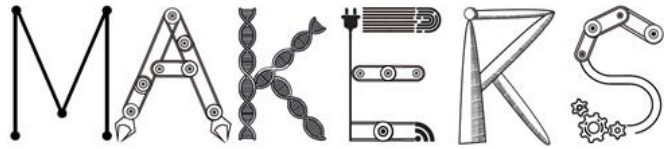


Technological revolution

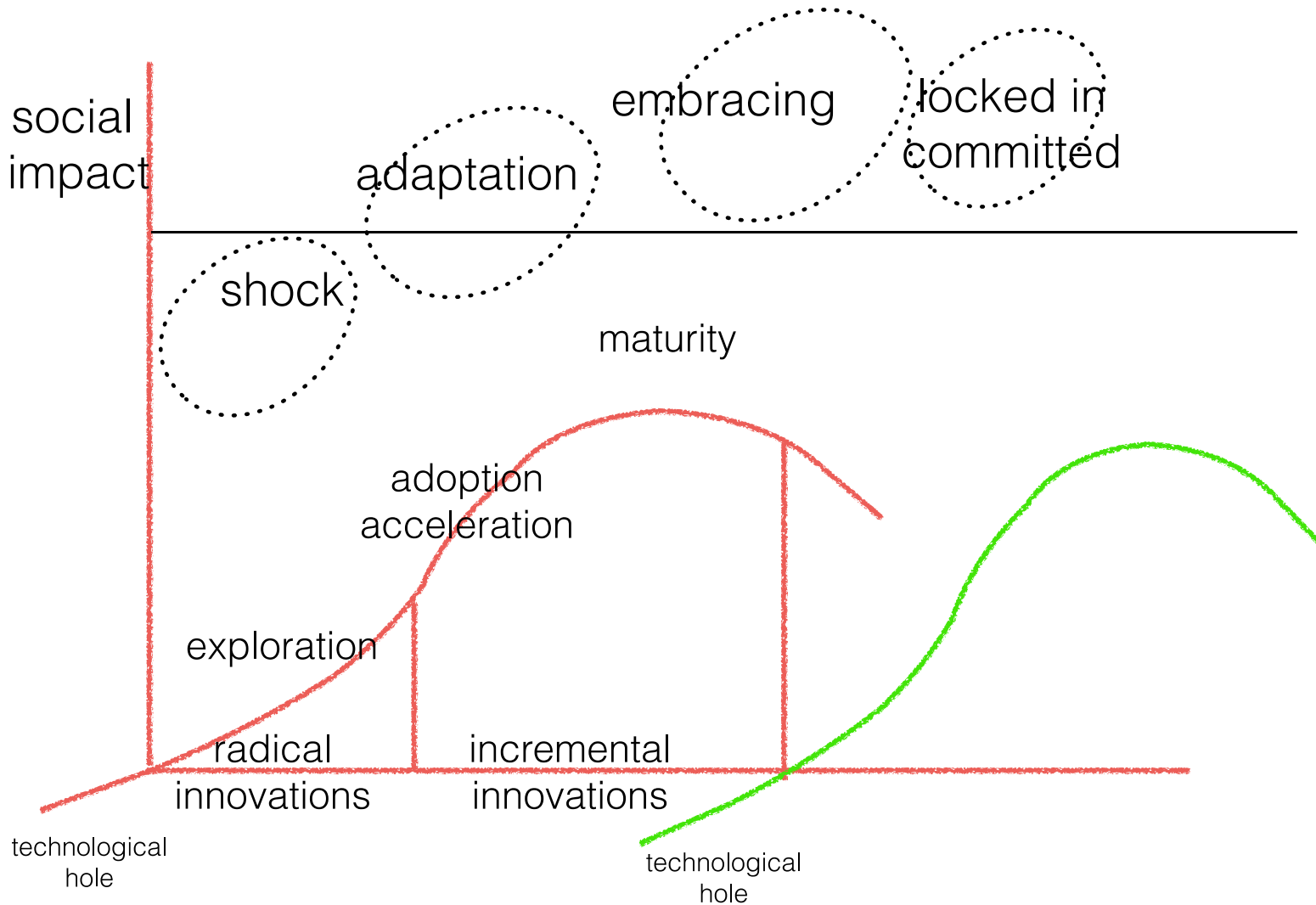
Perez 2004, 2010

- Growth effect depends on impact on economy and society (techno-economic paradigm) → “*the way socio-institutional structures are organised*”(Perez 2010:194)

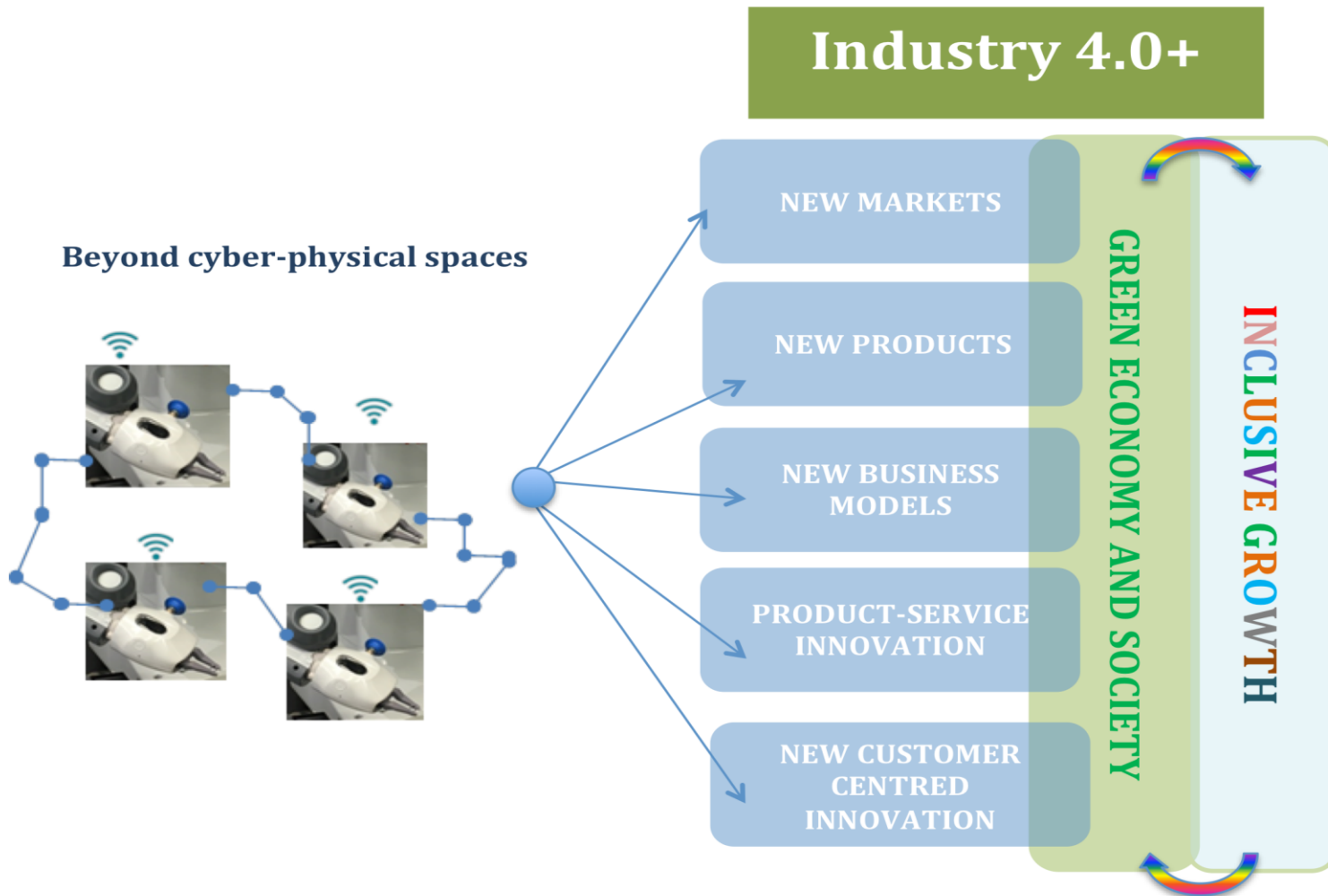
Crucial → time between the demise of the obsoleting one and the emergence of a new one → technological hole



Disruptive change

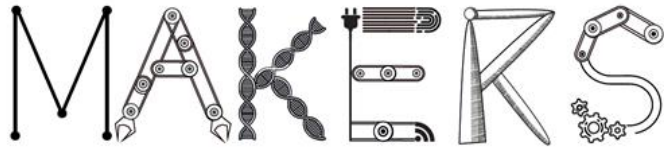


MAKERS

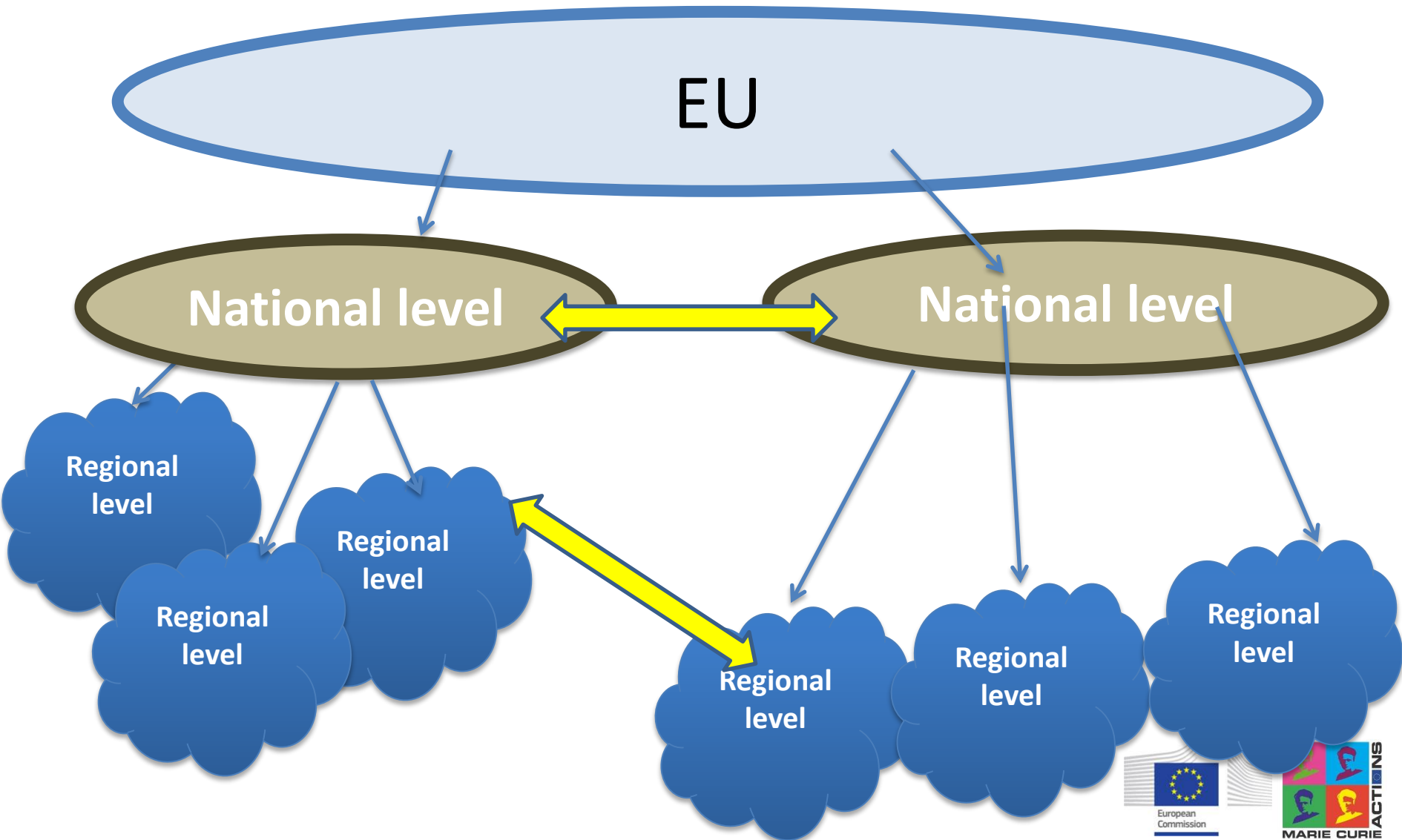


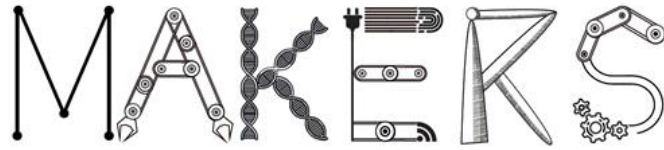
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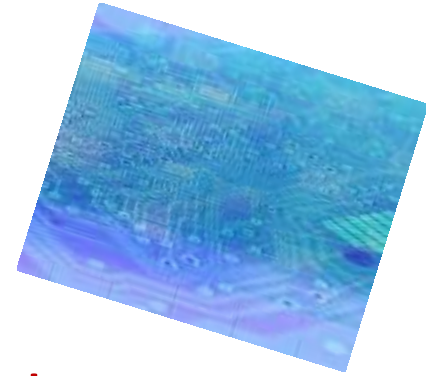


Enable disrupting change at regional level

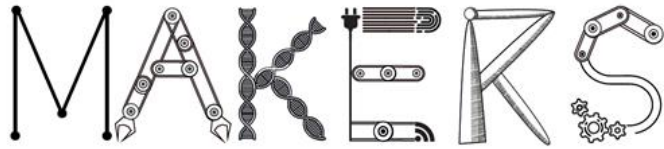




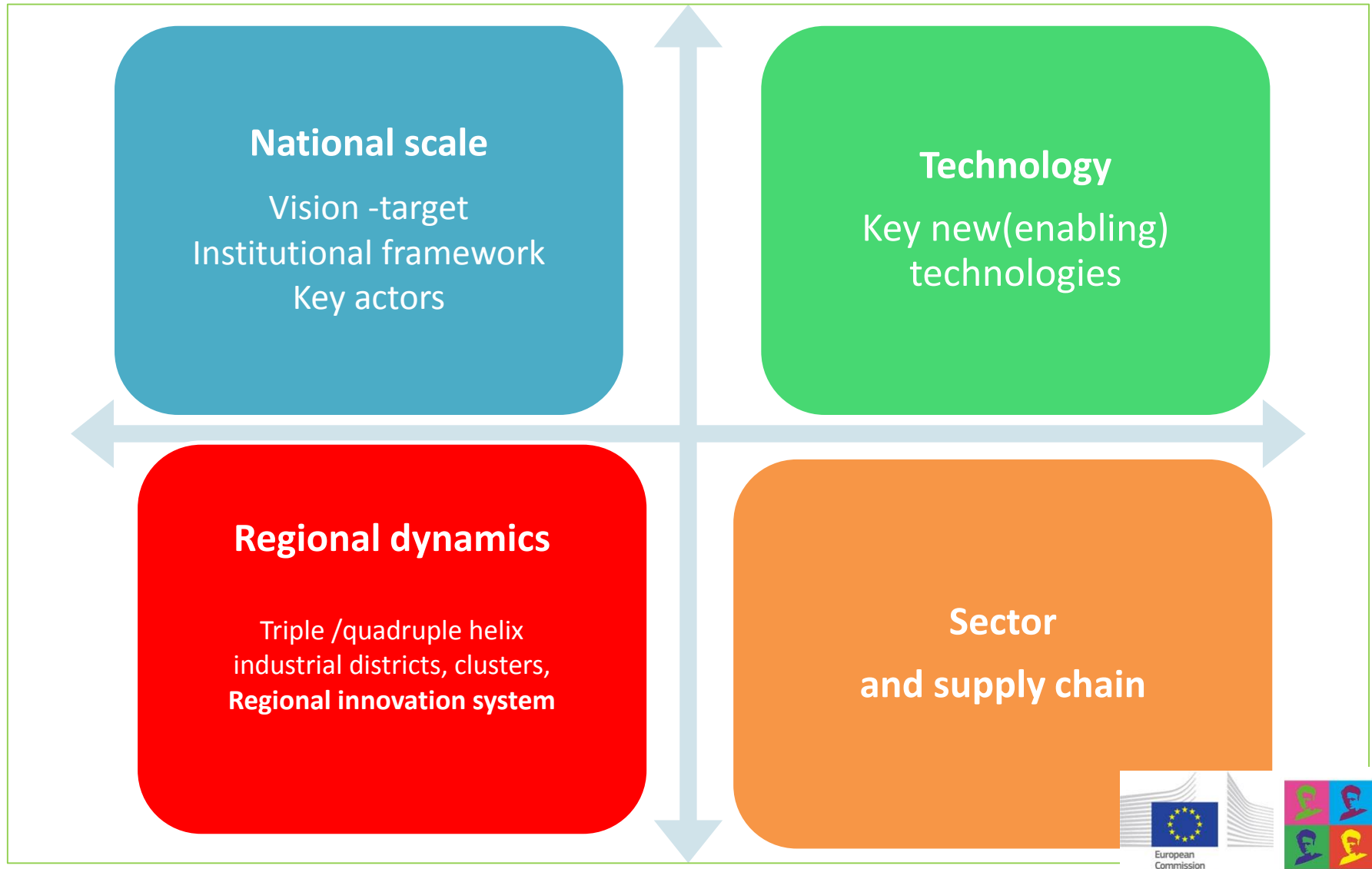
Early findings

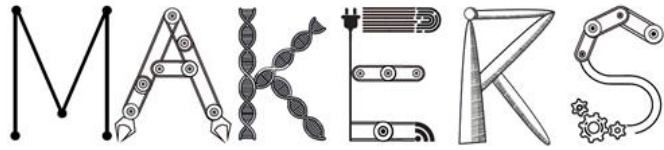


- Buzz word is digital = I4.0
- Firms are aware of digital revolution but done little *'it's all about the cloud'*
- No appreciation of scale of disruption
- National govt are taking actions in different ways
- Wide range of regional implementations
- Role of large firms in global innovation networks
- Role of small firms as innovators
- Constraints: uncertainty, skills, finance



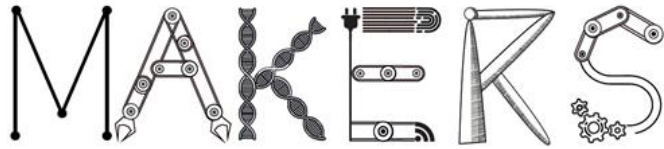
Innovation matrix





Regions' acceleration

- **Political understanding of scale of change → information and education**
- **Design and communicate clear vision → shared vision**
- **Join technology with sectors in regions**
 - understanding regional applicability
 - promoting technology adoption and application



Thank you

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www.makers-rise.org