



GREAT WORK SHEDDING LIGHT ON INDUSTRIAL DYNAMICS

A (IMPOSSIBLE) SYNTHESIS

Mariagrazia SQUICCIARINI
OECD Directorate for Science, Technology and Innovation
mariagrazia.squicciarini@oecd.org

Thanks chairs, thanks presenters!



Thanks to the “Fab 4”:

Antonio, Katarzyna, Mary, Nicola

for taking us through the sessions on time!



Thanks chairs, thanks presenters!



Thanks to the “Fab 4”:

Antonio, Katarzyna, Mary, Nicola

for taking us through the sessions on time!



Thanks to the “runners”:

A2: **Maria Luisa, Laura, Elena**

A3: **Angelo, Bernhard, Antonio**

B3: **Jean-Paul, Daniel, Giorgio**

C3: **Pierre, Thomas, Sofia**

F3: **Pegah, Geciane, Anabela & Joana**

Which industrial dynamics?



Simply paraphrasing (and reordering):

The industrial transformation (A3) brought about by
ICT, Analytics and innovation systems (C3) and
Digital innovation dynamics (B3)

Might help move **Towards greener economies (A2)**

And much can be learnt from the

Dynamics in aerospace and in pharmaceuticals (E1)

Questions addressed / key findings

- *The 4th industrial revolution, and the deployment of digital technologies and automation: a lot of rhetoric?*

Much can be learnt from looking at the scope and determinants of adoption of Industry 4.0 technologies.
- *Industry 4.0 helps back-shoring? If so, do jobs come back with it?*

Investments in digital manufacturing fostered by industry 4.0 disrupt GVCs, can trigger backshoring, but not many jobs come back and, if so, they are different from those lost...
- *Is manufacturing driving R&D, exports and productivity growth?*

Industrialised countries have experienced sluggish growth and declining manufacturing sectors. But can a large manufacturing sector i) boost R&D, ii) encourage exporting, and iii) raise productivity? Perhaps no.....

Questions addressed / key messages

- *Is investment in ICT, R&D and organisational innovation complementary? Yes, especially R&D & organisational innovation.*
- *Do they translate into higher productivity at the firm-level?*
At times, depending on country.
- *Do big data (BD) analytics boost firm performance?*
“Suggestive evidence” that BD matters wrt becoming a product innovator and the market success of product innovations.
- *Are countries interconnected wrt trade of ICT products and services?*
They are indeed, with worldwide networks seeing China, the EU28, and the US as the three most important nodes.

Questions addressed / key messages

- *How do disruptive technologies challenge the organisation and value chain of the cinema industry (and creative industries)?*
They translate into a reconfiguration of traditional business ecosystem and question the role of public intervention.
- *What are the key challenges to boost digital innovation and entrepreneurship in Europe?*
Address: (1) Skills and capabilities (2) Digital disruption & divide (3) heterogeneity of digital innovation and entrepreneurship (4) collaboration, knowledge flows and spillovers (5) funding for scaling-up (6) interoperability and network effects (7) Appropriability vs knowledge dissemination.
- *Do employment protection legislation (EPL) affect investment in automation?*
Yes, and EPL improve allocative efficiency.

Questions addressed / key messages

- *How to move towards greener economies?*

By better integrating the EU15 innovation system. The the EU15 renewable energy sources (RES) innovation system is geographically localised and highly fragmented, although since 2000 EU RES innovation space has become more integrated.

- *The Carrot or the Stick? What is the appropriate policy instrument for countries at different stage of technological development?*

If country has sufficient expertise in clean technologies, both market-based policies (the carrot) and command-and-control regulation (the stick) on renewable energy innovation are needed

- *How interdisciplinary is research in the bioeconomy?*

Very much so – a patent-based visualisation shows collaborations between academics and industry.

Questions addressed / key messages

- *What is space firms' output efficiency (i.e. turnover and employment based on R&D inputs)?*

Firm size and engagement in aerospace have a significant positive effect on output efficiency, whereas large R&D capabilities developed prior to the period have a negative one.
- *Do big players in pharma collaborate in “open innovation” fashion?*

Yes, to some extent. They internalise external knowledge to create new patented technologies & acquire companies that have developed research together with several organisations.
- *What is the role of small technology-based firms (TBFs) in the development of industrial capacity in aeronautics?*

Aeronautics' specificities impose (11) challenges to the integration and growth of small TBFs into the aeronautics supply chain (e.g. investment capacity, diversification, liability).