



# Digital Platform and Data Economy in DSM strategy

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European University of Rome

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# Agenda:

- Digital Transformation
- Digital Single Market Strategy (2015)
- Index of digitalisation of the economy and society
- Digital Platforms and Big Data
- Data economy and EU data strategy (2020)



Questions & Answers

# Digital Transformation

The term **Digital Transformation** indicates a set of predominantly technological, cultural, organizational, social, creative and managerial changes associated with digital technology applications in all aspects of human society. [Erik Stolterman and Anna Croon Fors, Information Technology and the Good Life, in Information Systems Research: Relevant Theory and Informed Practice, 2004, p. 689, ISBN 1-4020-8094-8.] Theory and Informed Practice, 2004, p. 689, ISBN 1-4020-8094-8.]



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Categoria

Libri

Spedizione Internazionale

Ammissibili di spedizione internazionale

WIKIPEDIA  
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La locuzione di digitale) indica tecnologici, culturali associati con le della società u

Pagina principale

Ultime modifiche

Una voce a caso

Gestisci i post

Visualizza

Post

Gestisci i post

Visualizza

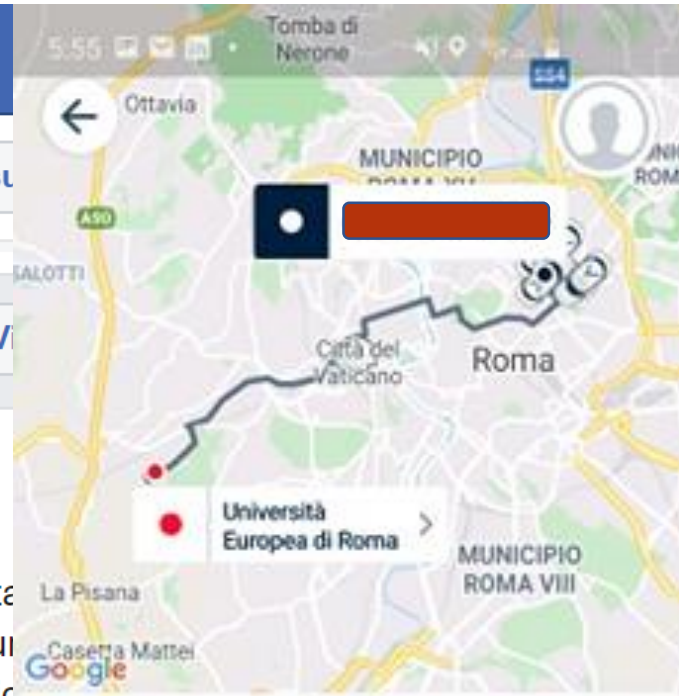


Antonio Manganelli

2 min ·

"La locuzione trasformazione digitale indica prevalentemente tecnologici, culturali, manageriali, associati con le applicazioni in tutti gli aspetti della società umana."

Mi piace



Scelte popolari  
Seleziona il tipo di taxi.

Scegli  
Seleziona

Taxi

Taxi XL

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# Digital Transformation «Revolution»

Digital technologies are **transforming consumer behaviours, production methods, institutions, business models and individual interactions**, impacting on all social, economic and political dimensions of life.

The digital transformation is based on **rapid and often disruptive innovations** that involve more and more individuals, companies and objects, with a global dimension.

Indeed, many voices say that today we are only at the **beginning of this co-evolutionary path** that is leading to an **epochal revolution**

# Digital «Revolution»

➤ Cultural Revolution

➤ Social Revolution

➤ Economic Revolution

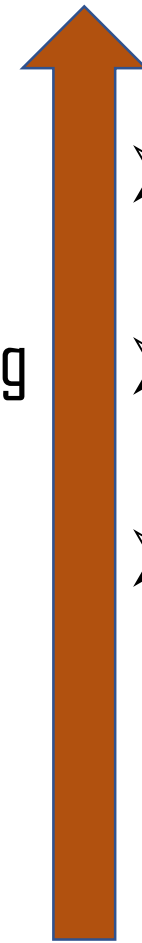
➤ Industrial Revolution



➤ Individual Approach

➤ Intuitive Understanding

➤ Social Impact

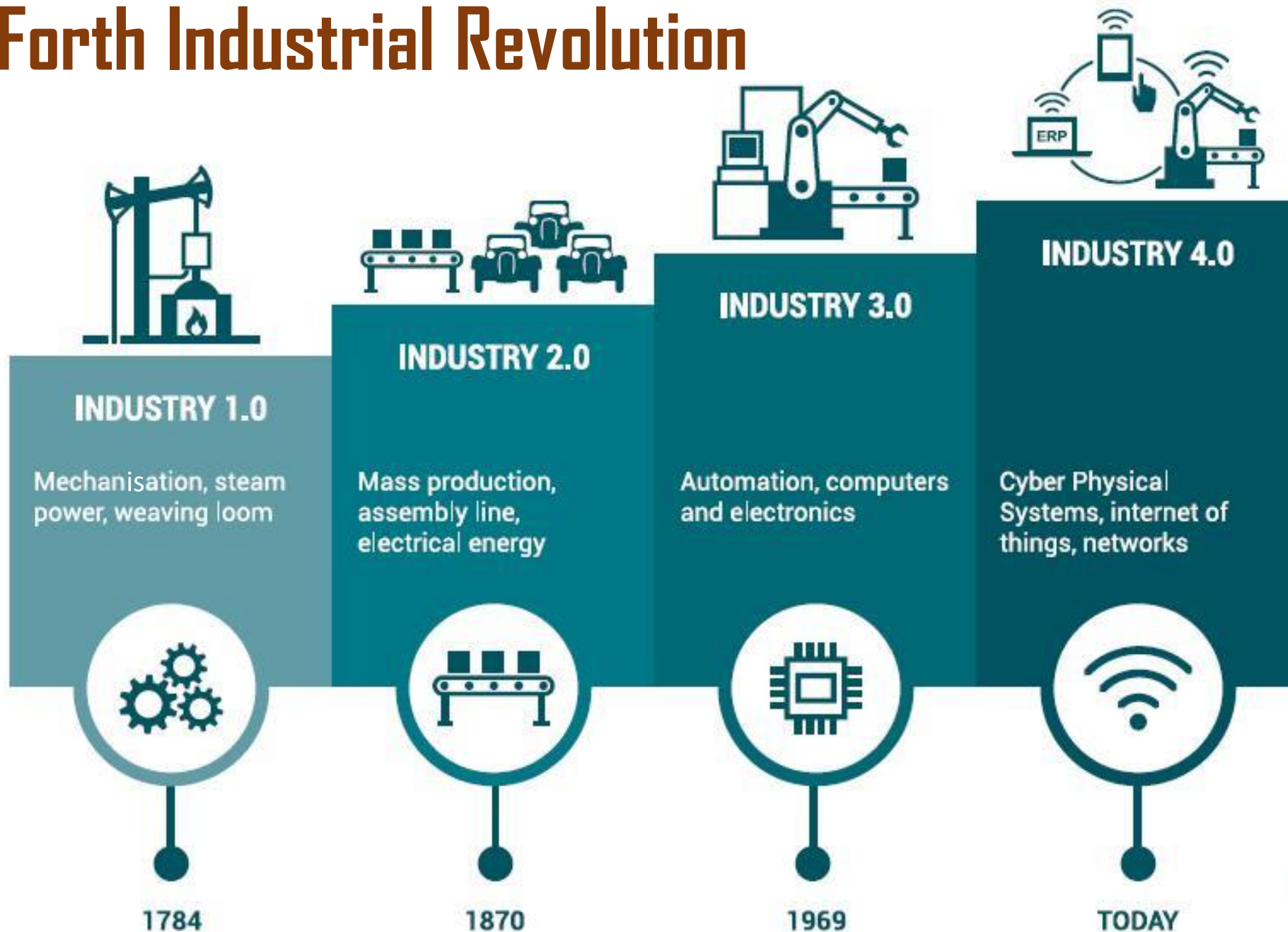


➤ Public Policy

➤ Deep Knowledge

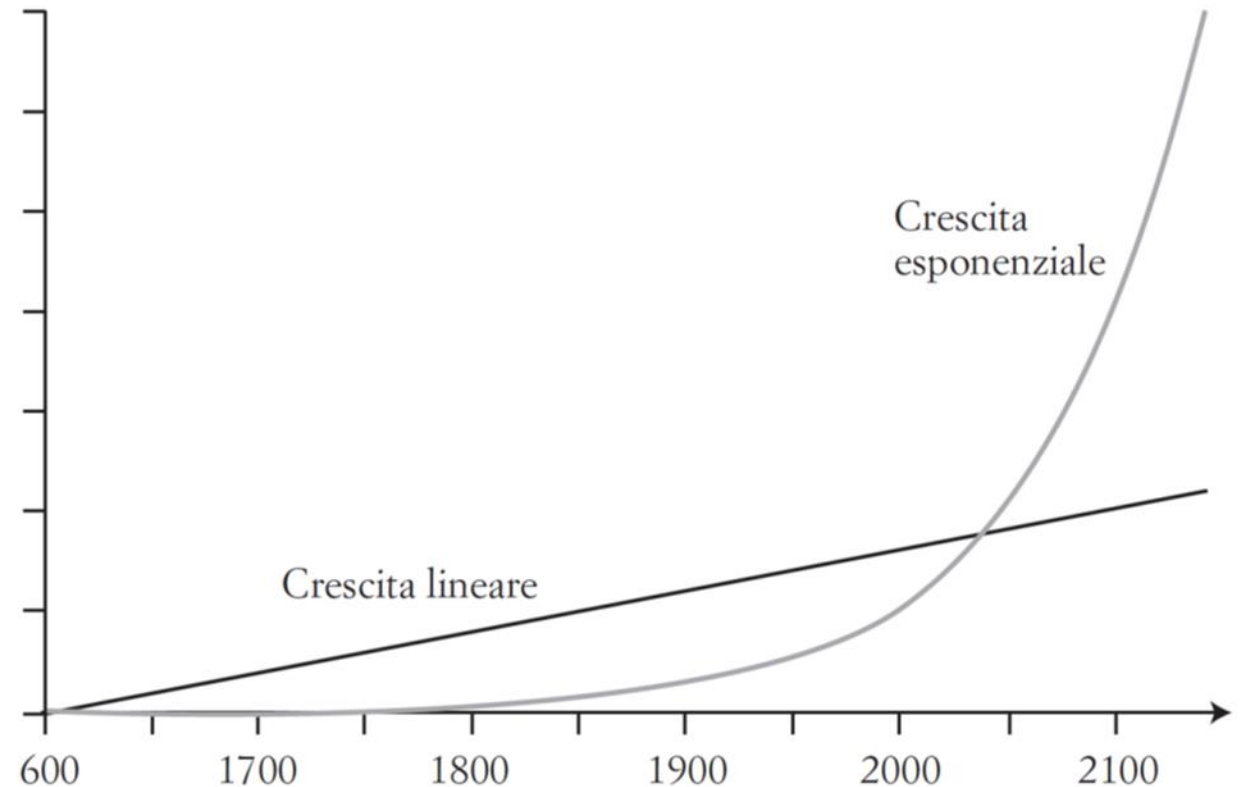
➤ Economic Impact

# The Forth Industrial Revolution

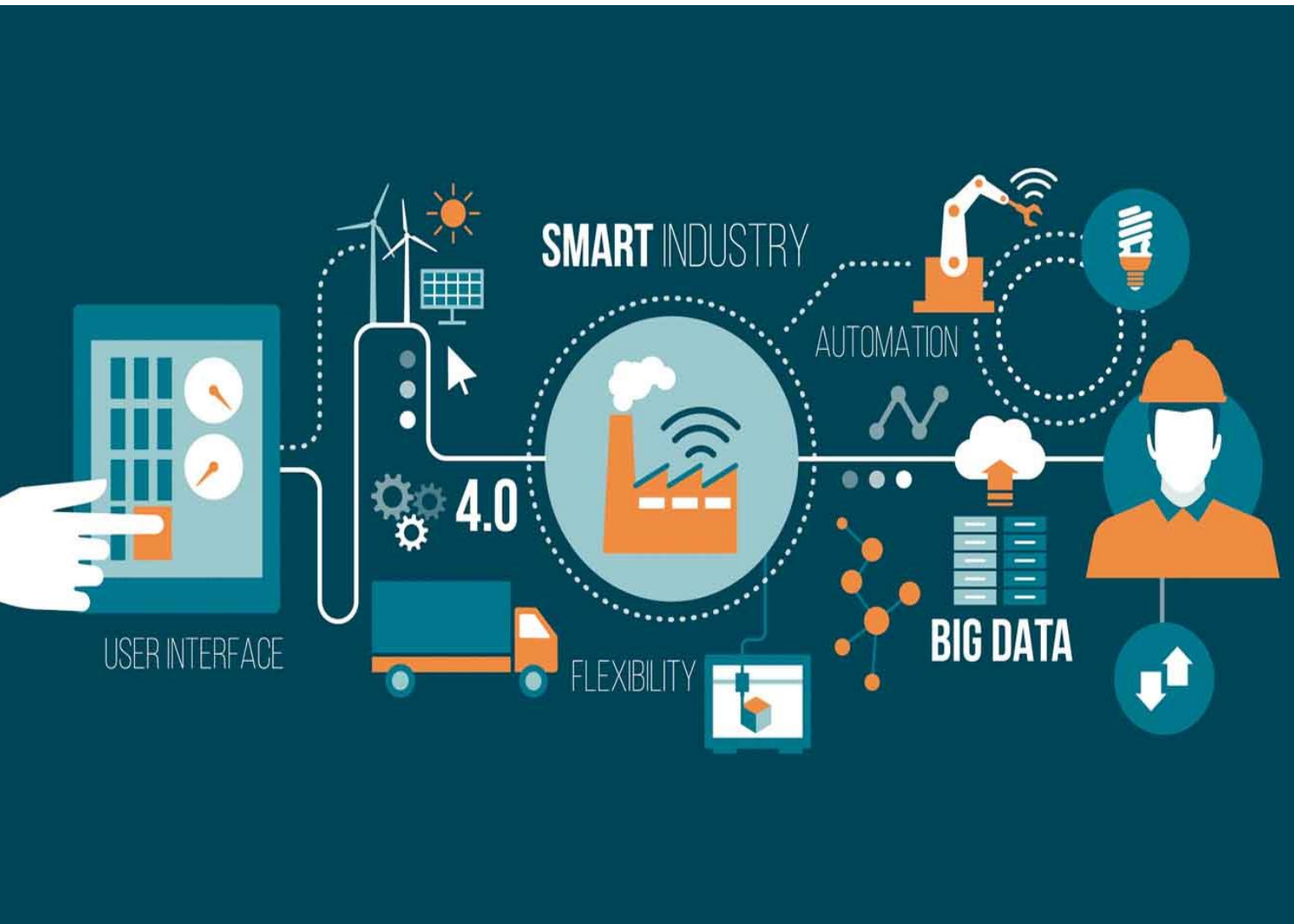


# The Forth Industrial Revolution

- It refers to technologies and concepts of organization of the value chain, and pass **from supporting physical strength to supporting cognitive strength**
- It aims to exploit the **differences and interdependencies between the physical and digital spheres**, by integrating physical systems and the Internet of Things, big data and cloud computing, robotics, systems based on artificial intelligence.
- Compared to previous industrial revolutions, the fourth is evolving at an **exponential rate** rather than linear rate.



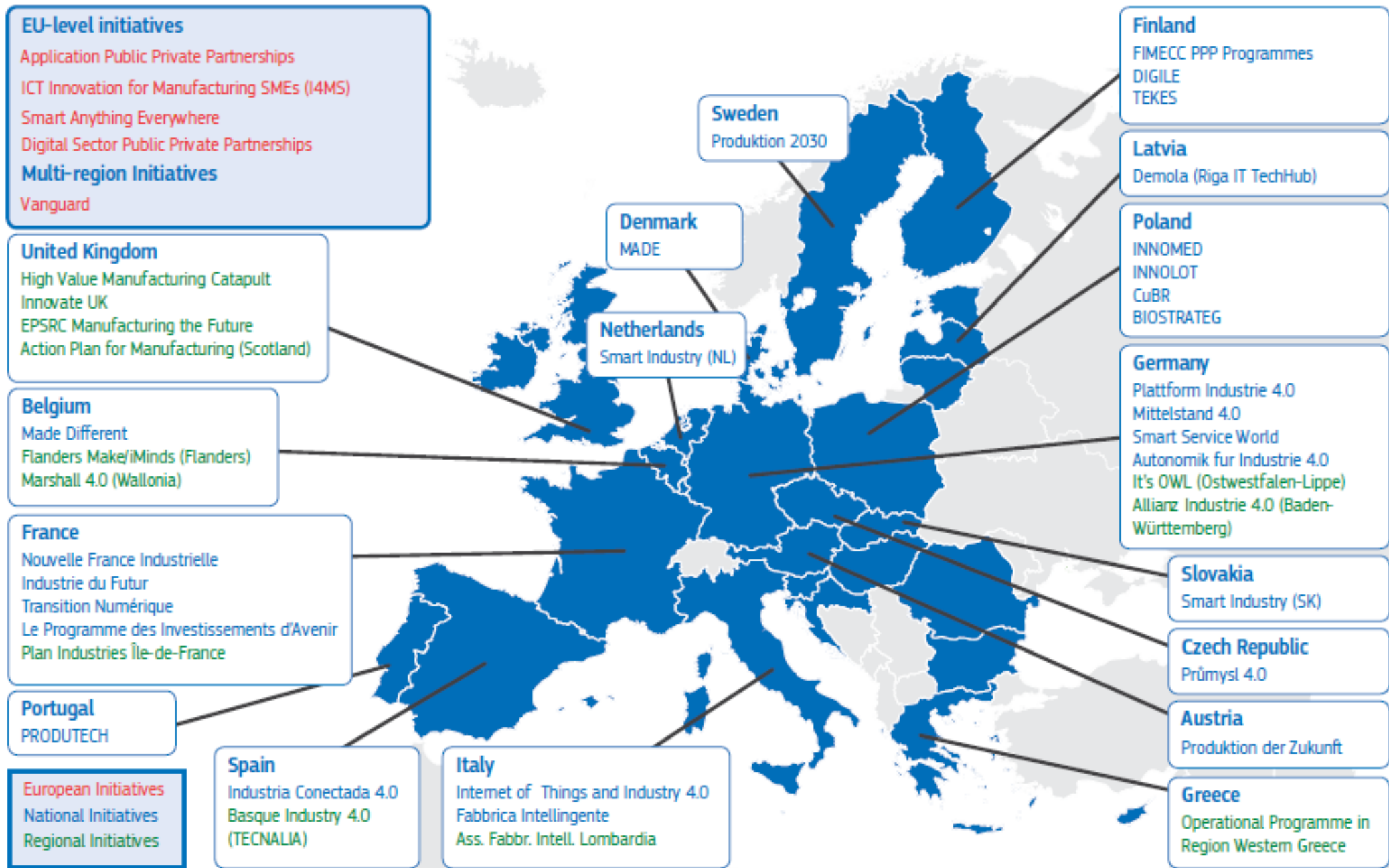
# The Forth Industrial Revolution



For companies: *it transforms the production processes, the organizational forms and the products' quality. New technologies make assets more durable and resistant, while data and analysis change the way they are managed.*

For people: *it potentially increases levels of income and quality of life, yet it poses major **challenges** on privacy, on consumption models, on labor markets and on the development of skills.*





Source: EC 2017

# IT national strategy for the digitalization of the industry

- 2014: **Strategia per la crescita digitale**
- 2015: **Strategia per la Banda Ultra Larga + Piano nazionale per la scuola digitale**
- 2016: **Industria 4.0**
- 2017 : ribattezzata "**Piano nazionale Impresa 4.0**" nel 2017, al fine di riflettere meglio l'ampia portata dell'iniziativa, includendo sia le imprese del settore dei servizi sia quelle del settore industriale.
- 2019: confermato il mantenimento del piano Impresa 4.0 (con la possibilità di modificare alcune misure) e ha rinnovato il proprio sostegno alla Strategia per la crescita digitale.
- 2020: **Fondo per l'Innovazione**

# Dualism of industrial and economic systems

## • **Digitally Advanced Systems**

- Compete on innovation
- Global networks
- Involvement of human resources
- High specialization
- Smart production and organization

## • **Digitally Undeveloped Systems**

- Compete on costs
- Employee reduction and wages
- Internal and local market only
- Precarious and undeclared work
- Old-fashioned forms of organization

# Digital Single Market (DSM) Strategy (2015)

Digital technologies and in particular the internet are transforming our world and the European Commission wants to make the **EU's single market fit for the digital age** – moving from 28 national digital markets to a single one.

Up until now, EU citizens and businesses have often faced **barriers when using online tools and services**: a) consumers having restricted access to some goods and services, b) businesses not being able to reap all benefits from digital transformation

The DSM strategy aimed **to remove key differences between online and offline worlds**, by allowing individuals and business to **access and engage in online activities** under conditions of **fair competition**, and a **high level of consumer and personal data protection, irrespective of their nationality or place of residence.**

# DSM Strategy's three pillars

## 1. Improving access to digital goods and services

Ensuring **better access for consumers and business to online goods and services across Europe**, for example by e.g., by facilitating **cross-border e-commerce**; by **limiting unjustified geo-blocking practices**; by **modernising the EU copyright framework** (cross border content access); **protecting on-line consumer rights**

## 2. An environment where digital networks and services can prosper

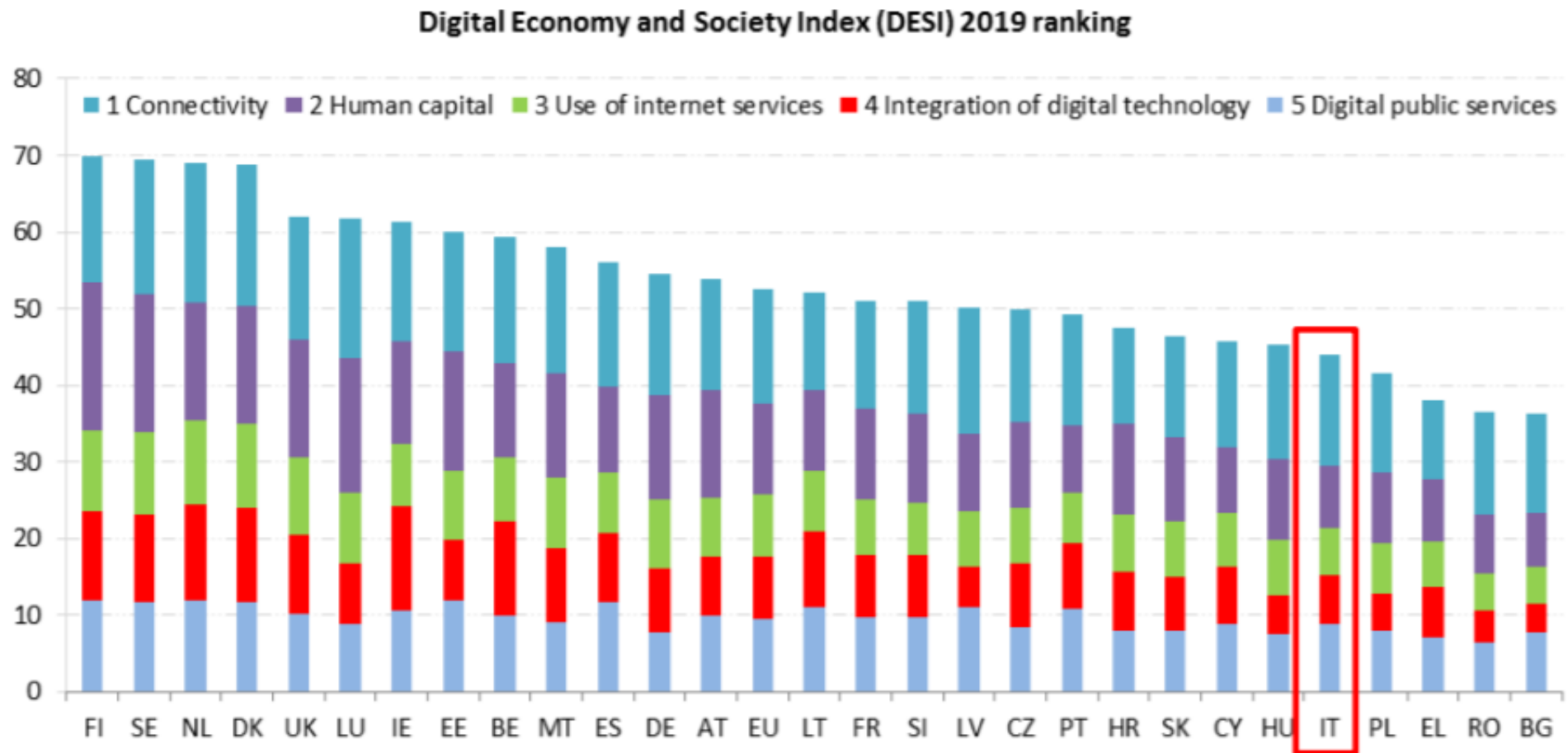
Creating the **right environment for digital networks and services** by providing **high-speed, secure and trustworthy infrastructures** and services supported by the right regulatory conditions. Key concerns include **cybersecurity, data protection/e-privacy**, and the **fairness and transparency of online platforms**.

## 3. Digital as a driver for growth

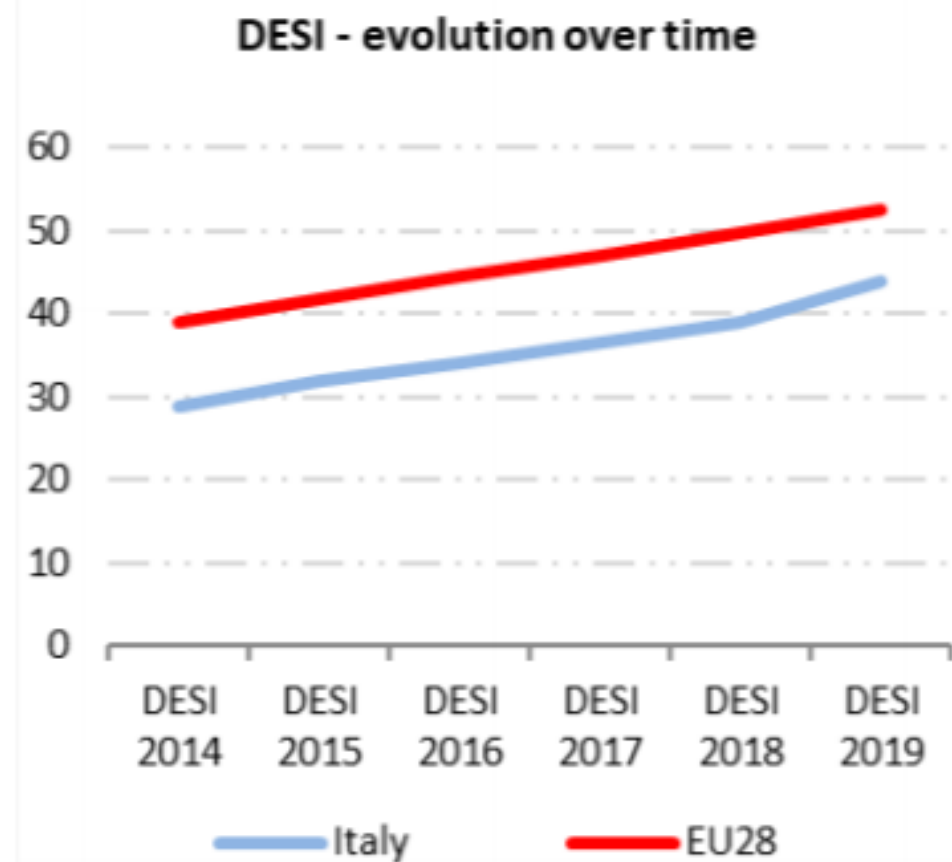
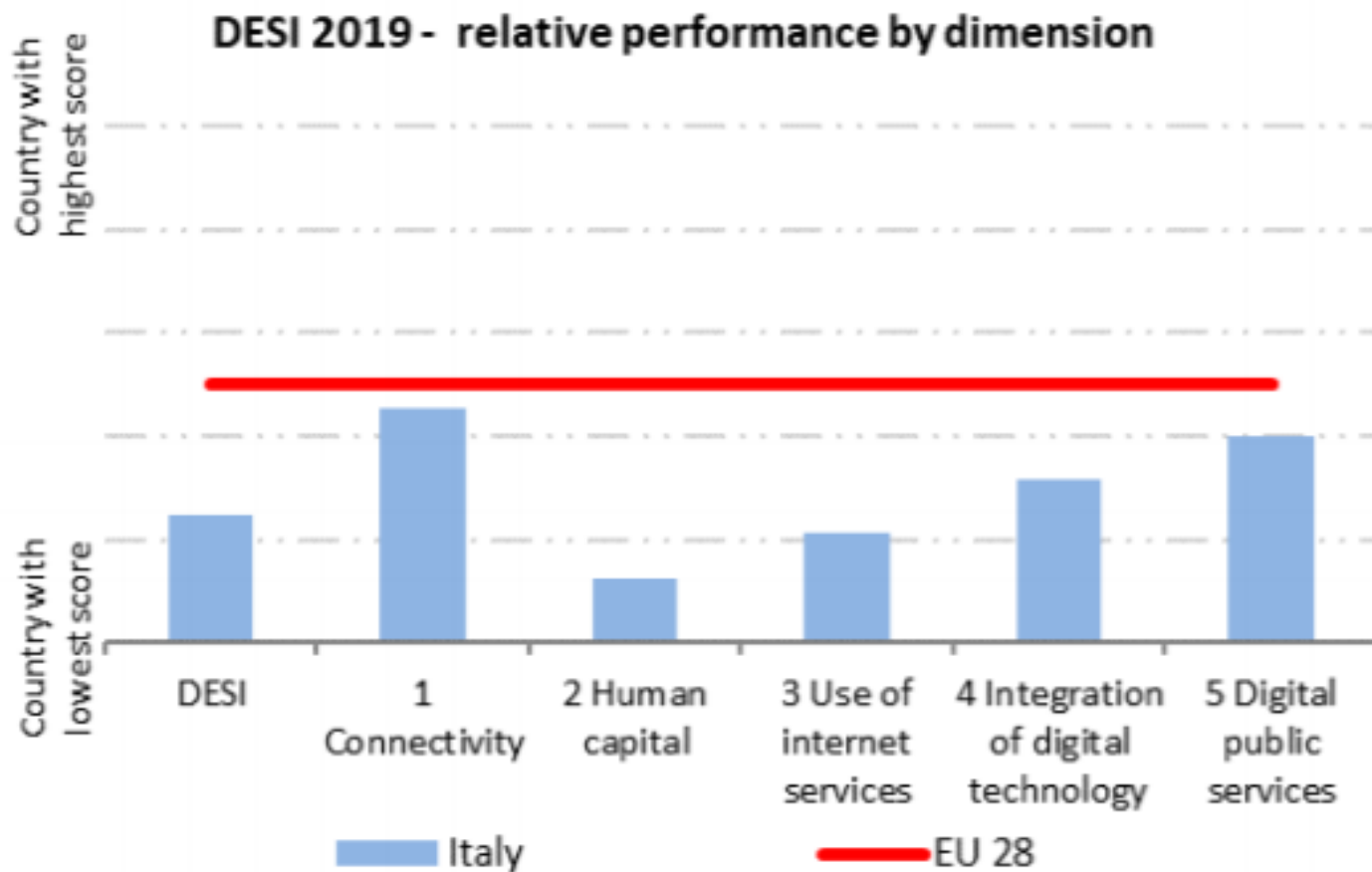
Maximising the **growth potential of the European Digital Economy**, so that every European can fully enjoy its benefits – notably by **enhancing digital skills**, which are essential for an inclusive digital society, by addressing the **barriers in the free flow of non-personal data in order to boost the data economy**; by focusing on **standards and interoperability**.

# Index of digitalisation of the economy and society

**DESI reports** are the means by which the European Commission has been monitoring the **digital competitiveness of the Member States since 2015.**



# Index of digitalisation of the economy and society



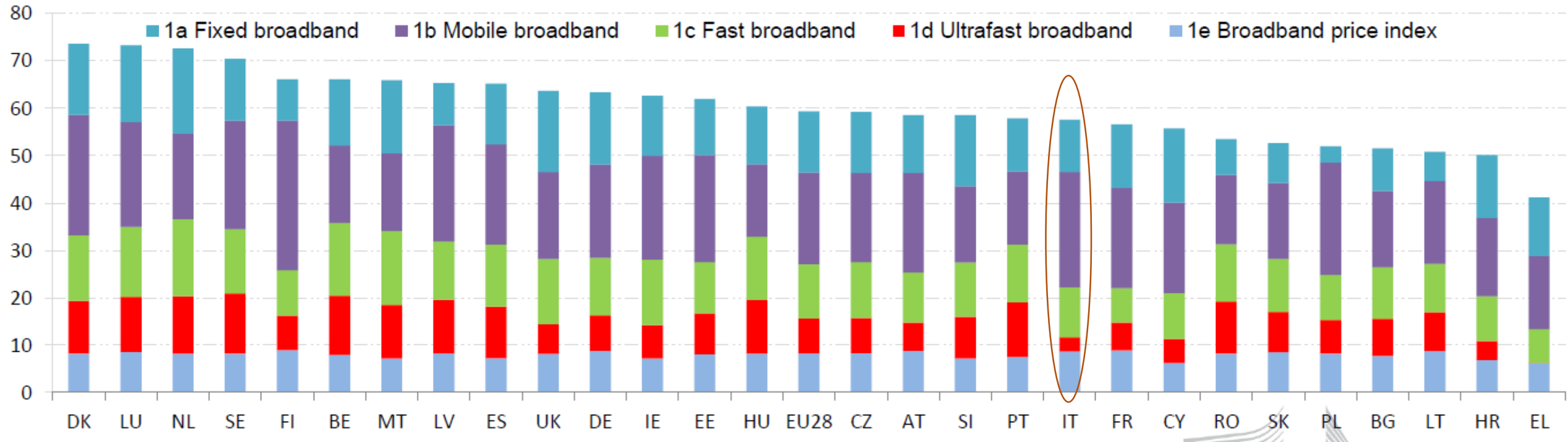
# DESI Index: Italy's performance

- Italy ranks 24th among the 28 EU member states in the European Commission's economy and society digitization index (DESI) for 2019.
- Italy is in a good position, although still below the EU average in terms of
  - **Connectivity**
  - **Open data and Digital public services**
- Three out of ten people still **do not use the Internet regularly** and more than half of the population **does not have basic digital skills**.
- This shortage in digital skills is also reflected in **less use of online services**, where very little progress has been made.
- Low demand has an impact on supply and this leads to a **low online sales activity by Italian SMEs** compared to European ones.

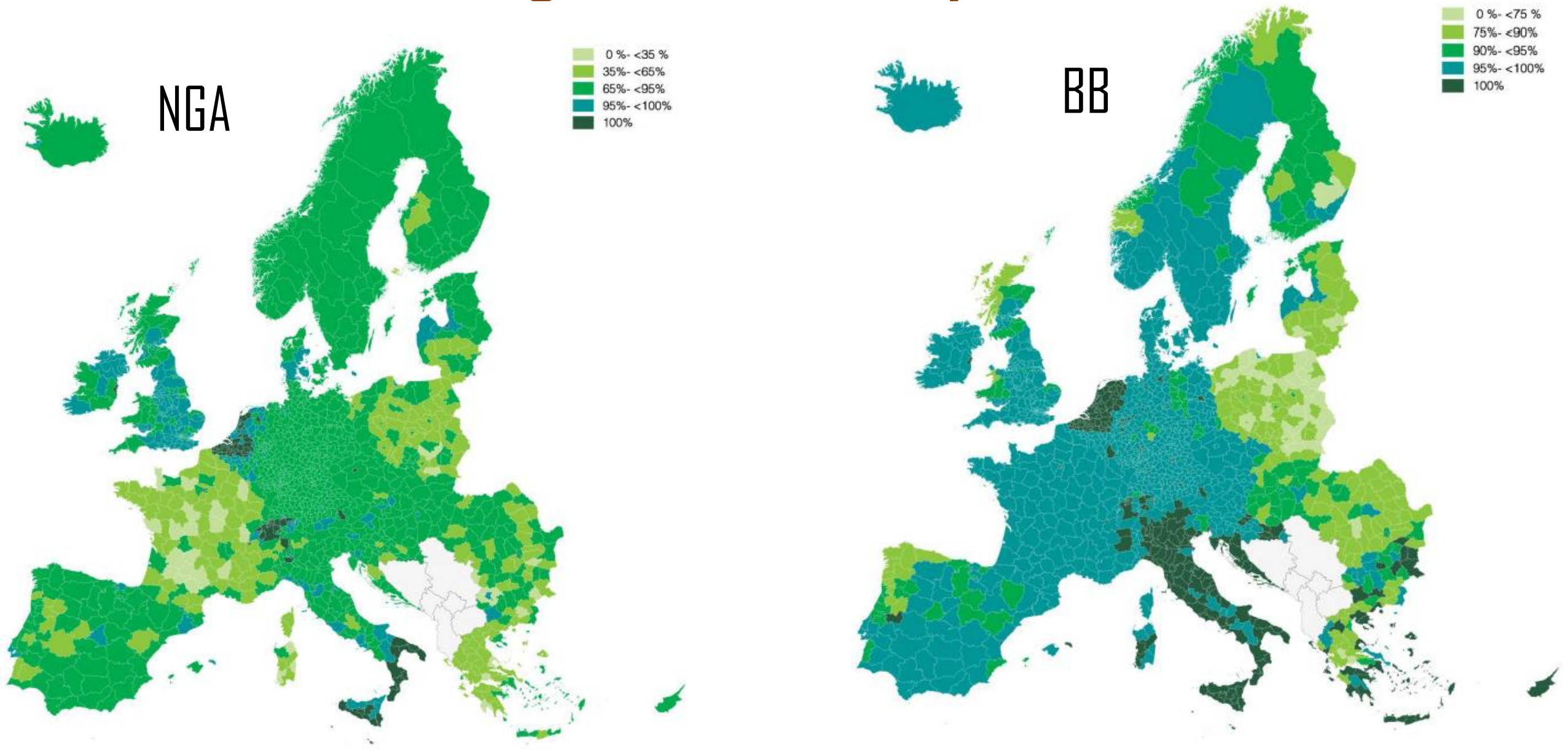


# DESI Index: Connectivity

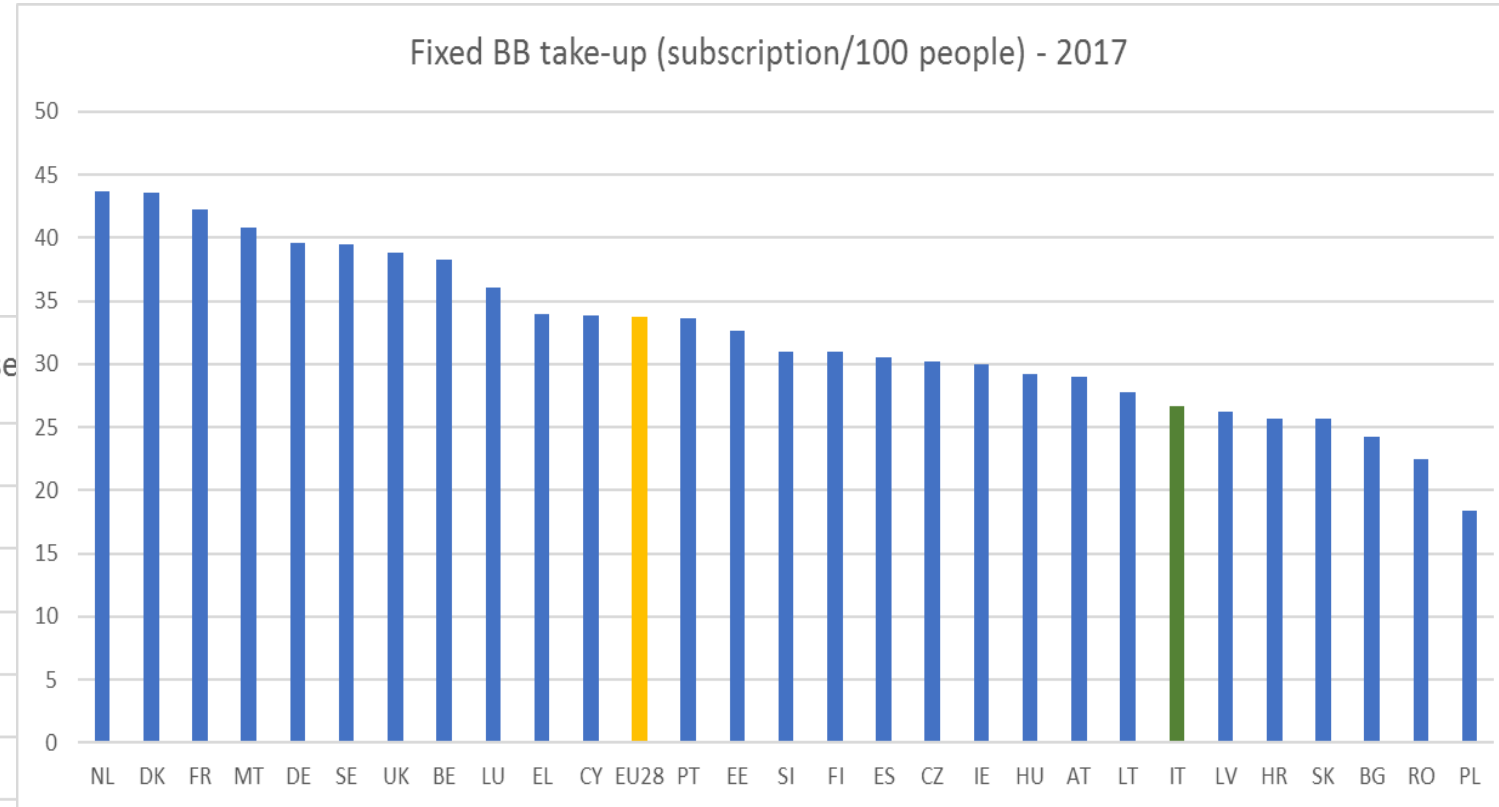
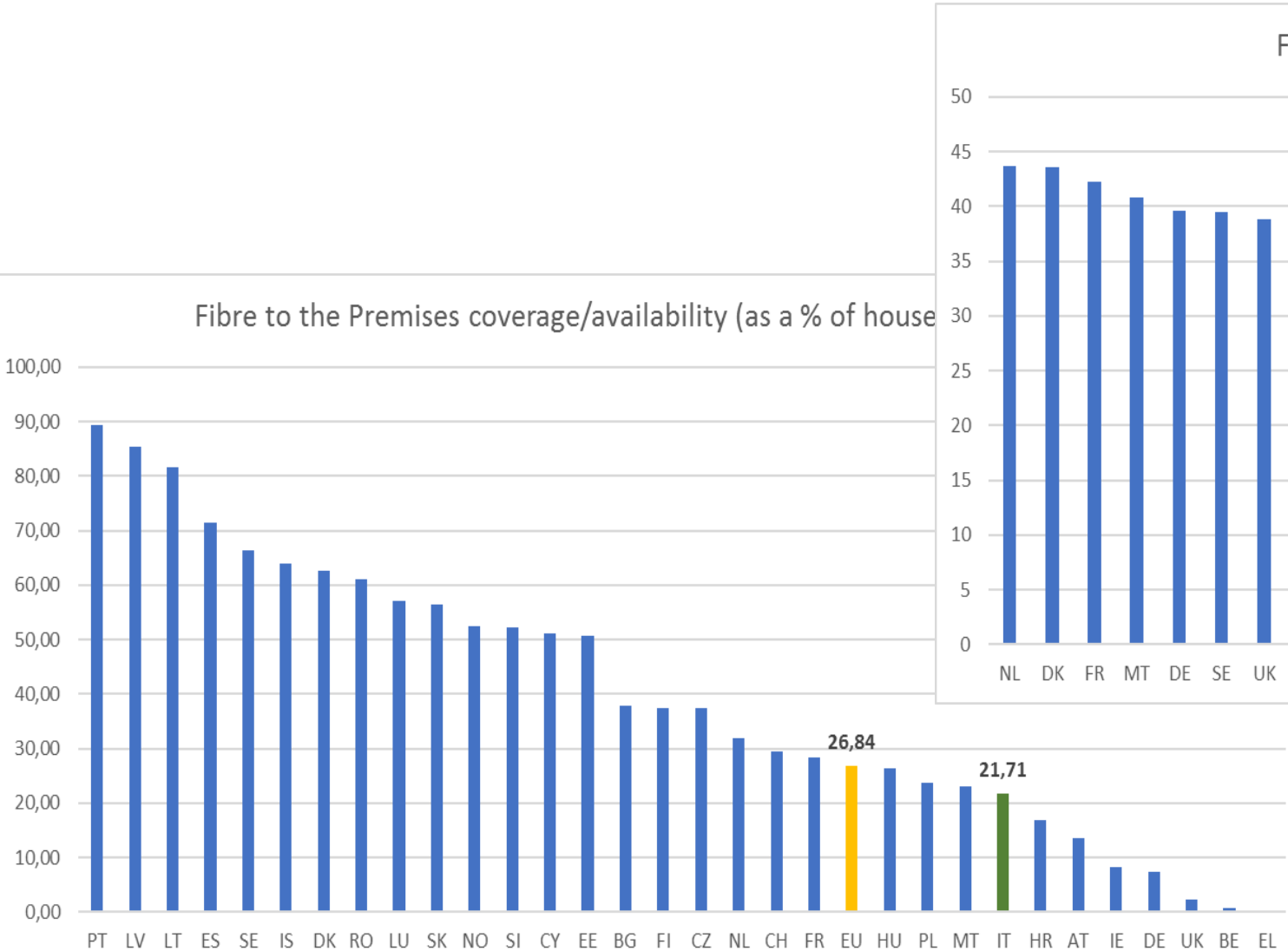
Digital Economy and Society Index (DESI) 2019, Connectivity



# No BroadBand digital divide in Italy ....

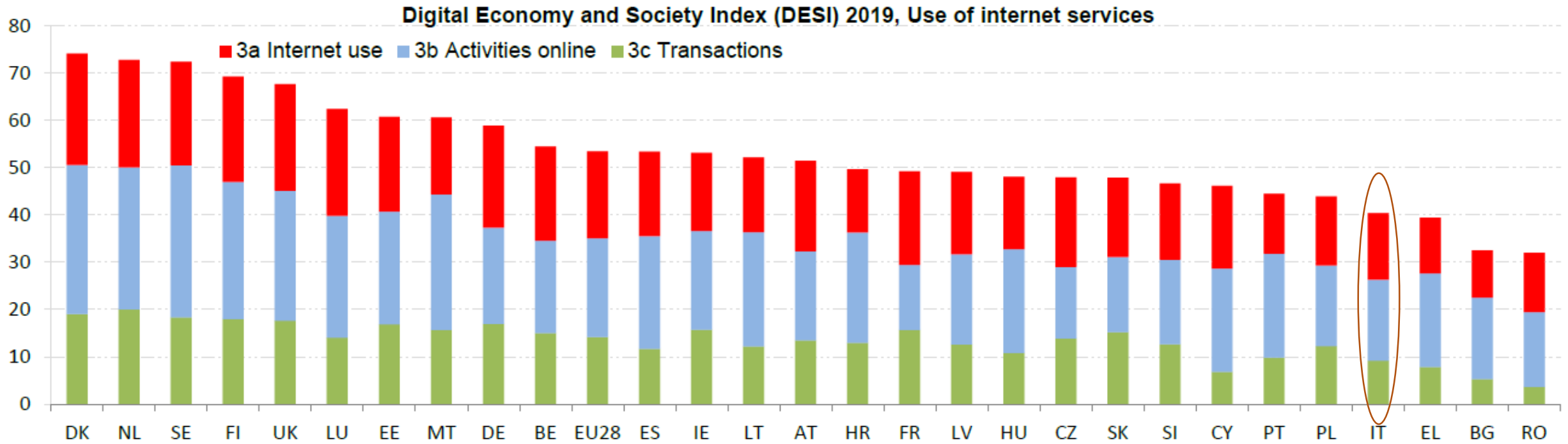


# ... yet lagging behind for take-up and fibre networks



Source: EC, DESI 2019

# DESI Index: Use of the Internet Services



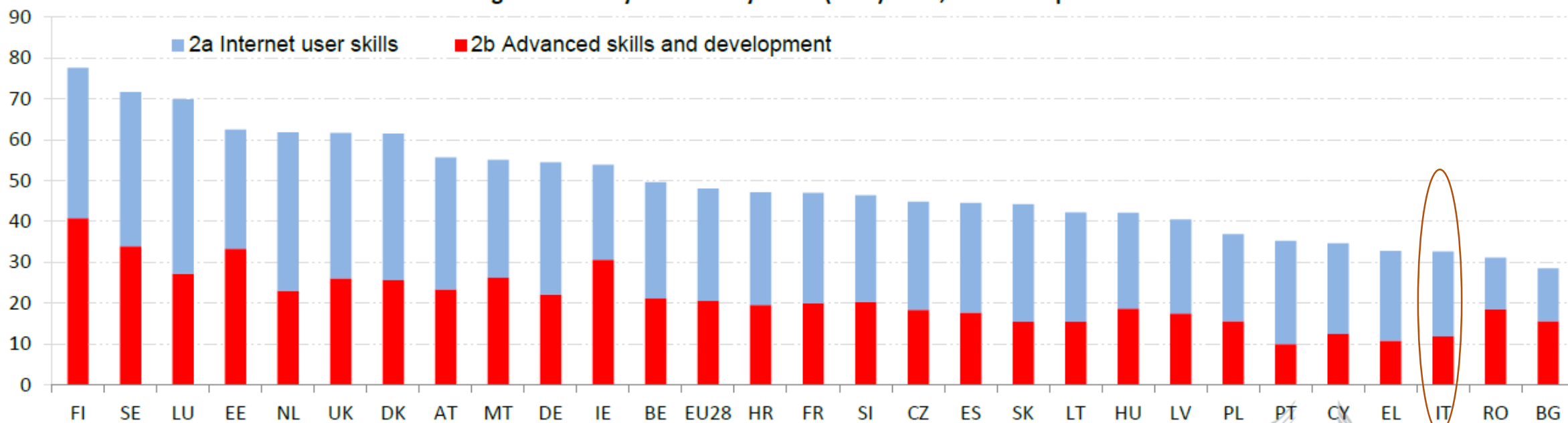
# DESI Index: Use of the Internet Services

	DESI 2017	DESI 2018	DESI 2019		EU
	value	value	value	rank	DESI 2019
					value
<b>3a1 People who never used the internet</b> % individuals	<b>25%</b> 2016	<b>22%</b> 2017	<b>19%</b> 2018	<b>23</b>	<b>11%</b> 2018
<b>3a2 Internet users</b> % individuals	<b>67%</b> 2016	<b>69%</b> 2017	<b>72%</b> 2018	<b>24</b>	<b>83%</b> 2018
<b>3b1 News</b> % internet users	<b>60%</b> 2016	<b>56%</b> 2017	<b>56%</b> 2017	<b>28</b>	<b>72%</b> 2017
<b>3b2 Music, videos and games</b> % internet users	<b>79%</b> 2016	<b>79%</b> 2016	<b>79%</b> 2018	<b>19</b>	<b>81%</b> 2018
<b>3b3 Video on demand</b> % internet users	<b>15%</b> 2016	<b>15%</b> 2016	<b>23%</b> 2018	<b>15</b>	<b>31%</b> 2018
<b>3b4 Video calls</b> % internet users	<b>34%</b> 2016	<b>39%</b> 2017	<b>47%</b> 2018	<b>20</b>	<b>49%</b> 2018
<b>3b5 Social networks</b> % internet users	<b>60%</b> 2016	<b>61%</b> 2017	<b>63%</b> 2018	<b>24</b>	<b>65%</b> 2018
<b>3b6 Professional social networks</b> % internet users	<b>12%</b> 2015	<b>12%</b> 2017	<b>12%</b> 2017	<b>17</b>	<b>15%</b> 2017
<b>3b7 Doing an online course</b> % internet users	<b>7%</b> 2016	<b>8%</b> 2017	<b>8%</b> 2017	<b>11</b>	<b>9%</b> 2017
<b>3b8 Online consultations and voting</b> % internet users	<b>9%</b> 2015	<b>9%</b> 2017	<b>9%</b> 2017	<b>15</b>	<b>10%</b> 2017
<b>3c1 Banking</b> % internet users	<b>42%</b> 2016	<b>43%</b> 2017	<b>46%</b> 2018	<b>24</b>	<b>64%</b> 2018
<b>3c2 Shopping</b> % internet users	<b>41%</b> 2016	<b>44%</b> 2017	<b>47%</b> 2018	<b>25</b>	<b>69%</b> 2018
<b>3c3 Selling online</b> % internet users	<b>9%</b> 2016	<b>11%</b> 2017	<b>11%</b> 2018	<b>23</b>	<b>23%</b> 2018

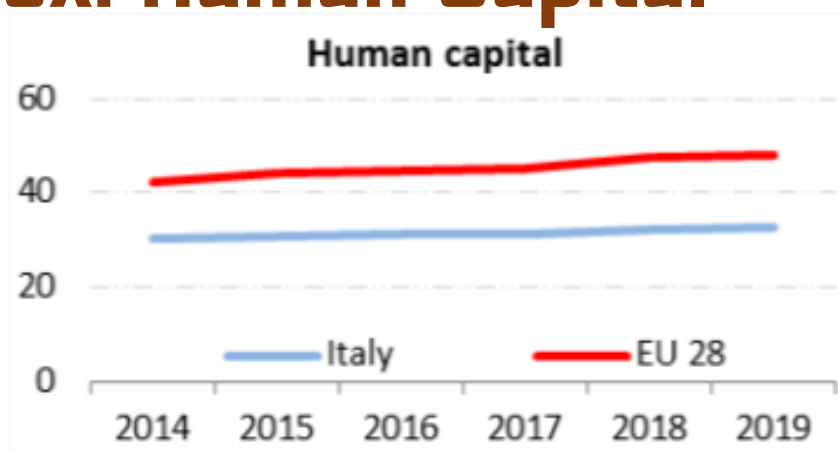
# DESI Index: Human Capital

Digital Economy and Society Index (DESI) 2019, Human Capital

Source: DESI 2019, European Commission



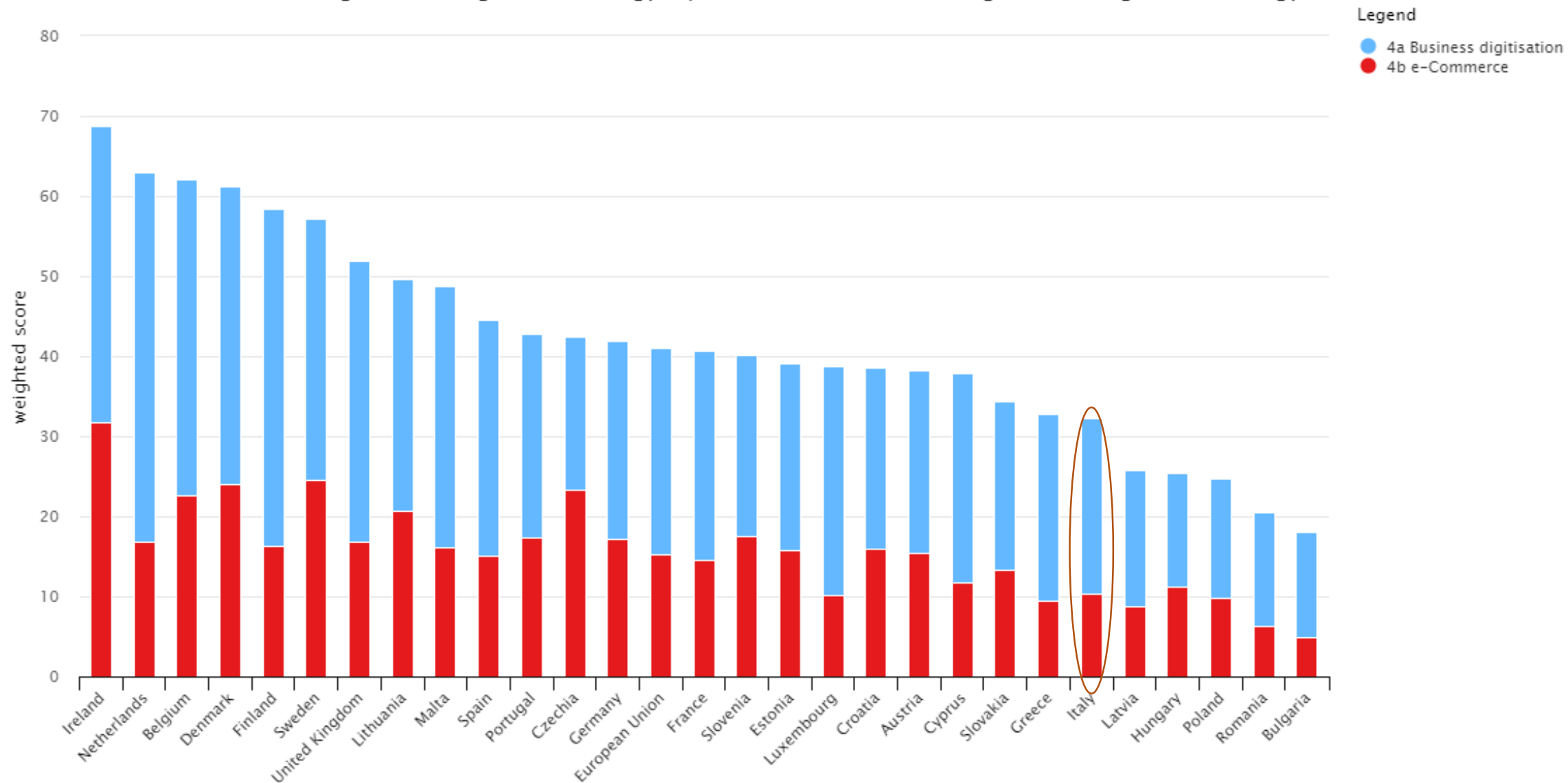
# DESI Index: Human Capital



	DESI 2017	Italy	DESI 2019	EU
	value	value	value rank	DESI 2019
				value
<b>2a1 At least basic digital skills</b> % individuals	<b>44%</b> 2016	<b>NA</b> 2017	<b>NA</b> 2017	<b>57%</b> 2017
<b>2a2 Above basic digital skills</b> % individuals	<b>19%</b> 2016	<b>NA</b> 2017	<b>NA</b> 2017	<b>31%</b> 2017
<b>2a3 At least basic software skills</b> % individuals	<b>48%</b> 2016	<b>NA</b> 2017	<b>NA</b> 2017	<b>60%</b> 2017
<b>2b1 ICT specialists</b> % total employment	<b>2.5%</b> 2015	<b>2.6%</b> 2016	<b>2.6%</b> <b>22</b> 2017	<b>3.7%</b> 2017
<b>2b2 Female ICT specialists</b> % female employment	<b>0.8%</b> 2015	<b>0.9%</b> 2016	<b>1.0%</b> <b>20</b> 2017	<b>1.4%</b> 2017
<b>2b3 ICT graduates</b> % graduates	<b>0.9%</b> 2014	<b>NA</b> 2015	<b>1.0%</b> <b>28</b> 2016	<b>3.5%</b> 2015

# DESI Index: Integration of digital technology

4 Integration of Digital Technology, by Sub-dimensions of 4 Integration of Digital Technology





# DESI Index: Integration of digital technology

	DESI 2017	Italy	DESI 2019		EU
	value	value	value	rank	value
<b>4a1 Electronic information sharing</b> % enterprises	<b>36%</b> 2015	<b>37%</b> 2017	<b>37%</b> 2017	<b>13</b>	<b>34%</b> 2017
<b>4a2 Social media</b> % enterprises	<b>16%</b> 2016	<b>17%</b> 2017	<b>17%</b> 2017	<b>16</b>	<b>21%</b> 2017
<b>4a3 Big data</b> % enterprises	<b>9%</b> 2016	<b>9%</b> 2016	<b>7%</b> 2018	<b>24</b>	<b>12%</b> 2018
<b>4a4 Cloud</b> % enterprises	<b>12%</b> 2016	<b>NA</b> 2017	<b>15%</b> 2018	<b>18</b>	<b>18%</b> 2018
<b>4b1 SMEs selling online</b> % SMEs	<b>7%</b> 2016	<b>8%</b> 2017	<b>10%</b> 2018	<b>26</b>	<b>17%</b> 2018
<b>4b2 e-Commerce turnover</b> % SME turnover	<b>6%</b> 2016	<b>6%</b> 2017	<b>8%</b> 2018	<b>19</b>	<b>10%</b> 2018
<b>4b3 Selling online cross-border</b> % SMEs	<b>5%</b> 2015	<b>6%</b> 2017	<b>6%</b> 2017	<b>22</b>	<b>8%</b> 2017

# The Digital Ecosystem

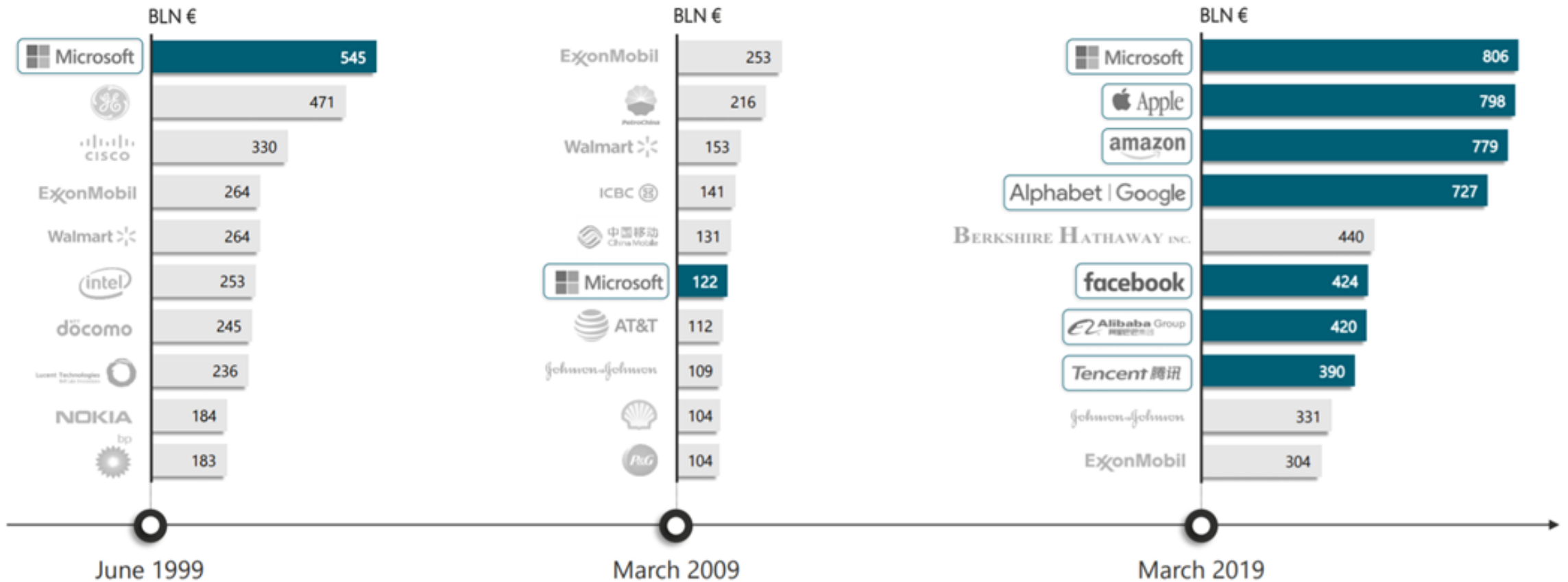
- The digital ecosystem is a **multi-level network system**: its backbone is composed of very high capacity fixed and mobile communication physical infrastructures, which perhaps are neither his brain nor his soul.
- **Services, content, applications and their suppliers** permeate the digital society with sophisticated and pervasive networks, made up of economic, social and operational interactions (human and non-human), which take place at various levels of the materiality-immateriality scale

# The Digital Ecosystem

- This ecosystem is extremely complex and is populated, animated and influenced by a wide range of different actors. **Digital platforms** are crucial key players. They are also called **Over-The-Top (OTT) providers**, because they provide services to users through the public infrastructure of the Internet and telecommunications, but "**above**" the **traditional value chain of the telecoms markets**.
- The digital market society includes a multitude of OTTs, which have a **wide range of activities**, including online advertising, market services, Internet search engines, social media, aggregations and distribution of creative content, video sharing, communication, product price comparison, apps distribution, payment system services, collaborative activities, etc.

# Digital Capitalism

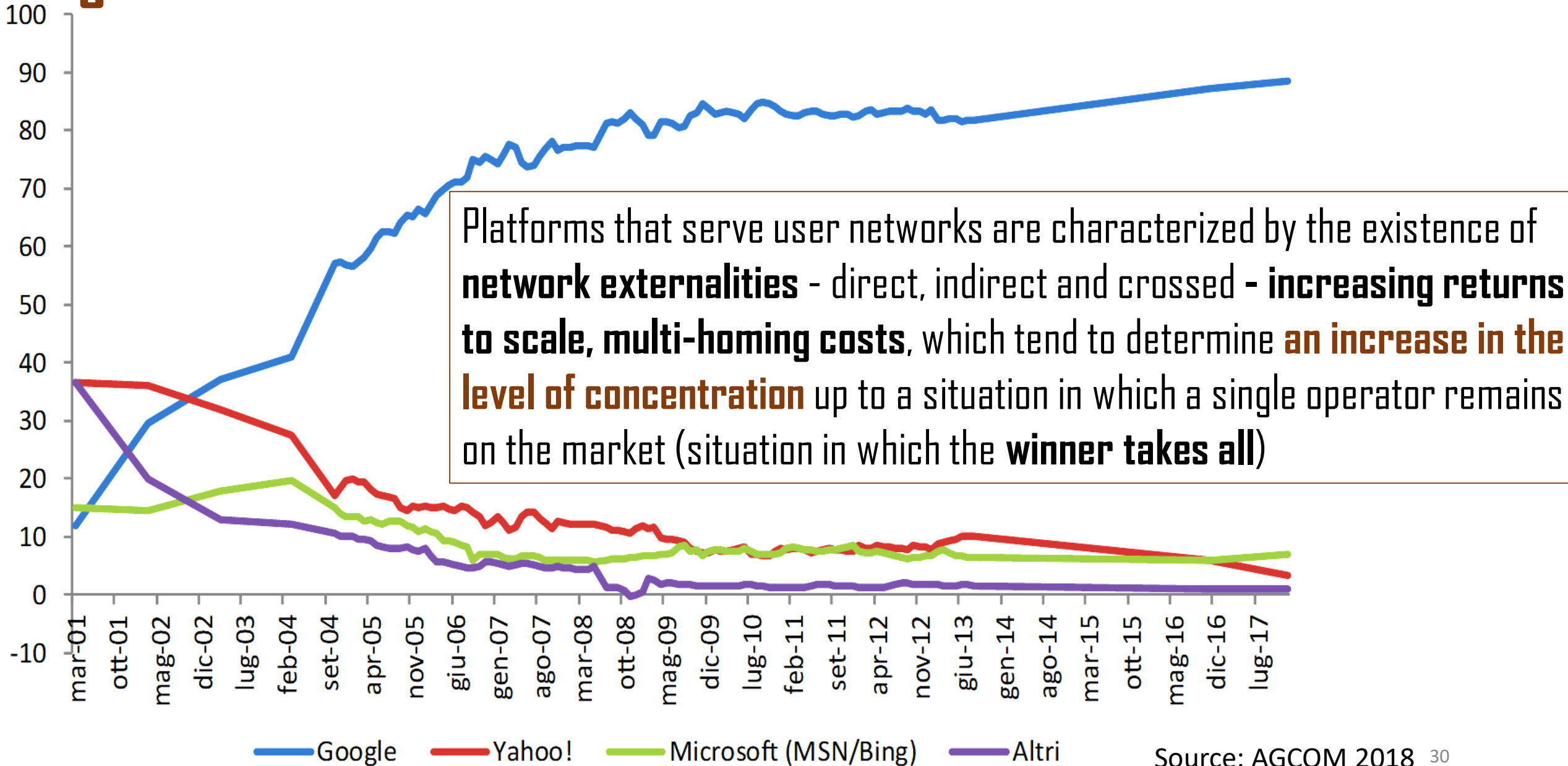
## TOP 10 COMPANIES BY MARKET CAPITALIZATION



# Digital Platforms

- Online platforms are two or more-sided markets, where interaction between different groups of users is facilitated. Users can meet to exchange information, goods and services, even by sharing them (**match-makers / sharing economy**), for the purchase and sale of a wide range of content, applications and services (**marketplace**), for the exchange (implicit and mediated) of attention and information with advertising (**audience-makers**);
- Their **value is related to the number of relationships** that they are able to attract and manage. For this reason, policies are developed to “**exploit**” the **conditions of interdependence between the different sides of the market.**

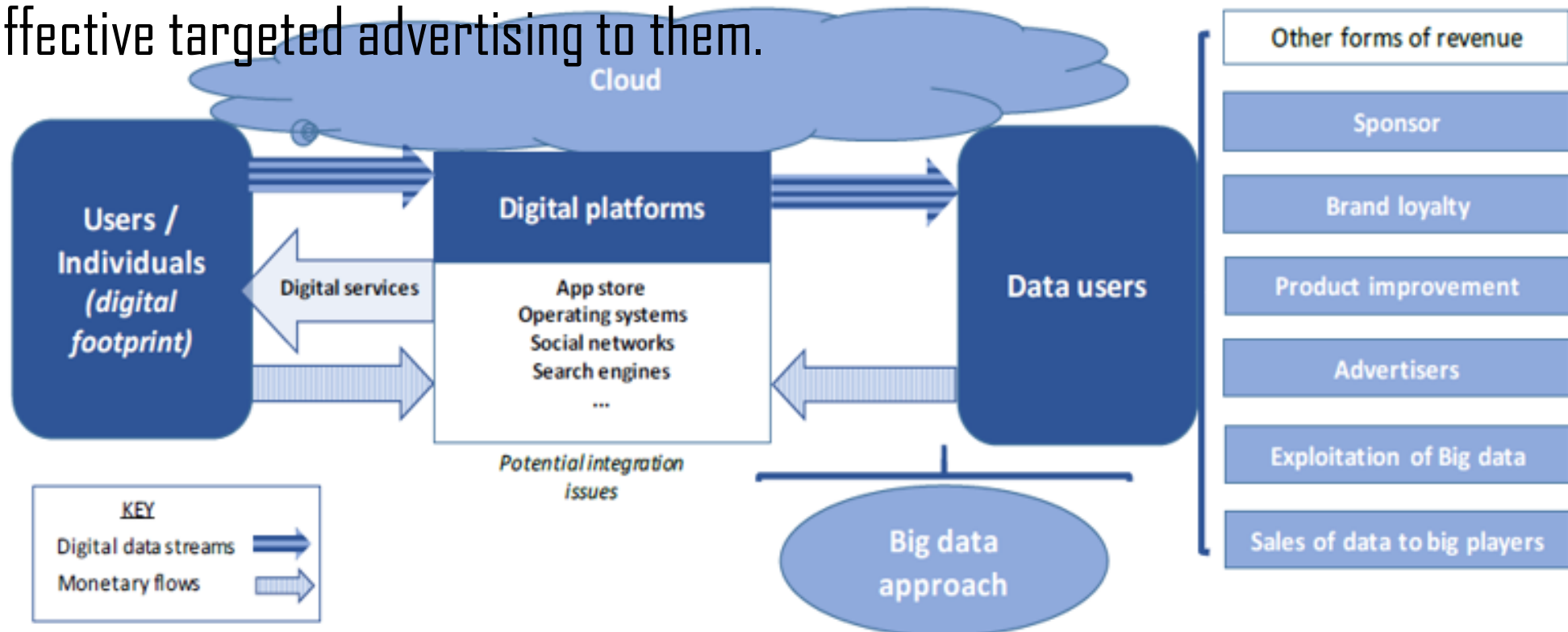
# Digital Platforms



Platforms that serve user networks are characterized by the existence of **network externalities** - direct, indirect and crossed - **increasing returns to scale**, **multi-homing costs**, which tend to determine **an increase in the level of concentration** up to a situation in which a single operator remains on the market (situation in which the **winner takes all**)

# Digital Platforms

The user side is often characterized by **the free content and web services** provided: which implies a **transaction (implicit)** of a non-monetary nature → transfer of one's attention and information relating to one's consumer profile so that it can be used by operators to offer them personalized services and products and by advertisers to deliver the most effective targeted advertising to them.



# Data as an «economic good»

- Data allow to **profile our individual demand** for the consumption of services and products, making advertising and personalized marketing much more effective, by increasing the probability of sale;
- Data allow **algorithms to improve themselves**, as new data are analyzed and thus to estimate the aggregate or average demand for the consumption of services and products, indicating very quickly the evolution of preferences, needs market, investment and innovation opportunities and so on.



# Digital data

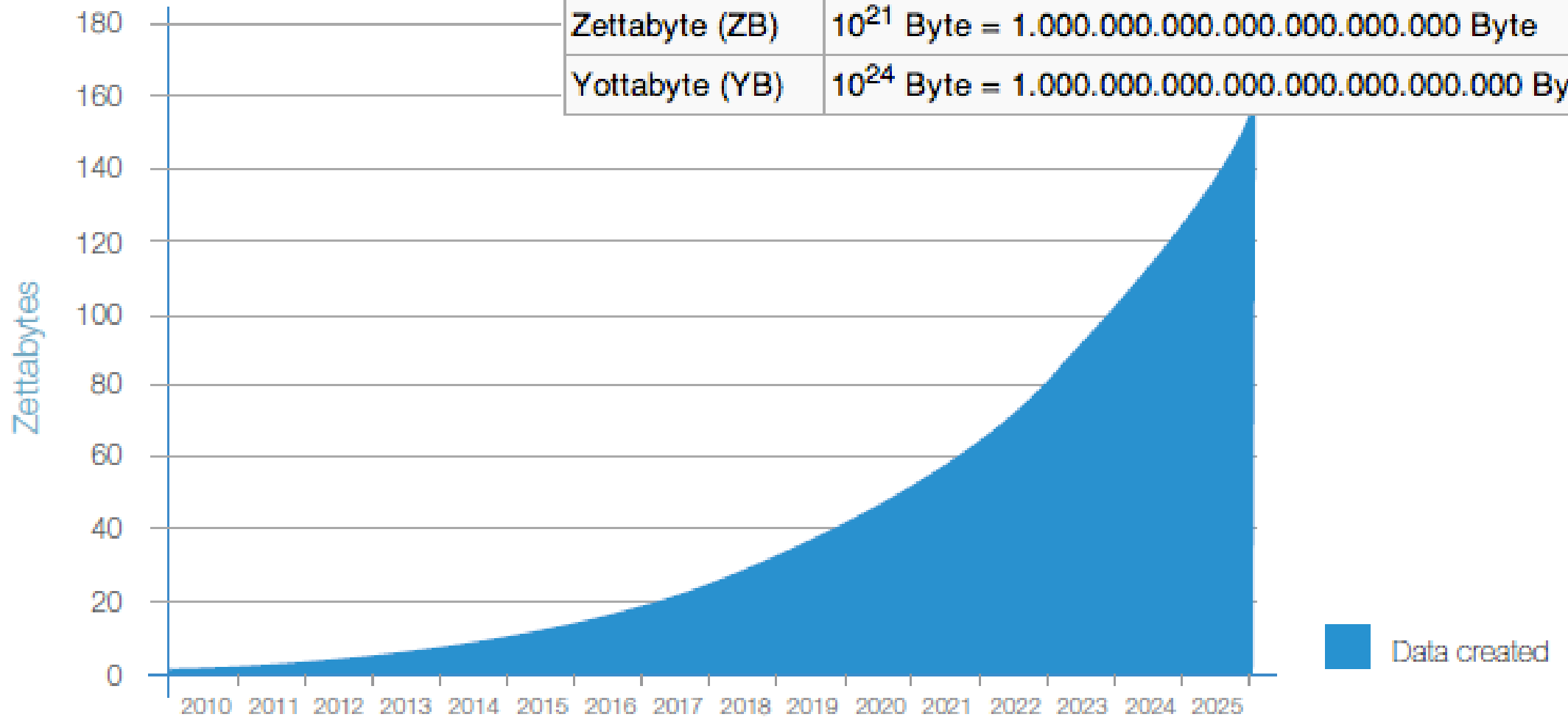
There is growing attention for the collection of users' personal data and information, whose tracking methods change with the evolution of technology

Source: AGCOM 2018



# Digital Data

Megabyte (MB)	$10^6$ Byte = 1.000.000 Byte
Gigabyte (GB)	$10^9$ Byte = 1.000.000.000 Byte
Terabyte (TB)	$10^{12}$ Byte = 1.000.000.000.000 Byte
Petabyte (PB)	$10^{15}$ Byte = 1.000.000.000.000.000 Byte
Exabyte (EB)	$10^{18}$ Byte = 1.000.000.000.000.000.000 Byte
Zettabyte (ZB)	$10^{21}$ Byte = 1.000.000.000.000.000.000.000 Byte
Yottabyte (YB)	$10^{24}$ Byte = 1.000.000.000.000.000.000.000.000 Byte



# BIG DATA



Source: AGCOM 2018

# People as source of DATA

**Difficult categorization of data**, in fact:

- difficulty in establishing which of the countless and complex information collected constitutes **personal data**
- thanks to sophisticated **big data analytics** techniques, many of the data collected on individuals, even if they are not originally personal in nature, can be transformed into sensitive information

# People as source of DATA

The increasing use of the internet by individuals, in particular via mobile devices, is an **inexhaustible source of data**

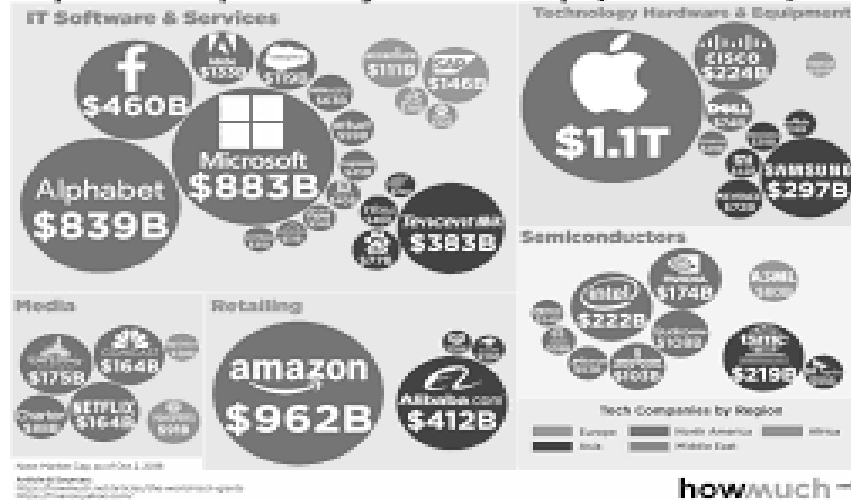
Whenever an individual is connected to the network, he leaves 'traces' (**online-footprint**)

With **68 likes** on Facebook it is possible to predict political, sexual orientation, drug addiction, ...

Consequently, possibility of **(perfect) discrimination:**

- price (redistributive effect in favor of online platforms)
- based on individual factors (social, informative and political risk)

## The World's Tech Giants 2018 Top 50 Companies by Market Cap (in Q3 2018)



Online Data is **not only**  
a **privacy issue**



but also concerns



• Antitrust

• Pluralism (online)



US008615473B2

(12) **United States Patent**  
**Spiegel et al.**

(10) **Patent No.:** **US 8,615,473 B2**

(45) **Date of Patent:** **Dec. 24, 2013**

(54) **METHOD AND SYSTEM FOR  
ANTICIPATORY PACKAGE SHIPPING**

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(75) **Inventors:** **Joel R. Spiegel**, Woodinville, WA (US);  
**Michael T. McKenna**, Bellevue, WA  
(US); **Girish S. Lakshman**, Issaquah,  
WA (US); **Paul G. Nordstrom**, Seattle,  
WA (US)  
  
(73) **Assignee:** **Amazon Technologies, Inc.**, Reno, NV  
(US)

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Anticipatory package shipping?

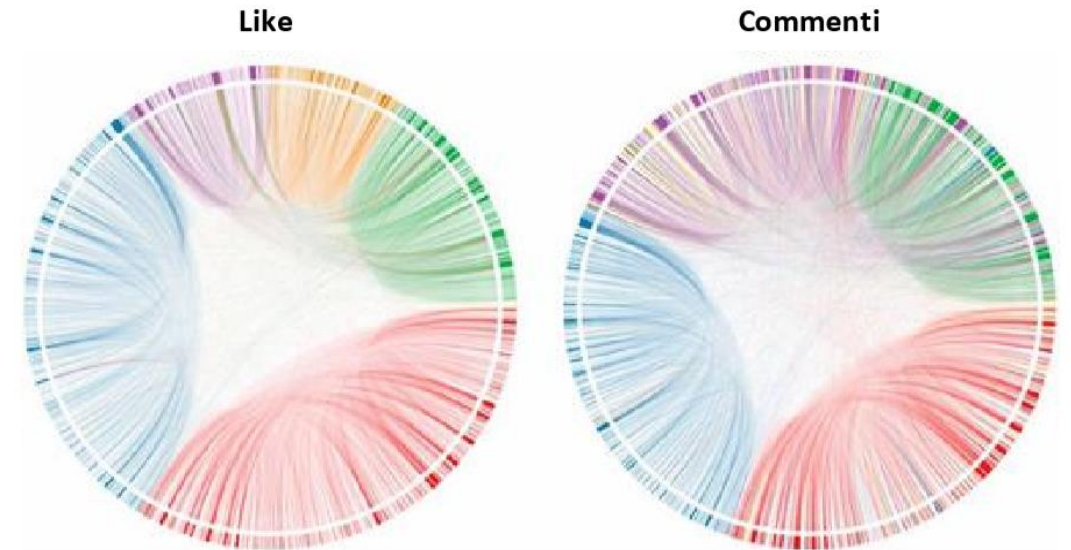
# Platforms as information gatekeeper

- News online consumption model and consumers' interaction produce a tendency to polarisation, selective exposition to news, creation of echo chambers

**Social network and search engine are becoming gatekeepers for online information**

**Platform Algorithm efficiency**

**Personalisation of information generation and diffusion**



Source: AGCOM 2018

**➔ online POLARISATION and DISINFORMATION**





# DATA Economy

- “Data economy” is composed of different types of **market players** – such as manufacturers, researchers and infrastructure providers – collaborating to ensure that data is accessible and usable.
- It involves the generation, collection, storage, processing, distribution, analysis, elaboration, delivery, and exploitation of data enabled by digital technologies
- **This enables the market players to extract value from this data**, by creating a variety of applications with a great potential to improve daily life (e.g. traffic management, optimisation of harvests or remote health care).

# Examples of industrial and commercial use of DATA



Jet engines filled with **thousands of sensors** collect and transmit data back to ensure **efficient operation**.



Wind farms use industrial data to **reduce visual impact and optimise wind power**.



Real-time traffic avoidance navigation can save up to **730 million hours**. This represents up to **€20 billion** in labour costs.



Real-time notification of delayed trains can save **27 million working hours**. This amounts to **€740 million** in labour costs.



Better allocation of resources to fight malaria could save up to **€5 billion in healthcare costs globally**.

# DATA Economy

➤ Data is an **essential resource for economic growth, competitiveness, innovation, job creation and societal progress** in general. Data driven applications will benefit citizens and businesses in many ways:

- improve health care
- create safer and cleaner transport systems
- generate new products and services
- reduce the costs of public services
- improve the sustainability and energy efficiency.

## The value of the data economy (EU27)



Source: EC 2020

# A EU strategy for DATA (2020)

- Aims to **create a single market for data** that will ensure Europe's global competitiveness and data sovereignty.
  - **Data can flow within the EU and across sectors**, for the benefit of all;
  - European rules, in particular **privacy and data protection**, as well as **competition law**, are fully respected;
  - The rules for **access and use of data are fair, practical and clear**.

# A EU strategy for DATA (2020)

- The EU will become an **attractive, secure and dynamic data economy** by:
  - Setting **clear and fair rules on access and re-use of data**;
  - **Investing in next generation standards, tools and infrastructures to store and process data**;
  - Joining forces in **European cloud capacity**;
  - **Pooling European data in key sectors**, with EU-wide common and interoperable data spaces;
  - Giving **users** rights, tools and skills to stay in **full control of their data**



Thank you

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