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# GOING DIGITAL – MAKING THE DIGITAL TRANSFORMATION WORK FOR EUROPE

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# Outline

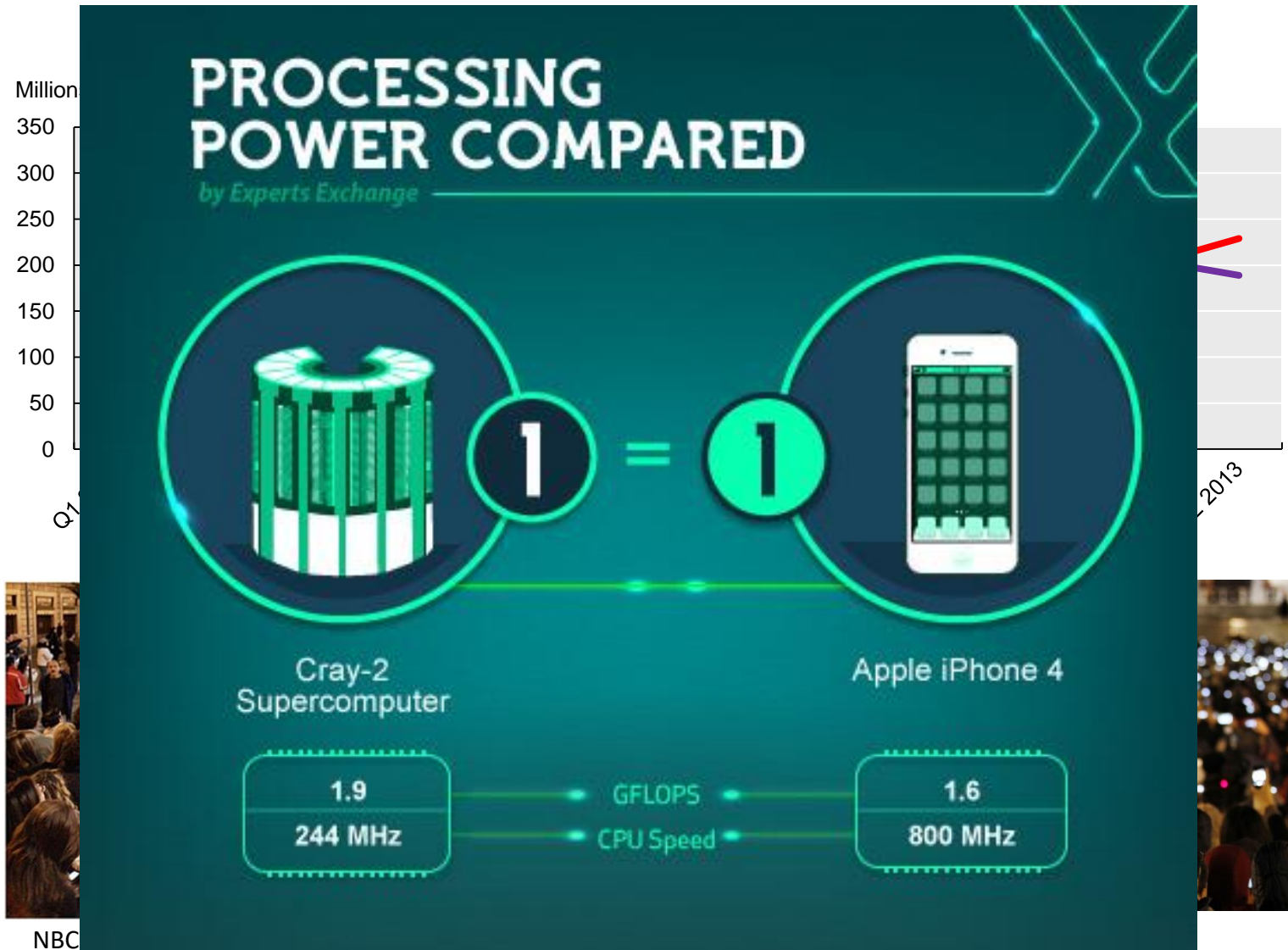


1. Digital Transformation – Opportunities and Challenges
2. How should Policy Respond?
3. Some Implications for Europe

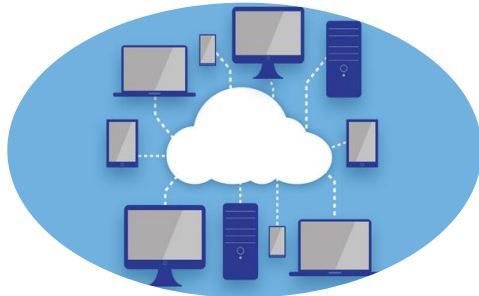


# *1. DIGITAL TRANSFORMATION – OPPORTUNITIES AND CHALLENGES*

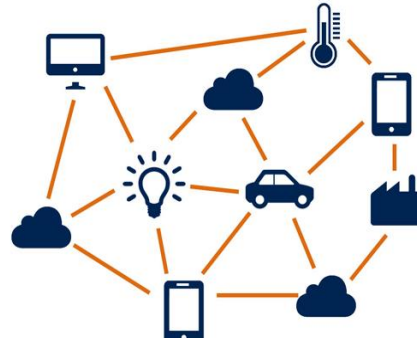
# 1. We are in a new phase of the digital transformation, ...



# ... with a wide range of new digital technologies emerging ...



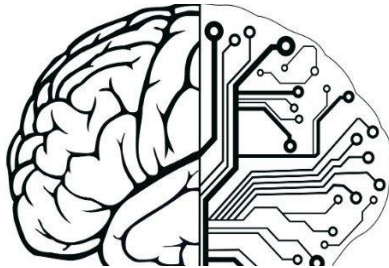
**Cloud computing**



**Internet of Things**



**Big data**



**Artificial  
intelligence**



**3D printing**



**Blockchain**

..., that provide new opportunities across  
**every sector of the economy**



**Public Admin.**



**Health**

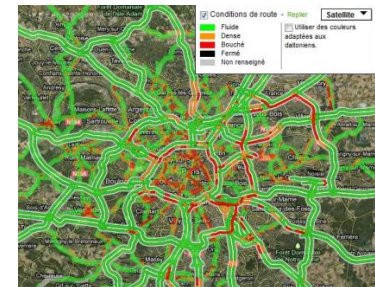


**Retail**



**Agriculture**

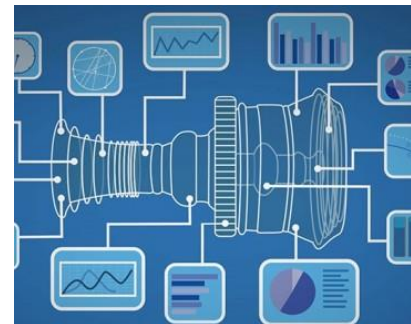
**Digitalisation**



**Transportation**



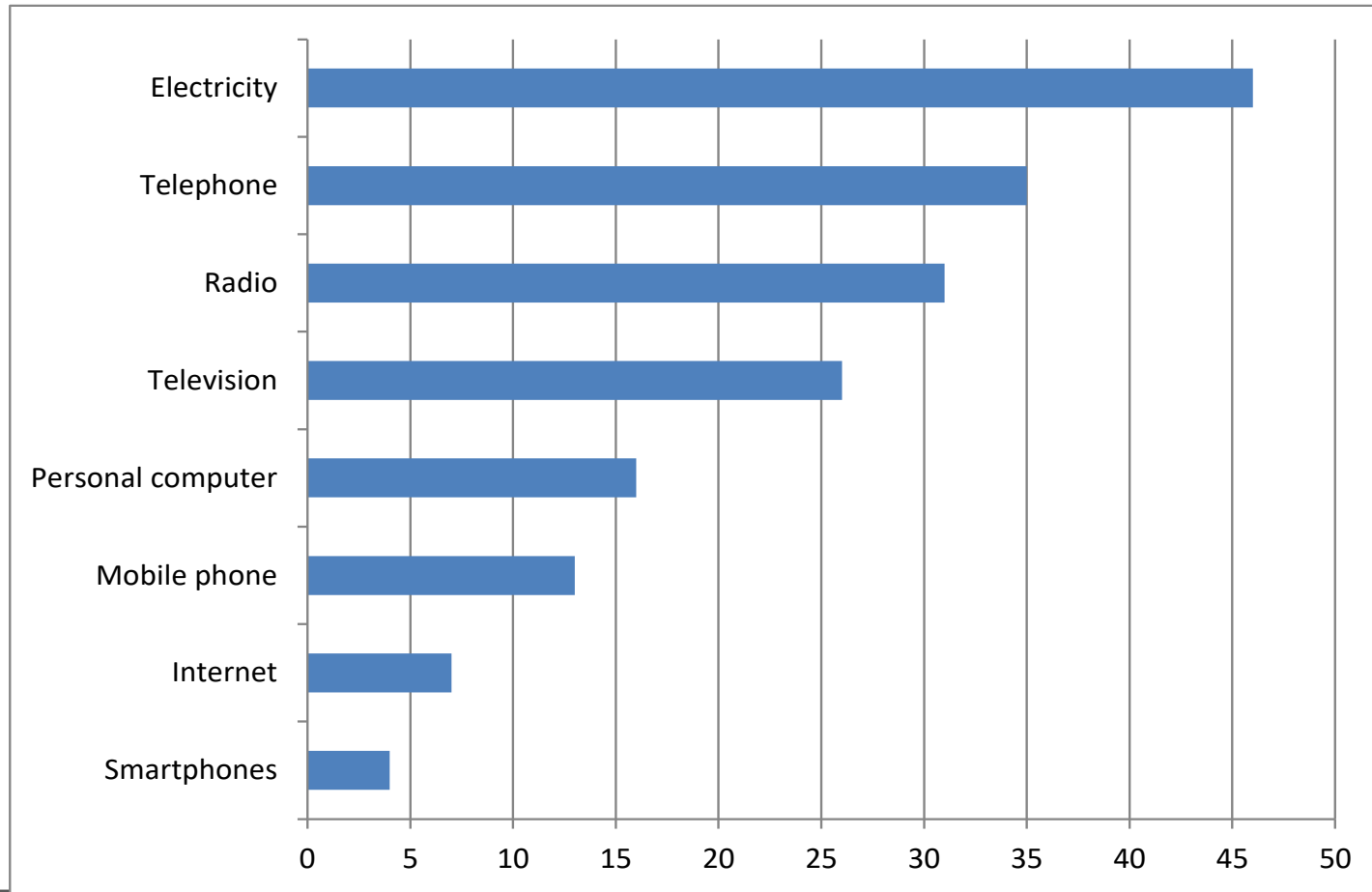
**Science & Education**



**Manufacturing**

But it also creates **challenges**, as it is **moving faster** than previous transformations; ...

**Years until used by 25% of US population**



**Challenges legacy policies and slow policy making -  
may require new approaches to policy making**



# ... changes the nature of value creation in market economies; ...



Intangible  
assets



Servicification



Challenges policies directed at capital and value creation, e.g. tax incentives or accounting, trade policy (goods vs services), innovation



# ... and disrupts our economies and society in many ways

Location no longer matters, e.g. education at a distance



Digital security



Networks – from centralised to decentralised



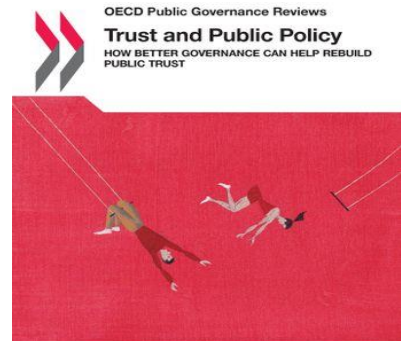
From ownership to services, e.g. mobility, rental



From employment to gigs

upwork

Trust, fake news, privacy, etc.





## *2. HOW SHOULD POLICY RESPOND?*

# The need for a joined-up response



- The digital transformation affects **every** part of economy and society and is about **scale and network effects**
- It provides new **opportunities** for growth and improved well-being, but also raises many **challenges**
- A partial, siloed approach cannot address the **many difficult balances** that need to be resolved – e.g. openness versus privacy – or address **cross-cutting issues** such as security and skills
- A **whole-of-government approach** can maximize the opportunities and mitigate the challenges.

# OECD's Integrated Policy Framework for the Digital Age

## Main Policy Areas:

1. Access
2. Use
3. Innovation
4. Jobs
5. Society
6. Trust
7. Market Openness

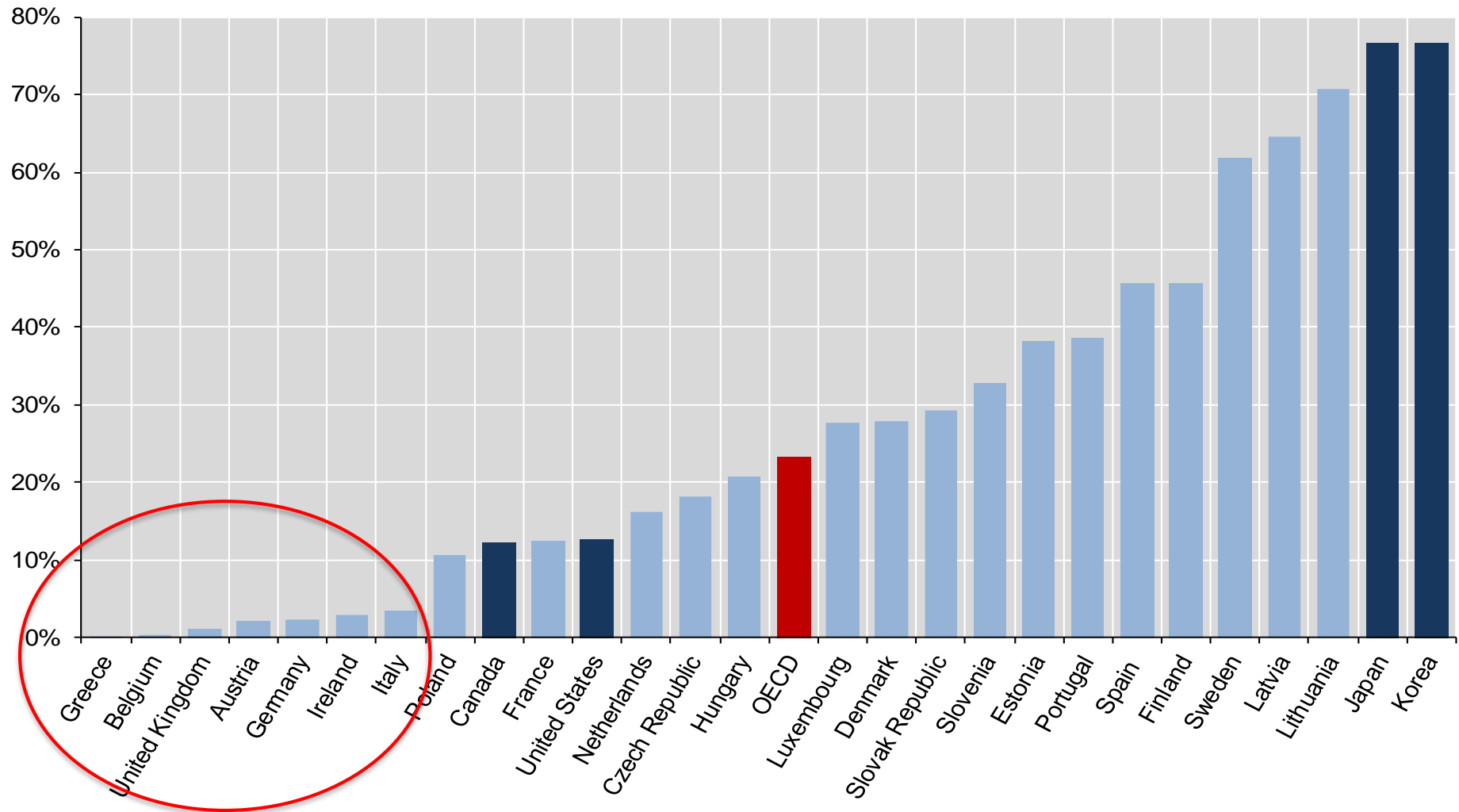


Leading to an Integrated Strategy for Growth and Well-Being

# 1. Access: While access is almost universal, many EU countries lag in fibre uptake



Percentage of fibre connections in total broadband subscriptions, December 2017



Source: OECD Broadband Portal, February 2018, <http://www.oecd.org/sti/broadband/broadband-statistics/>

# Opportunities & policies for access

## Opportunities:

- Fibre networks are key to moving to **Industry 4.0**, Internet of Things, connected cars, etc.
- Universal high-speed connectivity can make the transformation work even in **rural areas**

## Policies:

- Sound **competition in telecommunications markets combined with national broadband strategies**, including for future networks (5G).
- An **integrated telecommunications market**.
- Government investment or incentives to reduce specific (e.g. **regional**) digital divides
- Improving **regulation and access**, also for new technologies, e.g. 5G, IoT, driverless cars – **spectrum management** is important too.

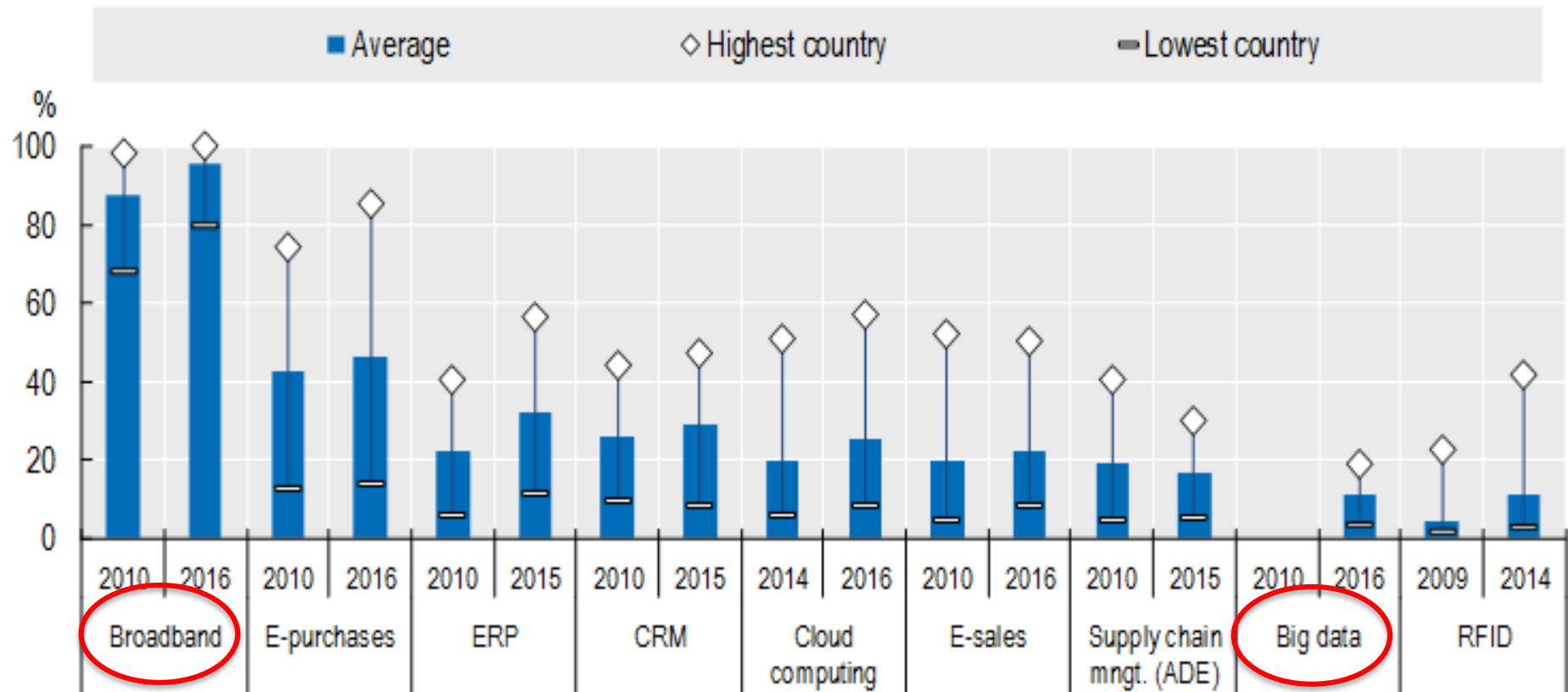




## 2. Use and innovation: Most firms are connected, but few make effective use of ICTs ...

### Diffusion of selected ICT tools and activities in enterprises, OECD countries, 2010 and 2016

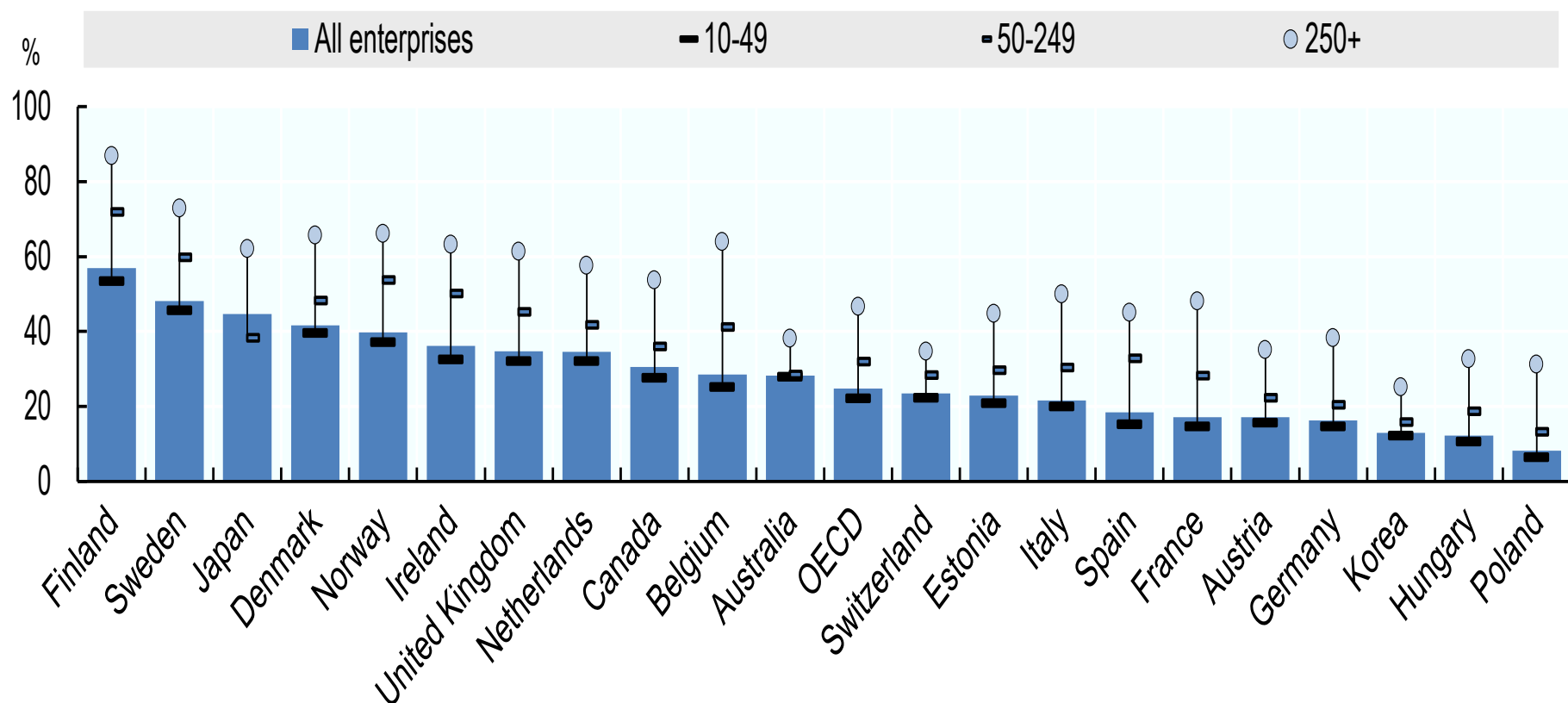
As a percentage of enterprises in each employment size class



... and **SMEs are lagging**, even in technologies well suited to their needs, ...

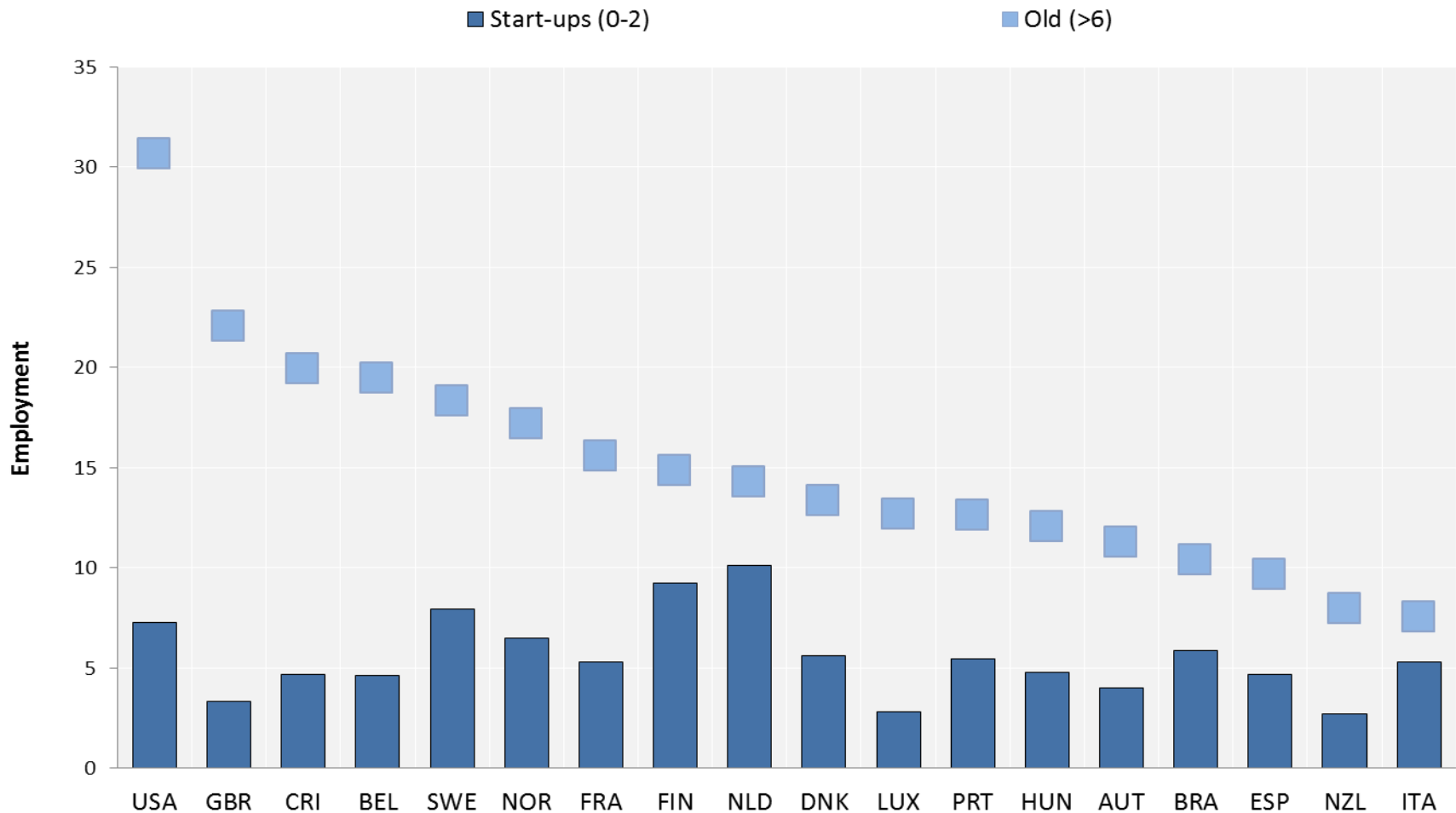
## Enterprises using cloud computing services, by firm size, 2016

As a percentage of enterprises in each employment size class



# ... while start-ups don't scale as well in Europe as in some other regions

Average size of start-ups and old firms, in persons employed, services sector

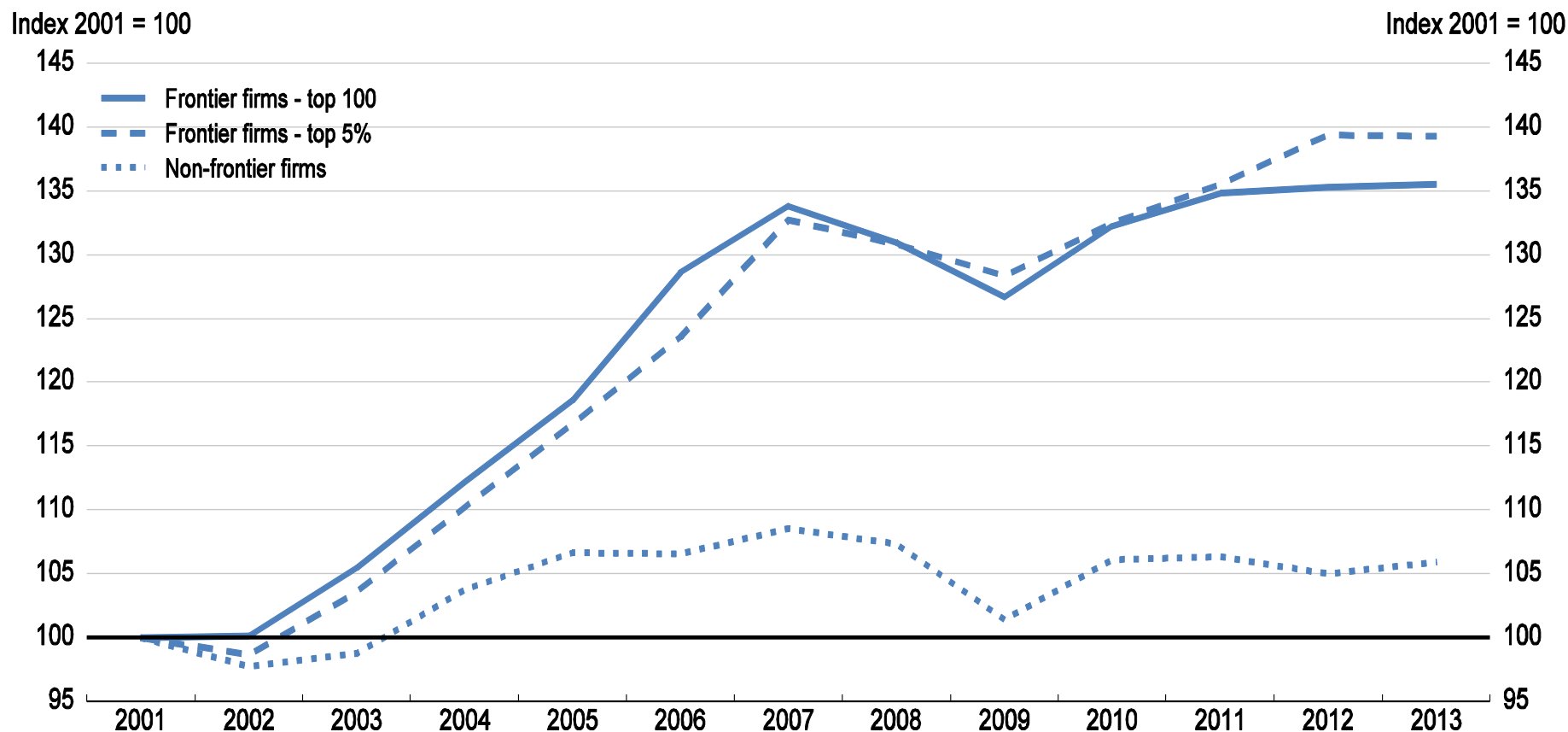


Source: OECD calculations based on DynEmp v.2 and DynEmp3 databases [www.oecd.org/sti/dynemp.htm](http://www.oecd.org/sti/dynemp.htm)

# However, the most productive firms still experience rapid productivity growth



The productivity gap between the globally most productive firms and other firms has widened



Note: "Frontier firms" is the average labour productivity (value added per worker) of the 100 or 5% globally most productive firms in each two-digit industry. "Non-frontier firms" is the average of all firms, except the 5% globally most productive firms.

Source: OECD preliminary results based on Andrews, D., C. Criscuolo and P. Gal (2016), "Mind the Gap: Productivity Divergence between the Global Frontier and Laggard Firms", OECD Productivity Working Papers, forthcoming; Orbis database of Bureau van Dijk.

# Opportunities and policies for use and innovation of digital technologies



## Opportunities:

- More **intensive and widespread use** can help drive productivity and widen its benefits.
- Support **wage and income growth**, and help develop new industries, generating new jobs.

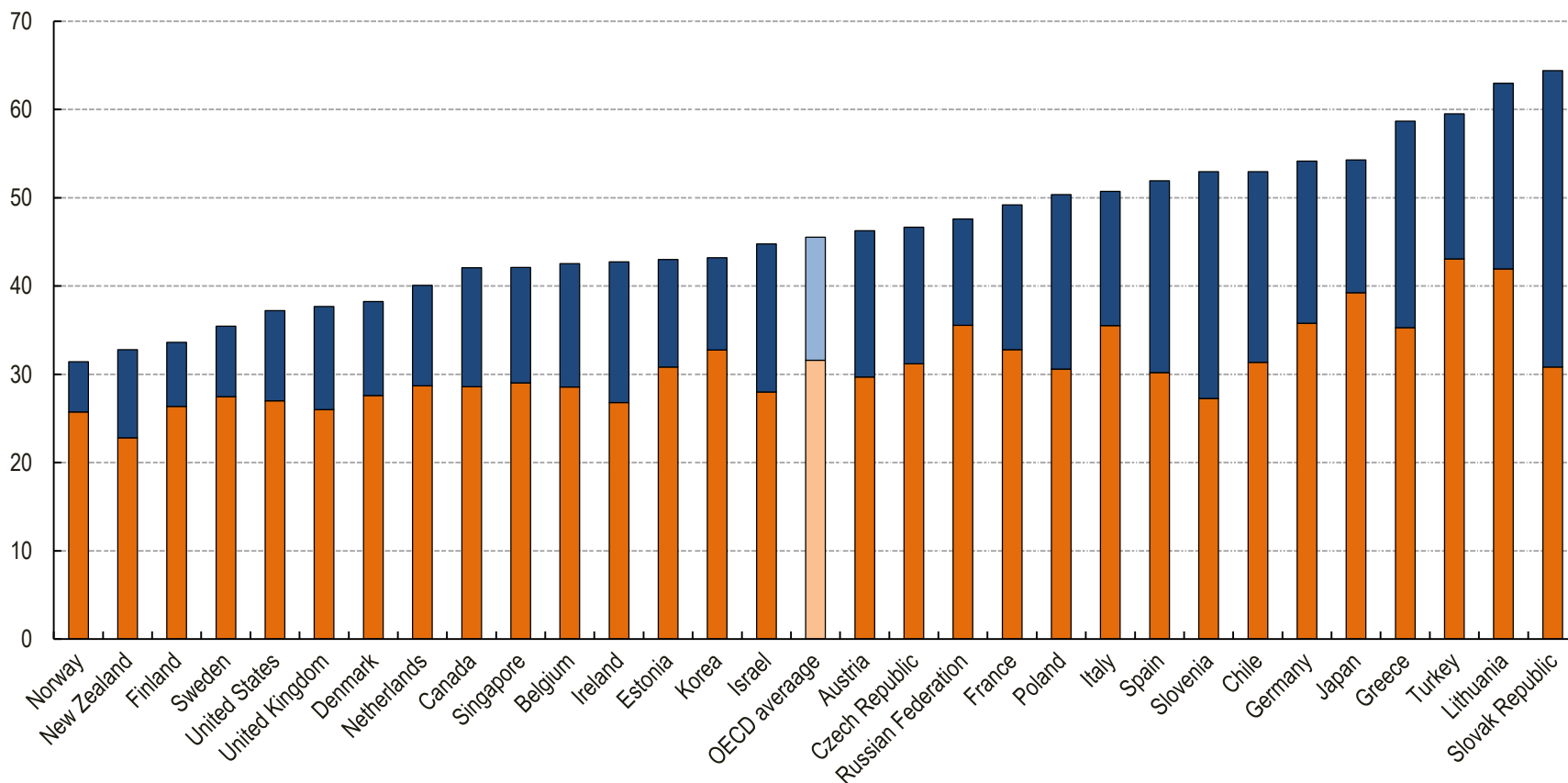
## Policies:

- Sound **business dynamism** is key to allow start-ups to scale and, when necessary, exit
- Foster **knowledge diffusion** – e.g. through technology extension services
- Foster the **use of digital** tools in SMEs
- Invest in **skills** for the digital economy
- Modernise **regulation** – enable flexibility and experimentation
- Boost innovation in sectors that can be disrupted by **structural reform**



## 4. Jobs: OECD estimates suggest that the **risk of automation** is (likely) smaller than thought ...

SHARE OF JOBS AT **SIGNIFICANT RISK (50-70%)** AND OF **HIGH RISK (>70%)** OF AUTOMATION, BY COUNTRY, %



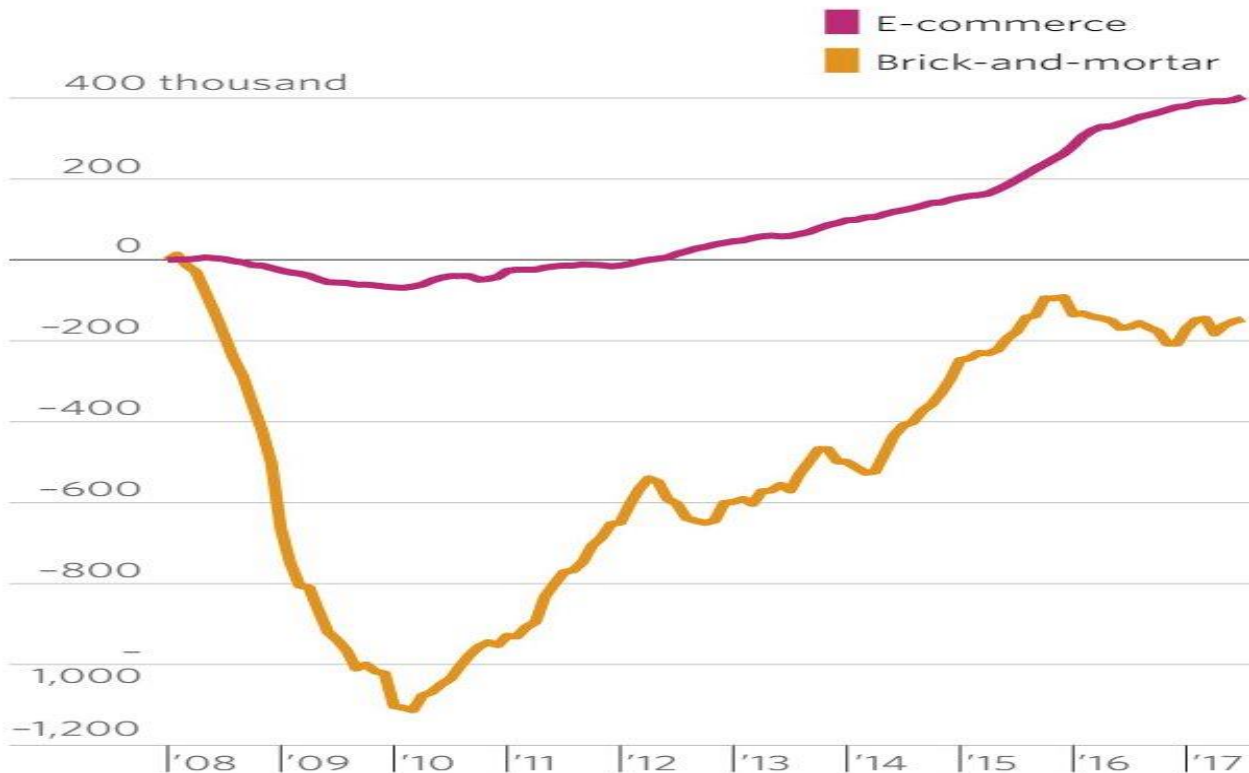
Source: OECD, 2018.



... and history suggests new jobs will emerge too,  
complementary to digital technologies

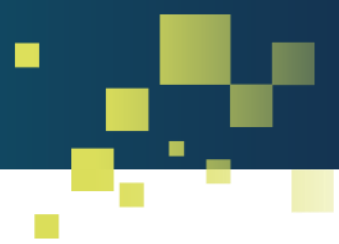
### E-Commerce Taketh Away & Giveth

The e-commerce sector has created more jobs since the end of 2007 than brick-and-mortar retailers have lost.



Source: Wall Street Journal, "Workers, fear not the Apocalypse", 5 September 2017

# Opportunities and policies to foster jobs in the digital economy



## Opportunities:

- New and potentially better paid jobs
- Fewer dangerous jobs, more flexibility

## Policies:

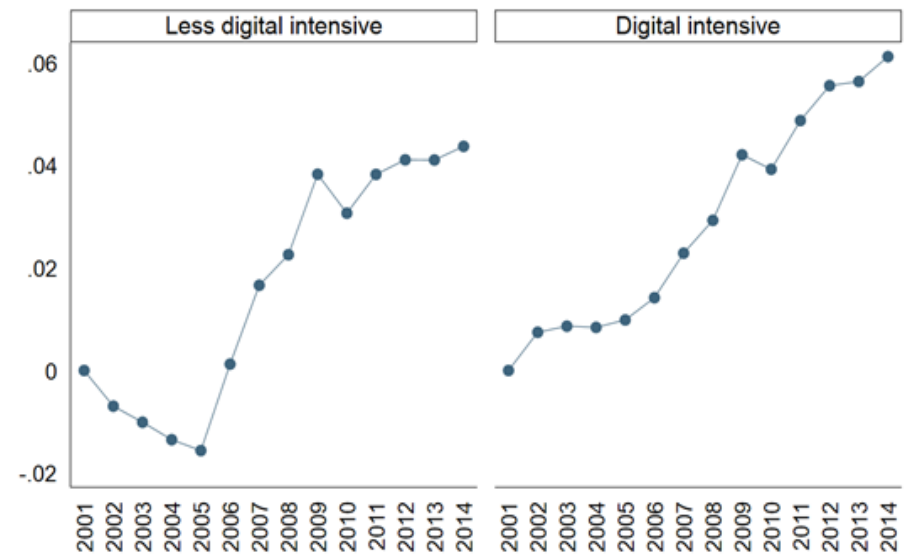
- Requires a **well-functioning labour market** to facilitate redeployment and mobility
- Formal and informal learning mechanisms to ensure workers have the right mix of skills, with **new forms of education and adult learning**
- Co-ordination among education and training institutions, employers and social partners – **social dialogue will help**
- Provide **social and employment protection**, especially for non-standard, irregular workers
- Adaptation – **build confidence in society's ability to change and people to benefit**



# 5. Market openness: Key to benefit from new opportunities ...



**Mark-up growth in digital intensive vs less digital intensive sectors, 2001-2014**



Source: OECD estimates based on Orbis® data.

# Key issues in fostering market openness

## Opportunities:

- Enables scaling and provides new opportunities for growth and jobs

## Policies:

- Foster the **interoperability of regulatory approaches** across countries, e.g. as regards data flows and payment systems
- Approach **market openness holistically**, e.g. as regards goods and services
- Ensure **sound competition** - consider whether adjustments to competition policy need to be made
- Ensure open markets – **adjust to the emergence of digital trade**
- **EU – the Digital Single Market ...**





### *3. SOME POLICY ISSUES FOR EUROPE*

# Key **policies** to benefit from digital transformation



1. **Access**: Ensure the **rolling out of fibre** networks to every citizen, region and firm to ensure nobody is left behind. Competitive telecom markets and national broadband strategies are key.
2. **Use**: Facilitate the **diffusion** of advanced technologies and knowledge, notably to **SMEs and lagging regions** ; **Ensure that regulatory frameworks** are adapted to new technologies and business models
3. **Innovation**: Foster **innovation and entrepreneurship** by investing in the future, including in **advanced technologies such as AI**. **Public investment in R&D and innovation matters**.
4. **Jobs**: Invest in **education** and support **skills** development to ensure nobody gets left behind; Support **workers displaced** by the digital transformation. Foster **social dialogue**.
5. **Market openness**: Foster the **scaling** of new business models and start-up firms – completing the **Digital Single Market** will be key; ensure sound **competition**; Facilitate **e-commerce and digital trade**



# Some challenges



1. **Access**: The connectivity agenda is ever evolving as new technologies emerge (e.g. 5G). Fibre, spectrum and access arrangements will be key. Demand remains a key question.
2. **Use**: Scaling of new digital firms remains difficult without an single digital market – **European countries are too small** for digital firms with global potential; SMEs risk falling behind.
3. **Innovation**: Can Europe overcome the productivity paradox? Turning strong science and start-ups in new growth.
4. **Jobs**: Polarisation is a challenge. There are few **models of life-long learning** in the digital age; risk of some workers (e.g. older workers with low levels of literacy) being left behind. **Europe's social model** could make this work (e.g. in Denmark and Sweden), but does not work in every country.
5. **Market openness**: Will be key for small economies, as **e-commerce and digital trade** will offer new opportunities and markets. Ensuring **sound competition** may become a challenge in high-tech markets.

# Can Europe make the digital transformation work for everyone?

- The digital transformation is an **opportunity that needs to be shaped by policy** – people-centred policies will be key
- **Ensuring access for all** – people, firms and regions – can create opportunities for all to participate and benefit
- **Investment in education and skills** can help people adjust to the new opportunities linked to digital transformation.
- **Innovation and entrepreneurship** can drive new growth and create new jobs.
- **Competition policies, market openness & business/SME policies** are important to avoid winner-take-most outcomes.
- **But there is a risk of some groups being left behind** – The European social model can help.

# Some issues for the EU



- The digital single market
- Scaling of start-ups
- The fragmented telecom market
- Scope for European platforms
- Structural reforms
- Regulatory frameworks
- Innovation
- Skills and talent retention

# Going Digital Summit - March 2019

## GOING DIGITAL

MAKING THE TRANSFORMATION  
WORK FOR GROWTH  
AND WELL-BEING

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HIGH-LEVEL CONFERENCE

**11-12 MARCH 2019**

OECD, **Paris**

***Save  
the  
date***

**going** digital

# Thank you

Contact: [dirk.pilat@oecd.org](mailto:dirk.pilat@oecd.org)

OECD Going Digital website:  
<http://oe.cd/goingdigital>

