

# Is education losing the race with technology

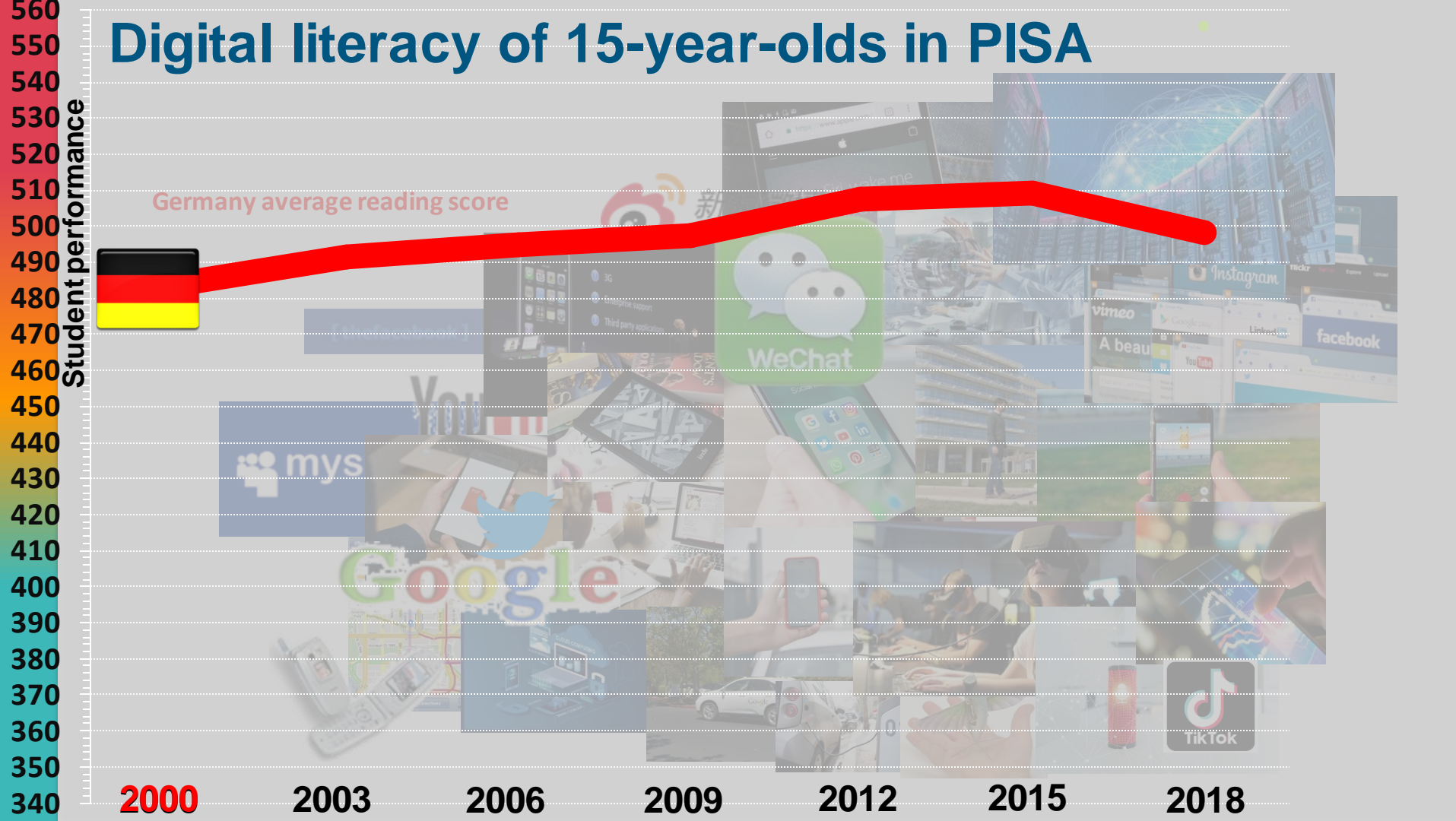
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Directorate for Education and Skills

5 July 2023

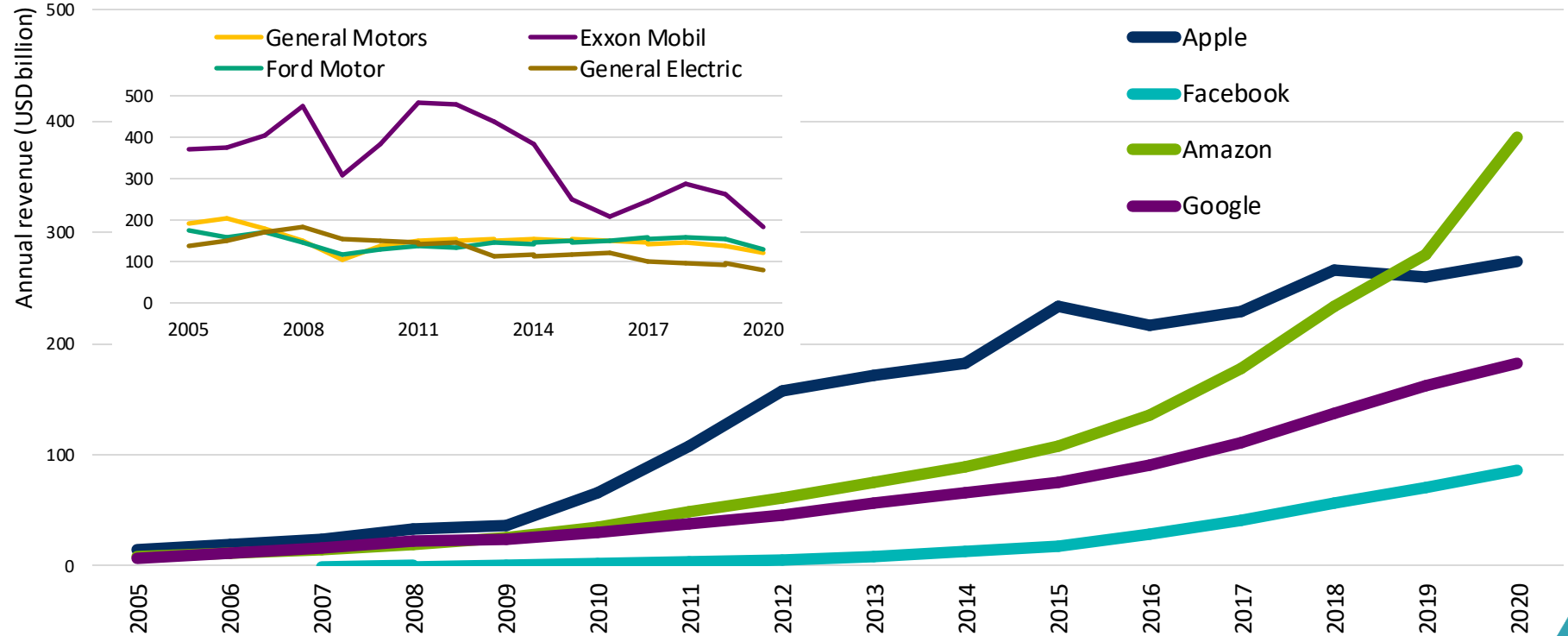
# Digital literacy of 15-year-olds in PISA





# The rise of Big Tech

Annual revenue of top four companies from the Fortune 500 in 1960 vs “Big Four” tech companies, 2005-2020 Figure 1.4

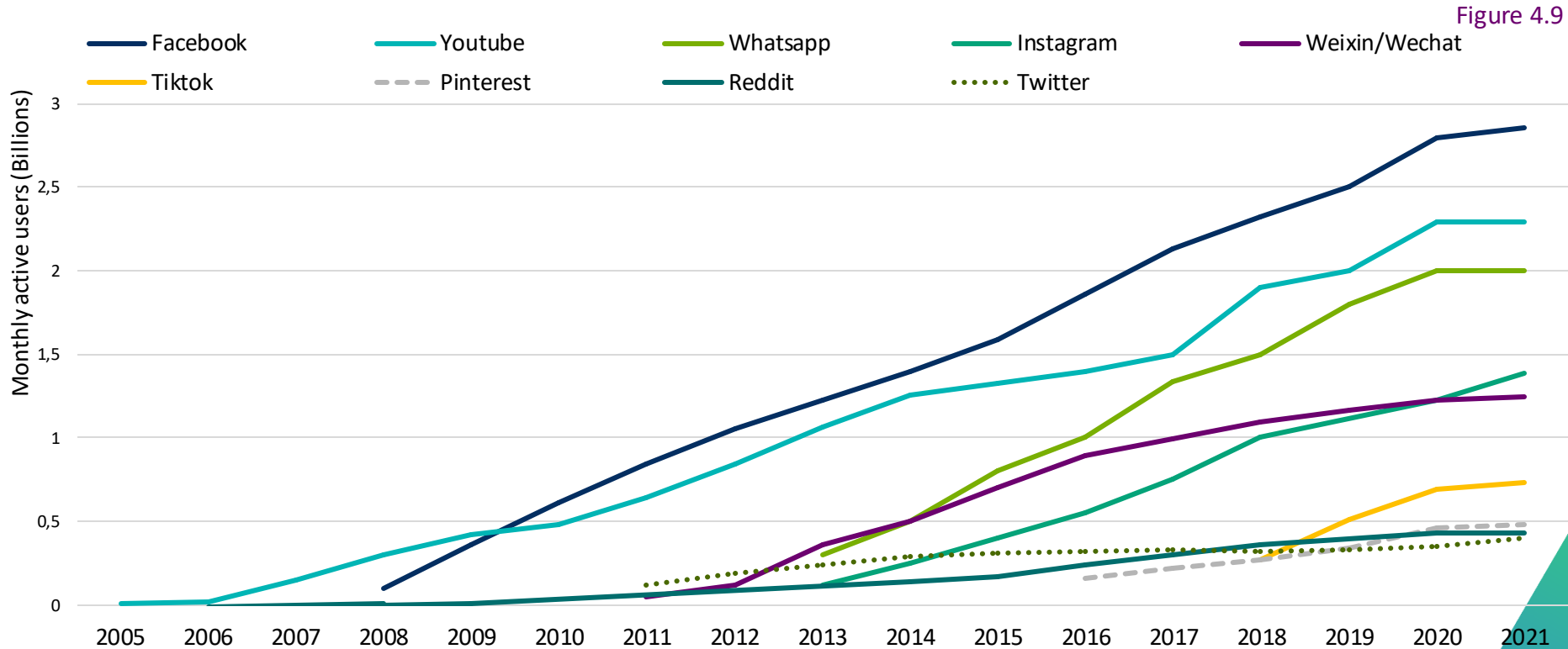


Source: OECD(2019), *An Introduction to Online Platforms and Their Role in the Digital Transformation*, <https://doi.org/10.1787/53e5f593-en>; 'companies' annual reports; and <https://macrotrends.net>



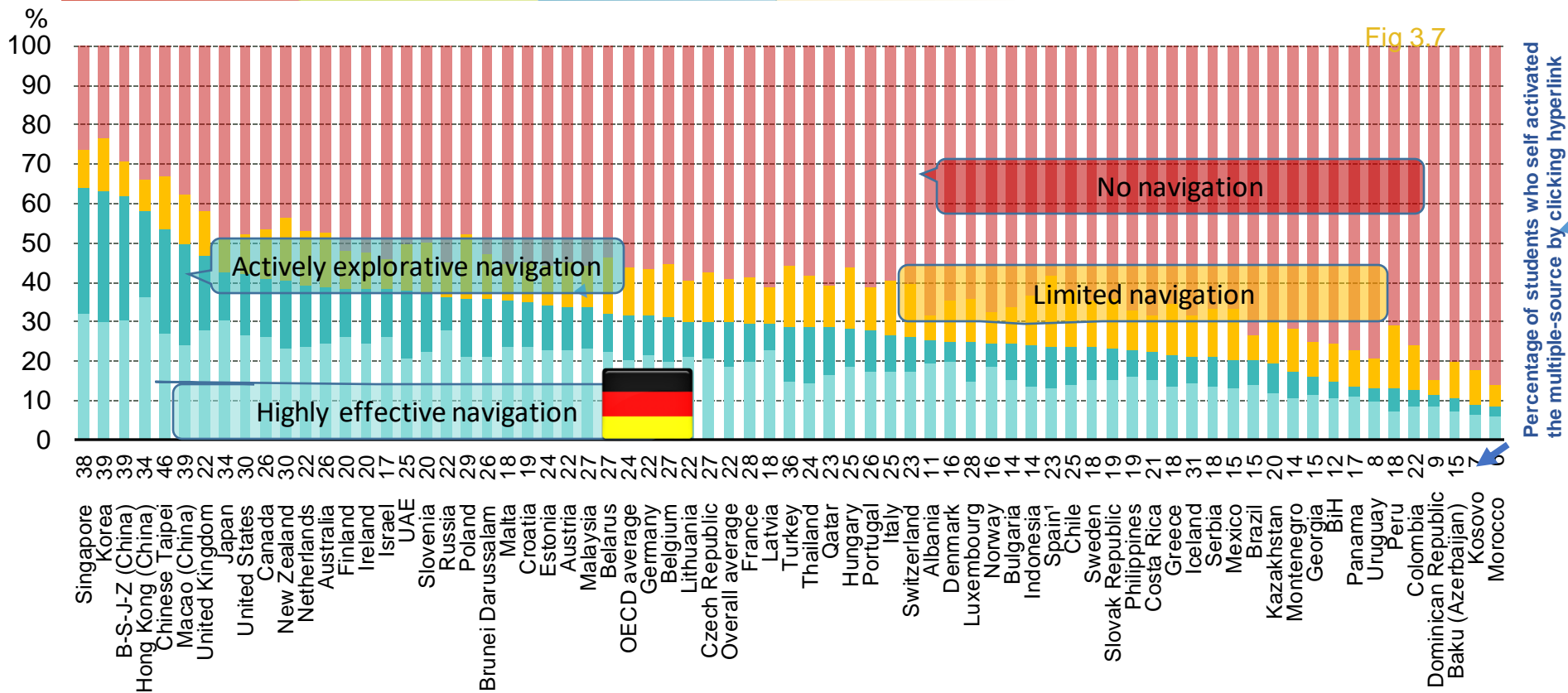
# I post, therefore I am

Number of monthly active users on social media platforms, 2004-2021



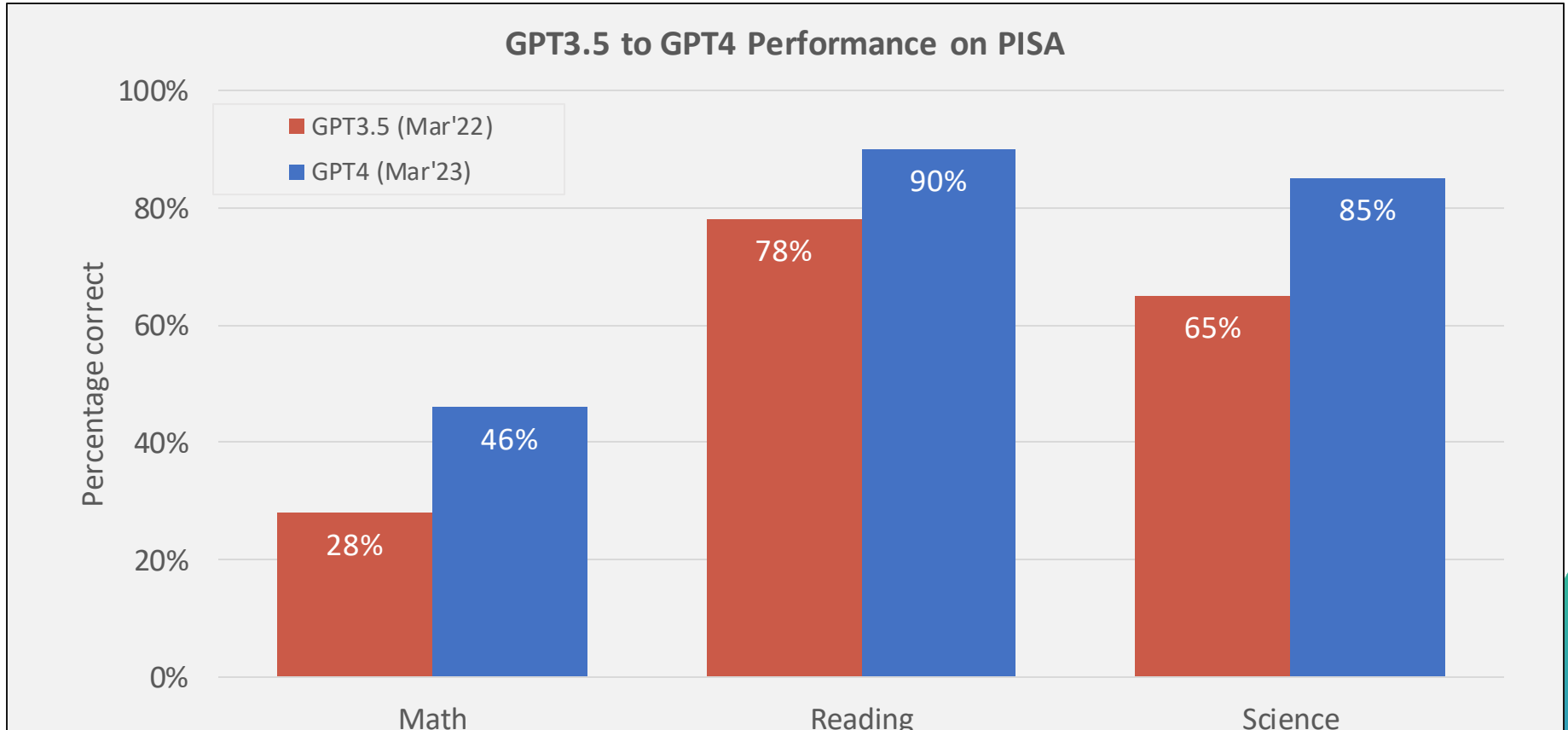
Source: OECD calculations from companies' annual reports; Ortiz-Espina (18 September 2019), <https://ourworldindata.org/>; Iqbal (13 May 2021), <https://www.businessofapps.com/>; Sherman (24 August 2020), <https://www.cnbc.com/>; Statista (2021), <https://www.statista.com/>.

# Digital navigation skills (PISA 2018)





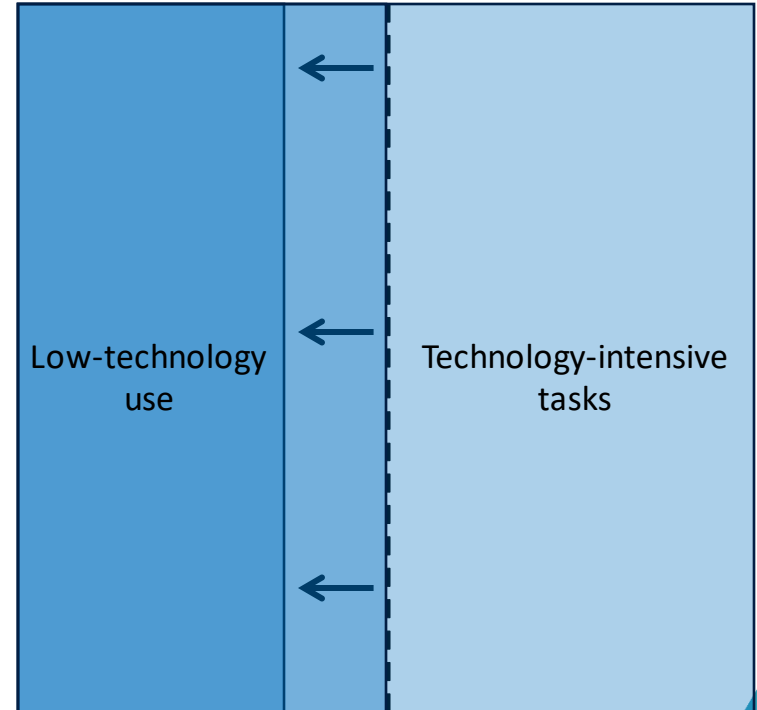
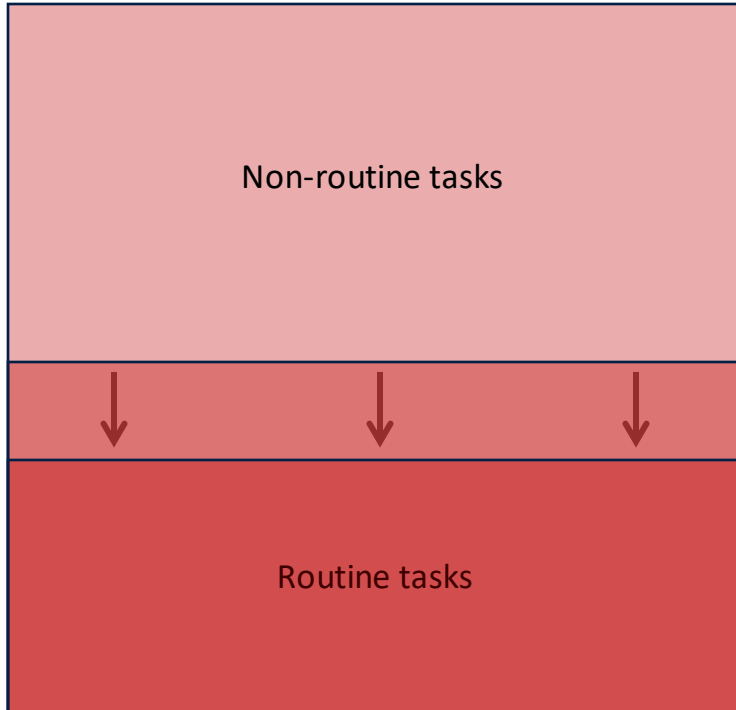
# GPT Performance on PISA student assessments





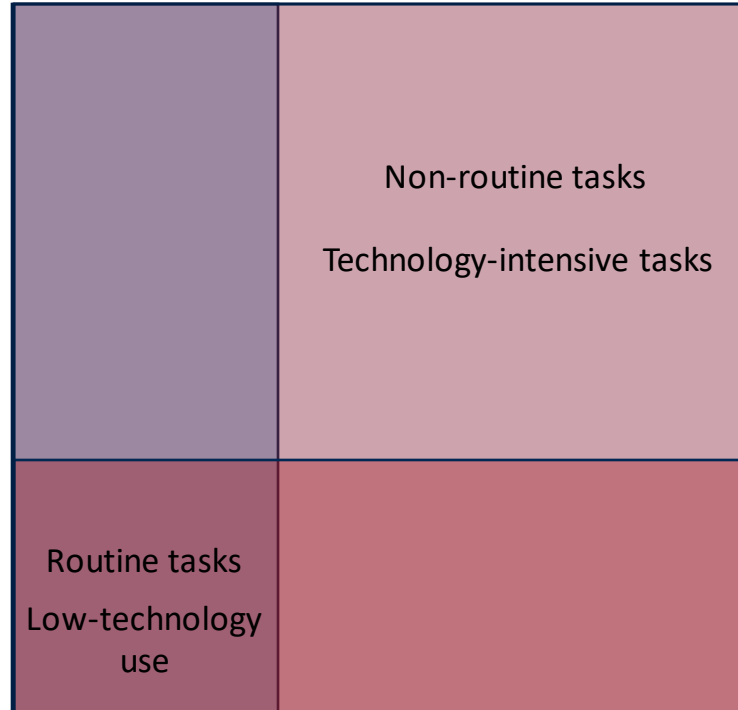
# The kinds of things that are easy to teach...

... have now become easy to digitise and automate





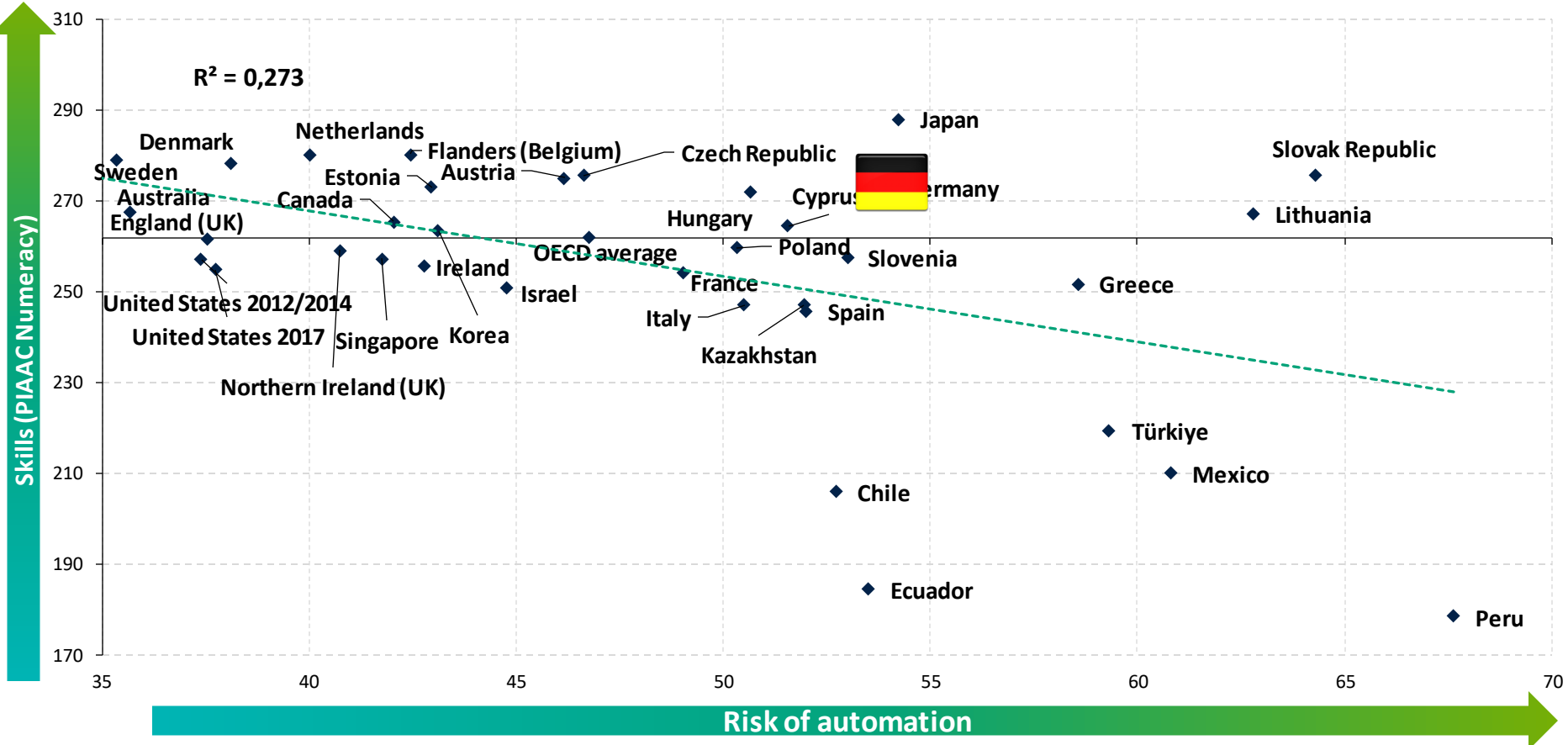
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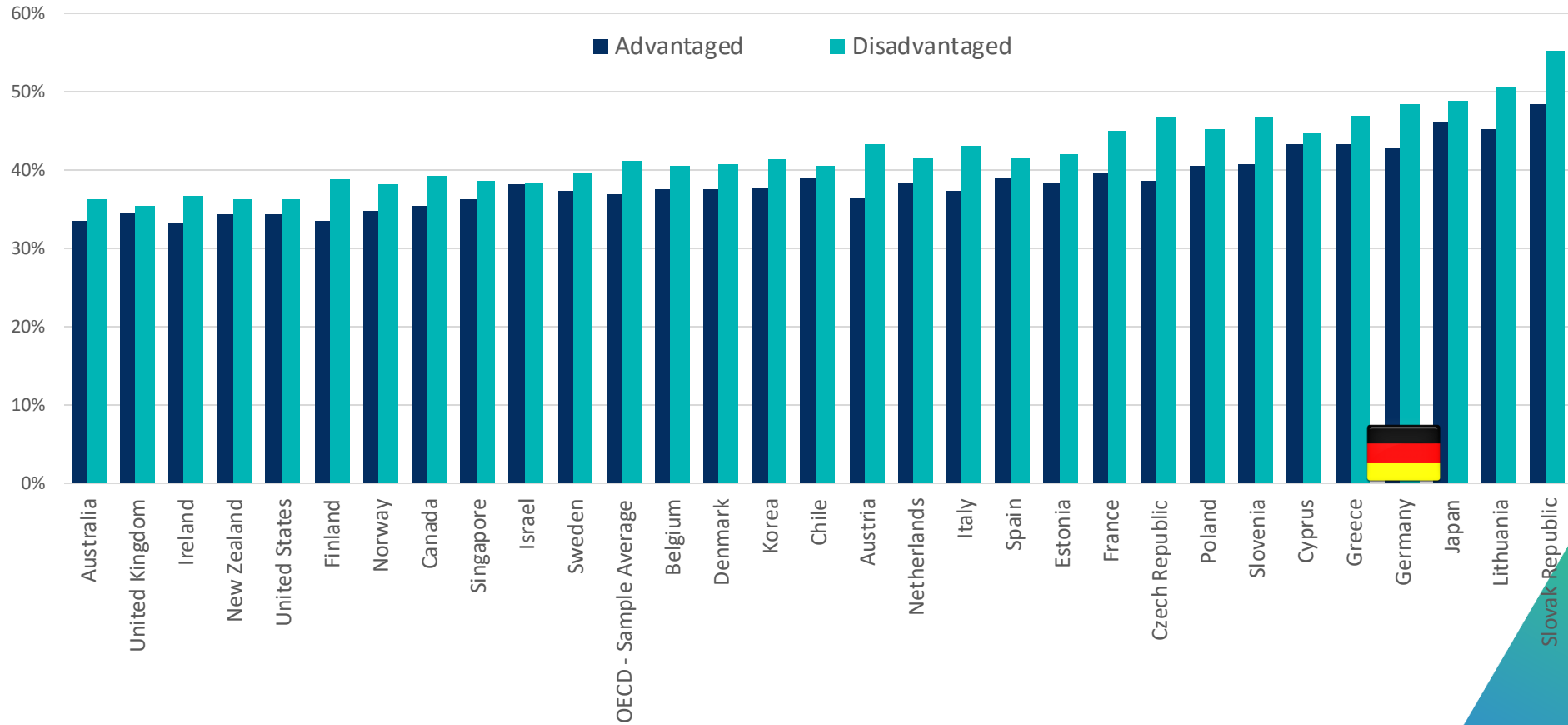


# Skills and the risk of automation





# Many teenagers aspire to jobs that are at high risk of automation (PISA)

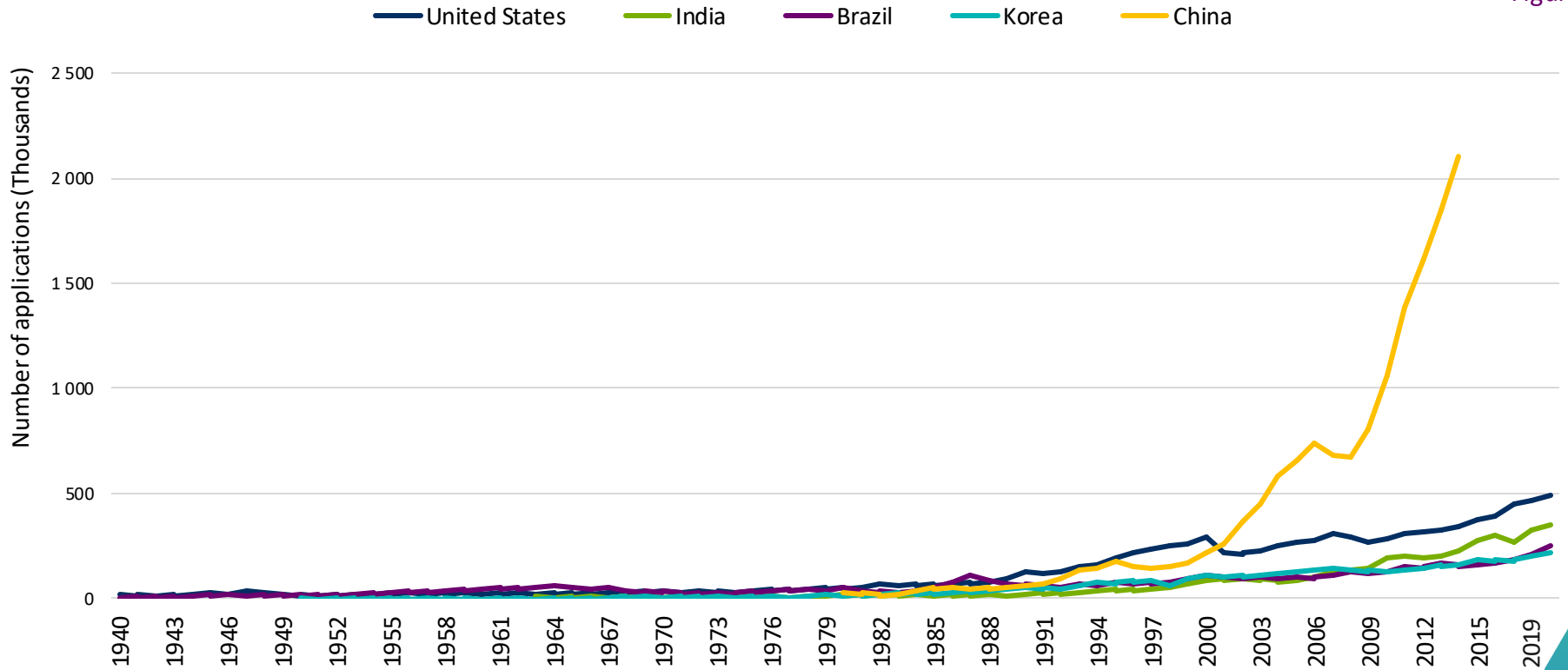




# Intangible innovation

Trademark applications for the top five offices, 1940-2019

Figure 1.3

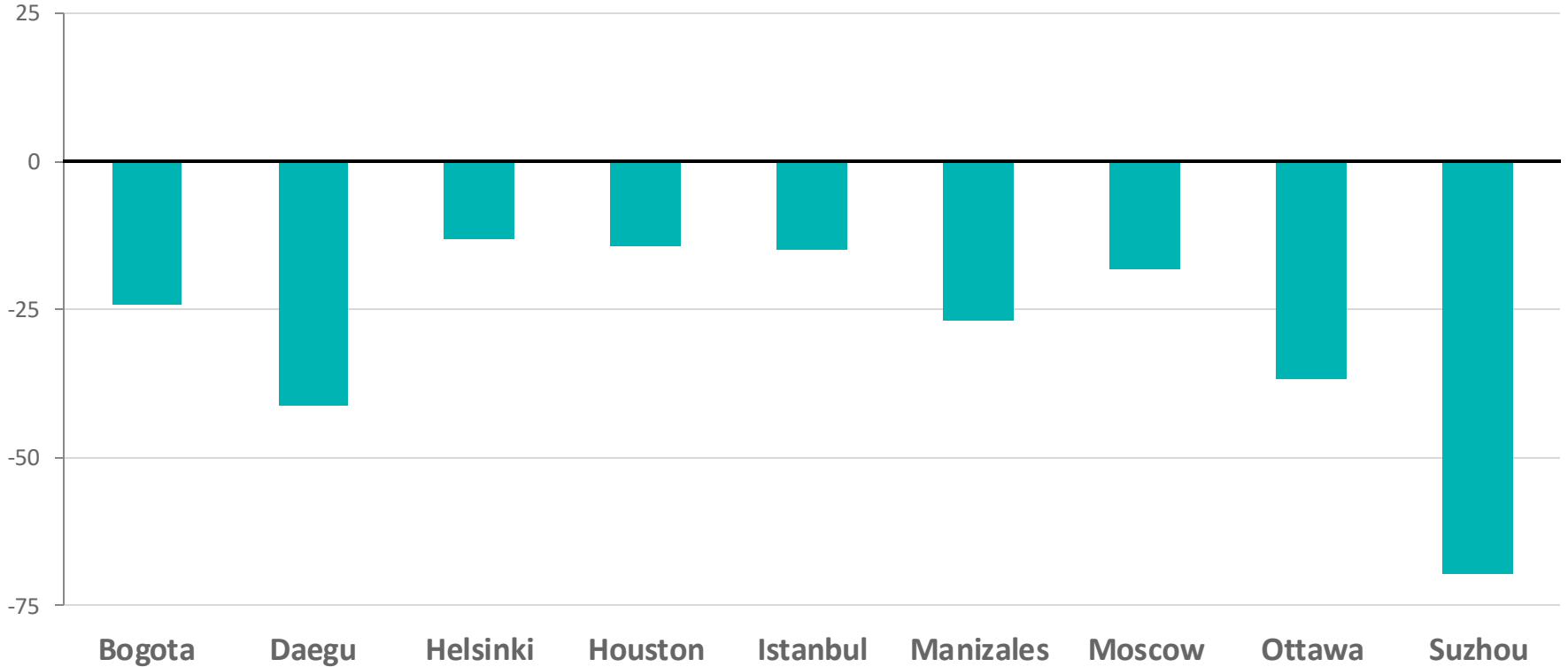




# 15-year-olds report lower creativity than 10-year-olds

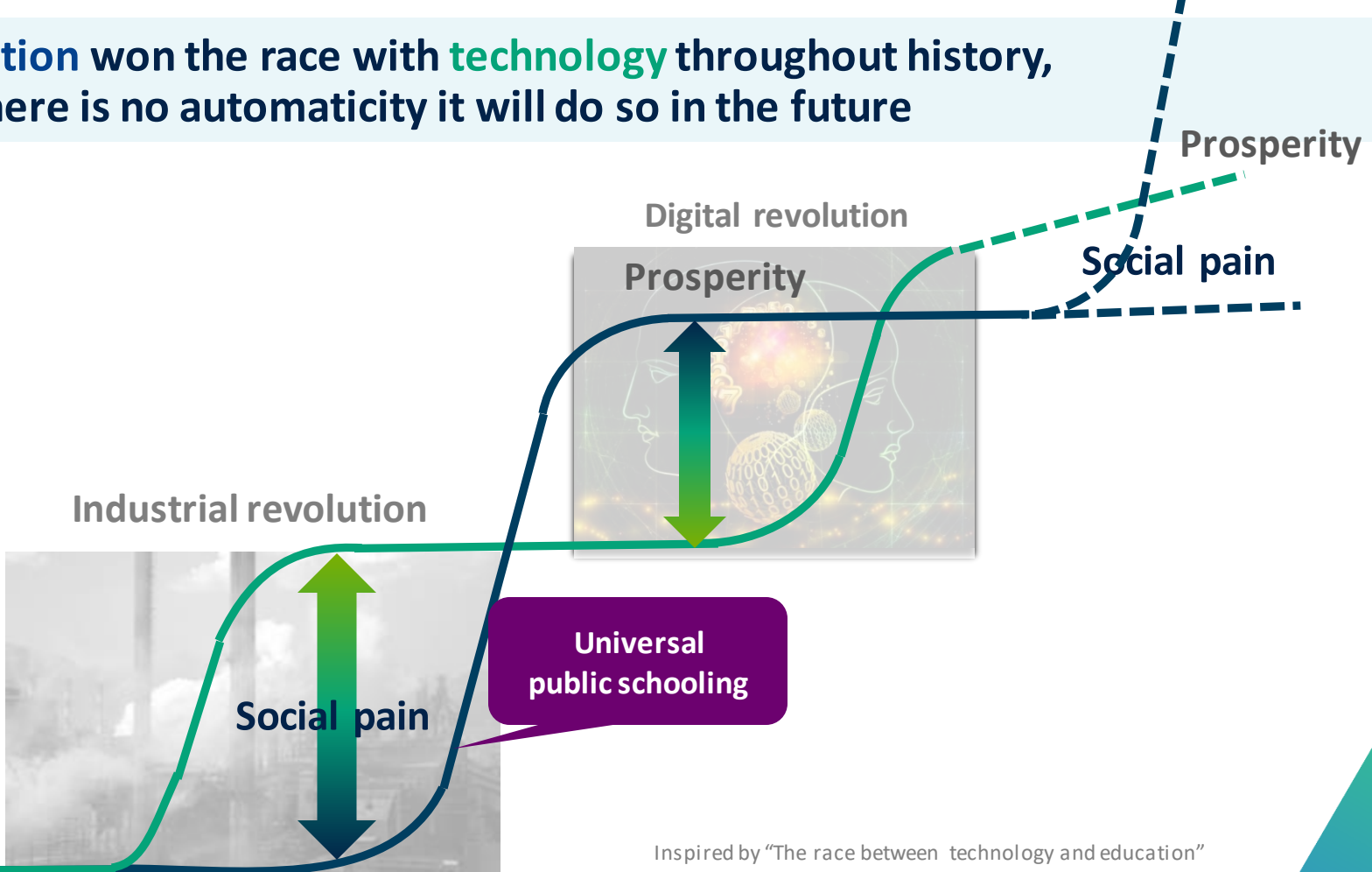
Age gaps in creativity  
mean scale difference  
(students and parents)

Figure 4.3  
mean scale difference  
(teachers)



Education won the race with **technology** throughout history, but there is no automaticity it will do so in the future

Technology  
Education



Digital revolution

Prosperity

Prosperity

Social pain

Industrial revolution

Social pain

Universal  
public schooling

Inspired by "The race between technology and education"  
Pr. Goldin & Katz (Harvard)

# Using technology to personalise learning



# Classroom analytics: make visible what's invisible

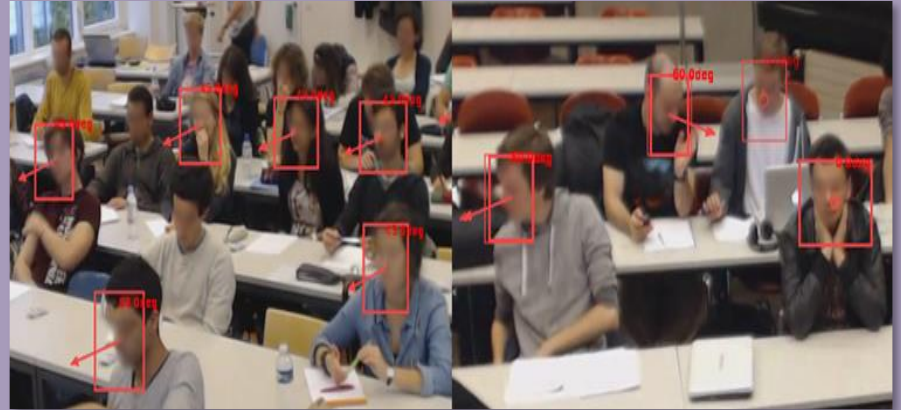


# Classrooms as digital systems



Source: Raca, Kidzinski and Dillenbourg, 2015

Input  
(sensors)



Output  
(dashboard)

A. Regulating teachers' attention using Lantern devices



Source: (Alavi and Dillenbourg, 2012)<sup>[22]</sup>





# Robo-tutors



A student completes a language lesson with the help of a robotic tutor



Source: Vogt et al., 2019

# Students teaching robots?



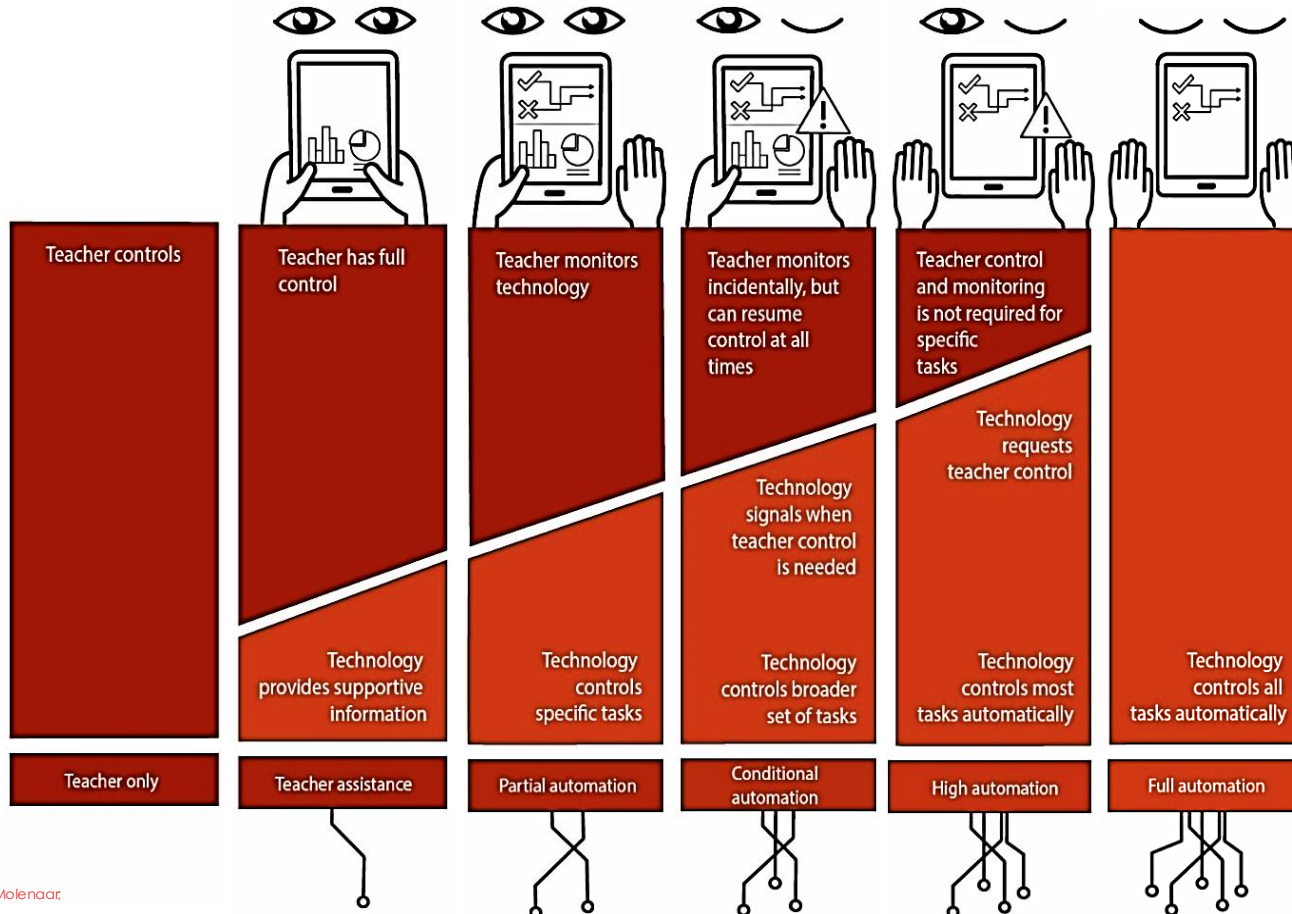
# Games can elicit evidence of how people reason and solve problems



VS



# Finding a balance that puts humans at the centre





The future of education and skills

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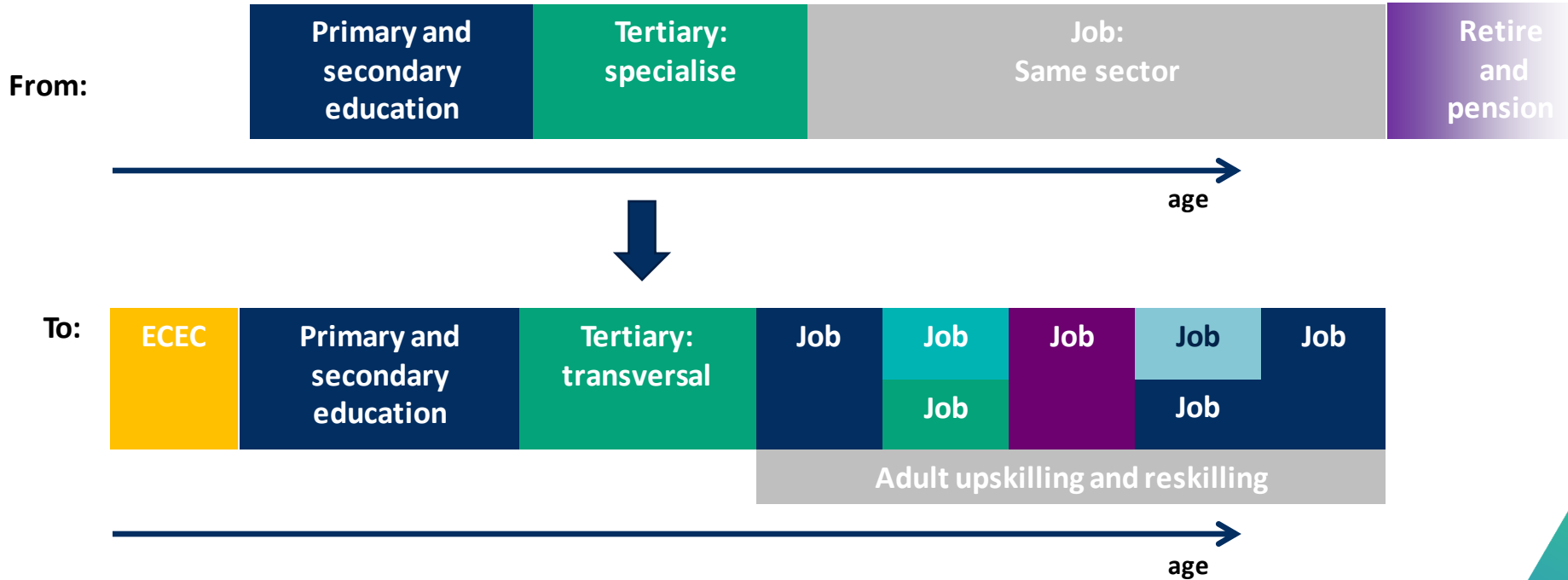
We used to learn to do the work,  
now learning is the work







# We used to learn to do the work, now learning is the work

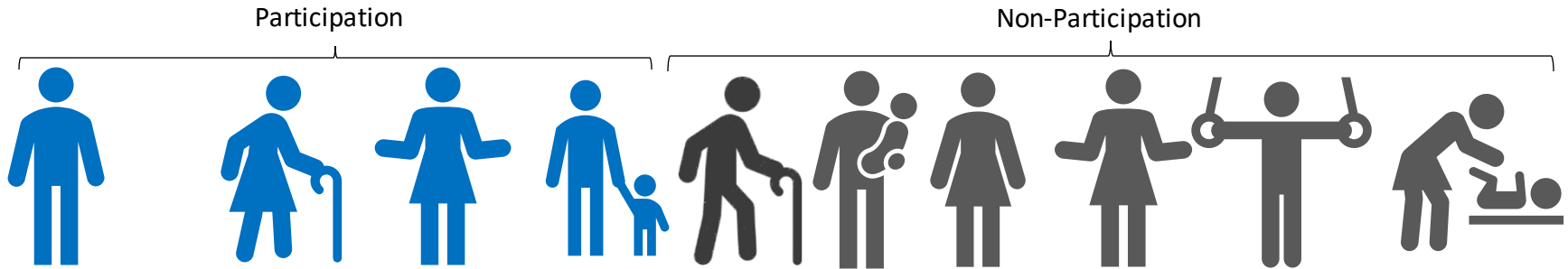




## Too few adults participate in adult learning

%

On average across OECD countries,  
6 in 10 adults did not participate in any form of Adult Learning in the  
12 months before being interviewed

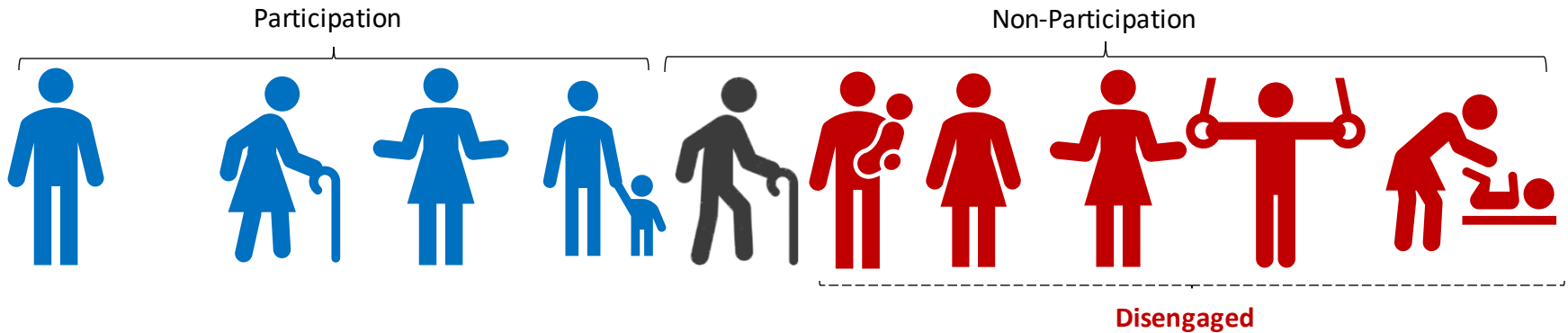




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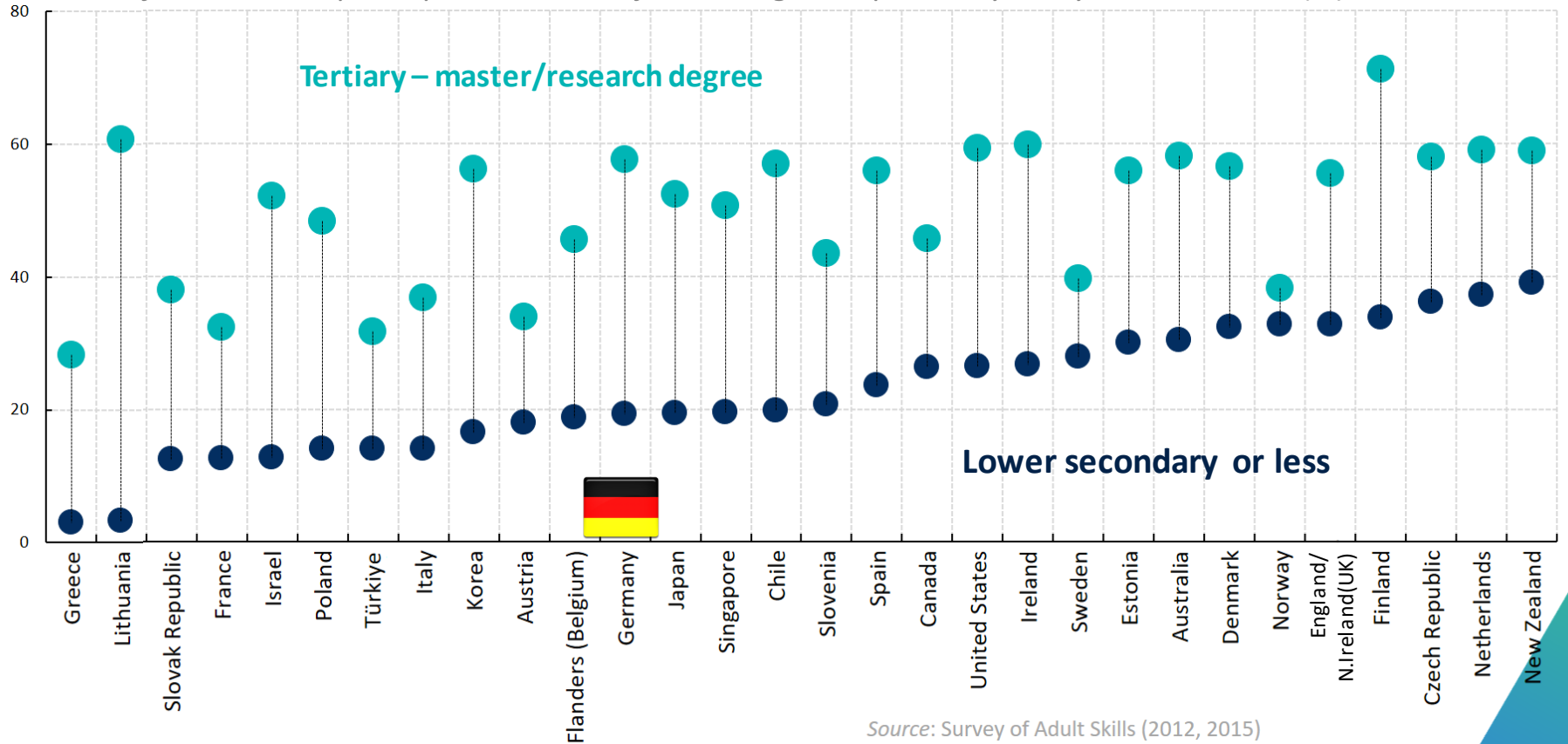
... and most of non-participants are disengaged: i.e. they  
report not being interested in participating more





# Those who need lifelong learning most participate the least

Share of workers who participated in on-the-job training in the previous year by education level (%)



Source: Survey of Adult Skills (2012, 2015)



# Implications for education and training

Increased demand for skills means education systems have to respond

Education and training systems need to deliver:

- Higher skills levels for more people in **initial education and training**
- Opportunities to **upskill and reskill** throughout life



Front-loaded learning to lifelong learning



Multiple pathways



Combining work & study

Responding to priority skills needs (as well as core competencies)



Motivating & incentivising individuals



## Firms as learning environments

- How is the additional **funding** shared between Governments, employers and beneficiaries?
- What are the **incentives**?
- Who sets the standards?
- How are the levels of skills recognised?
- Who trains the trainers?



## People outside firms

- **Unemployed**: Government. Funding for unemployment benefits, used for training?
- **People at high risk of losing their jobs**: firms or Government?
- People who want to **change jobs**
- Gig economy



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and remember:

**Without data, you are just another person with an opinion**

