

BEYOND 4.0

Приобщаващо ли е бъдещето на труда в европейските региони? Изводи от проект BEYOND4.0

доц. д.с.н. Васил Киров (ИФС-БАН)

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The End Of Work?

- “A race between **man vs machine**” and redundant labour (Acemoglu 2018)
- Large percentage of the jobs can be **automated** (Frey & Osborne, 2013/7)
- **Adaptation** of skills and workers (Nedelkoska & Quintini, 2018)

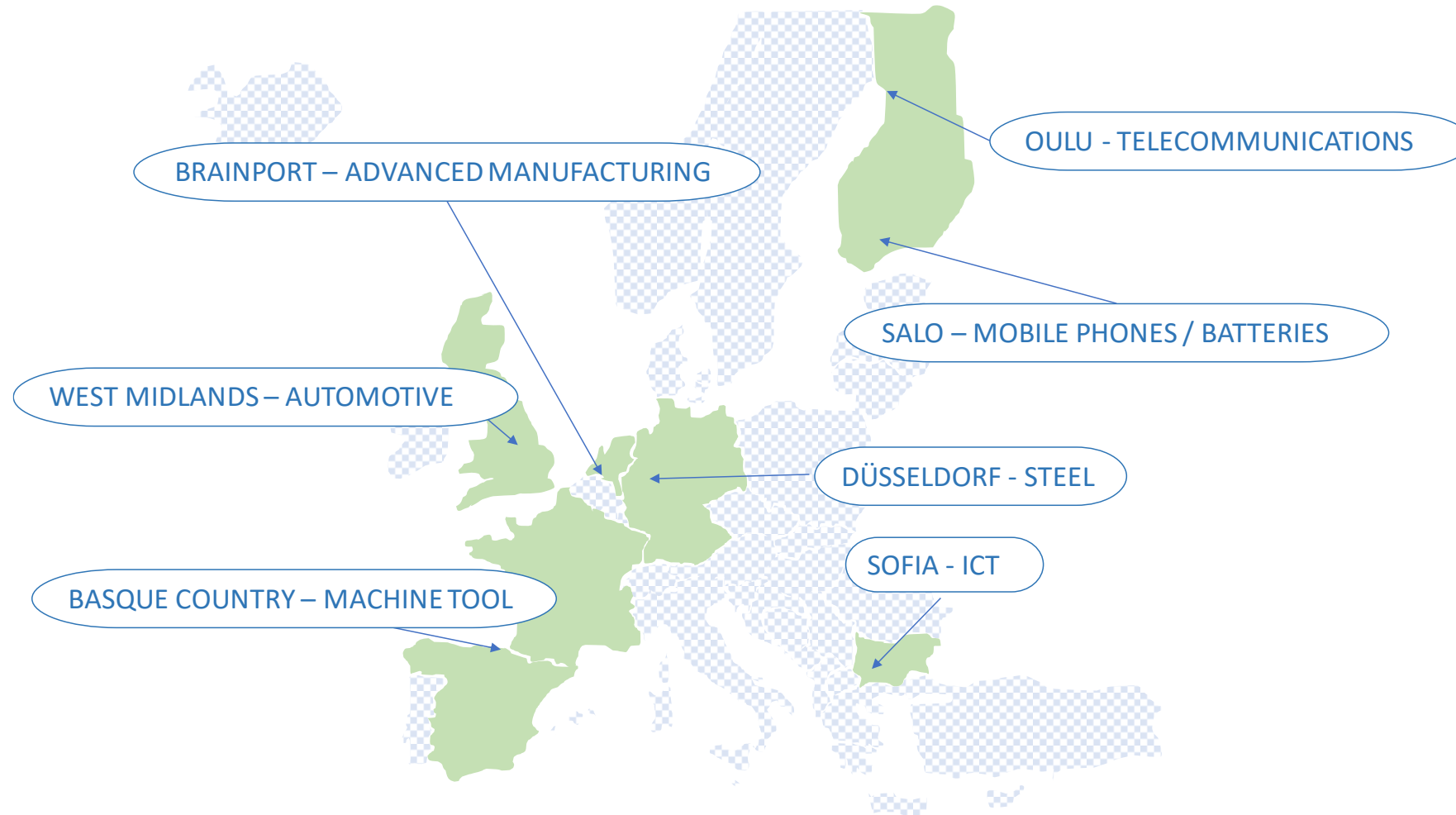
But

- Employment **has not declined** in the period 1890-2018 (Blau et al., 2018)
- Four processes **co-exist** – job creation, job destruction, job shift and job change – and develop simultaneously (Degryse 2016)
- Technologies are **not deterministic** (Kornelakis et al. 2022)
- A **more nuanced approach** is needed... (Warhurst et al. 2019)

The Ecosystem Analysis To Track The Digital Transformation

- We used the perspective of Stam & Spigel (2018) on the **entrepreneurial ecosystem**, defined as a 'set of interdependent actors and factors that are governed to enable productive entrepreneurship within a particular territory'.
- **Ten elements** play a role in creating value through entrepreneurial activity - formal institutions, culture, physical infrastructure, demand, networks, leadership, finance, talent, knowledge & support services/intermediaries.
- The analysis departs from the logic that elements in an ecosystem are substitutable, and there are **many different possible pathways** to a high-performing entrepreneurial ecosystem (Schrijvers, Stam and Bosma, 2021).
- We are interested on the impact of the digital transformation on the functioning of ecosystems, what impact on inclusive growth, and the respective **implications for the future of work**.

The Regional Perspective Incumbent Entrepreneurial Ecosystems

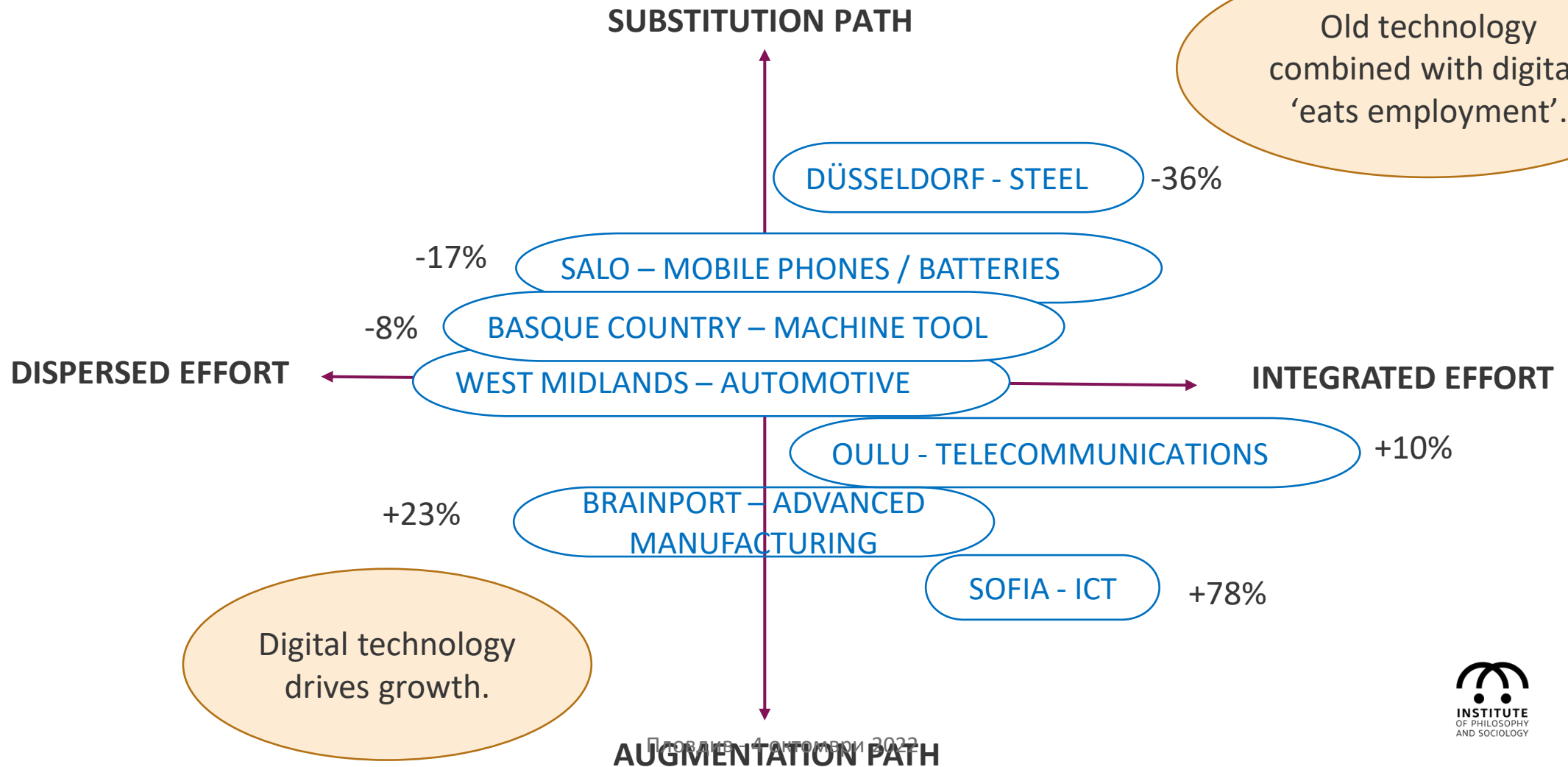


The Future Of Work?

Table 1. BEYOND4.0 incumbent entrepreneurial ecosystems and description of major changes in the business ecosystem (source: regional reports, footnote 7)

Beyond4.0 region	Dominant business ecosystem	Change 2010-2022
Salo	Mobile technology	The Nokia business ecosystem collapsed in 2011. The region shows a strong decline. After 2018, Valmet started with battery production, using Industry 4.0 technologies (robotisation, IoT)
Oulu	Mobile technology; Wood Processing	The region experiences the replacement of Nokia business ecosystem by the emerging ICT ecosystems and incumbent wood processing. Both new sectors develop new avenues with Industry 4.0 technologies (IoT, informatisation).
Sofia	ICT sector	The continuous growth of ICT, branching out. This is not an industry sector, but the focus is on supplying industrial ICT solutions to the whole of Europe and North America. In this sense, they are driving Industry 4.0 efforts.
Duisburg	Steel sector	The sector experiences a steady decline of heavy steel, continuing restructuring. The new solutions lie in integrating digital solutions in the production systems.
Dortmund	Steel sector	The steel business ecosystem is not dominant anymore, new business ecosystems are on the rise.
Zuidoost Noord-Brabant	Advanced manufacturing	Advanced manufacturing has taken over the role as the dominant business ecosystem. This sector is at the core of the Dutch Smart Industry (or Industry 4.0).
Basque Country	Machine tool	This sector is also slowly declining, but still the most important business ecosystem in the region. The machine tool is representative of Industry 4.0 in Spain.
West Midlands	Car manufacturing	This is a slow declining sector, but still the most important business ecosystem in the region. Car manufacturing uses a great degree of robotisation and other Industry 4.0 technologies.

Technology Logics And Incumbent Entrepreneurial Ecosystems 2008-2020?



The Digital Transformation Paths...

- Four of the entrepreneurial ecosystems are **at the centre of the digital transformation**. The mobile technology sector of Oulu, Brainport and the ICT IEE in Sofia are major players in developing and application of digital technologies. The Sofia region is supplying IT services to the whole of Europe.
- The Basque machine tool IEE and the German Steel IEE see themselves mainly as **consumers of digital technologies**, as does the automotive IEE in the West Midlands in the UK. Companies are far in automation, but digital technologies do not transform production systems. The level of adoption of these technologies depends very much on the separate companies. The different uptake of these technologies is also reflected in the impact on the business models used in the ecosystems.

Digital Transformation In The Regions – The Role Of EES

- The examples are Sofia, Oulu and Salo – comparing apples and pears?
- They are relevant, because in both cases there were **major shocks in the past** (the dismantlement of the socialist economy in the early 1990s or the disappearance of a dominant industrial employer in the Finnish case)
- The digital transformation as an **opportunity** for some (Sofia, Oulu), but **threat** for other EES (Salo)
- Certainly, **history (long-term) matters**, but other elements of the EES play also a role - institutions, talent, infrastructure...

What Are The Inclusive-growth Related Impacts Of Digital Transformation At The Ecosystem And Regional Level?

- The unemployment decrease and the development of new, knowledge intensive jobs is due not only to the economic conjuncture but also to the **performance of the regions and ecosystems**.
- The impacts have sometimes been in favour of women – e.g. Oulu/Salo, Brainport or Sofia
- One question that remains unanswered is if the distribution of income between employers and employed has changed over the past decade. It is necessary to complete such information to evaluate inclusive growth fully. An analysis at the level of the separate companies is needed to answer this question.

The Perspective And The Implications For The Future Of Work

- To understand the future, there is a need of a larger perspective related to technology, more than a just task perspective. Growth in Europe is how regions use the opportunities to conquer new markets and develop new products/services.
- The same technology can have different uses and be adapted into different products and services. There are different scenarios, a region can be resilient or turn into an economic disaster - social and policy shaping is needed to ensure socially inclusive outcomes.
- The digital transformation has been exacerbated by the Covid-19 pandemic.

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Благодаря Ви за вниманието!

[vassil.kirov@gmail](mailto:vassil.kirov@gmail.com)

@KirovVassil

See you at the final conference of Beyond4.0 in

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<https://beyond4-0.eu/>



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