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GOING DIGITAL: IMPLICATIONS OF THE COVID-19 CRISIS ON DIGITAL TRANSFORMATION

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Outline



1. Going Digital – some context
2. Digital transformation and the COVID-19 crisis
3. Policy implications

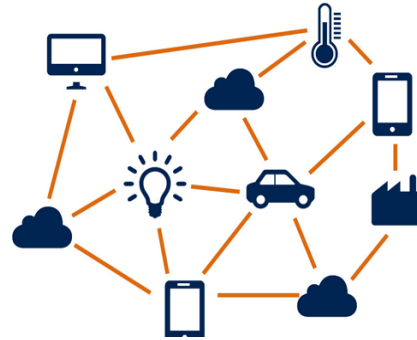


1. GOING DIGITAL – SOME CONTEXT

A wide range of new digital technologies has been emerging ...



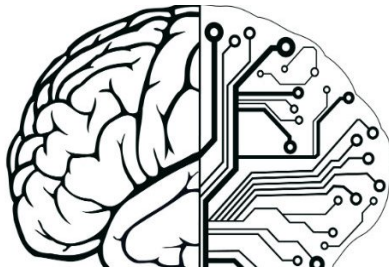
Cloud computing



Internet of Things



Big data



**Artificial
intelligence**



3D printing



Blockchain

.. that challenge policies, e.g. due to the **changing nature** of value creation ...



Intangible
assets



Servicification



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

OECD Going Digital Project

- Improve understanding of the digital transformation and its impacts on economy & society;
- Provide policymakers with tools that can help develop a forward-looking, whole-of-government policy response;
- Explore ways of improving policy making itself and addressing the gap between technological change and policy development.
- Involved 14 of the OECD's Policy Committees and 10 Directorates.

The need for a joined-up approach

- The digital transformation affects **every part** of economy and society
- It provides new **opportunities** for productivity 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, competition and skills
- Only an **integrated, whole-of-government approach** can maximize the opportunities and mitigate the challenges.

An Integrated Policy Framework



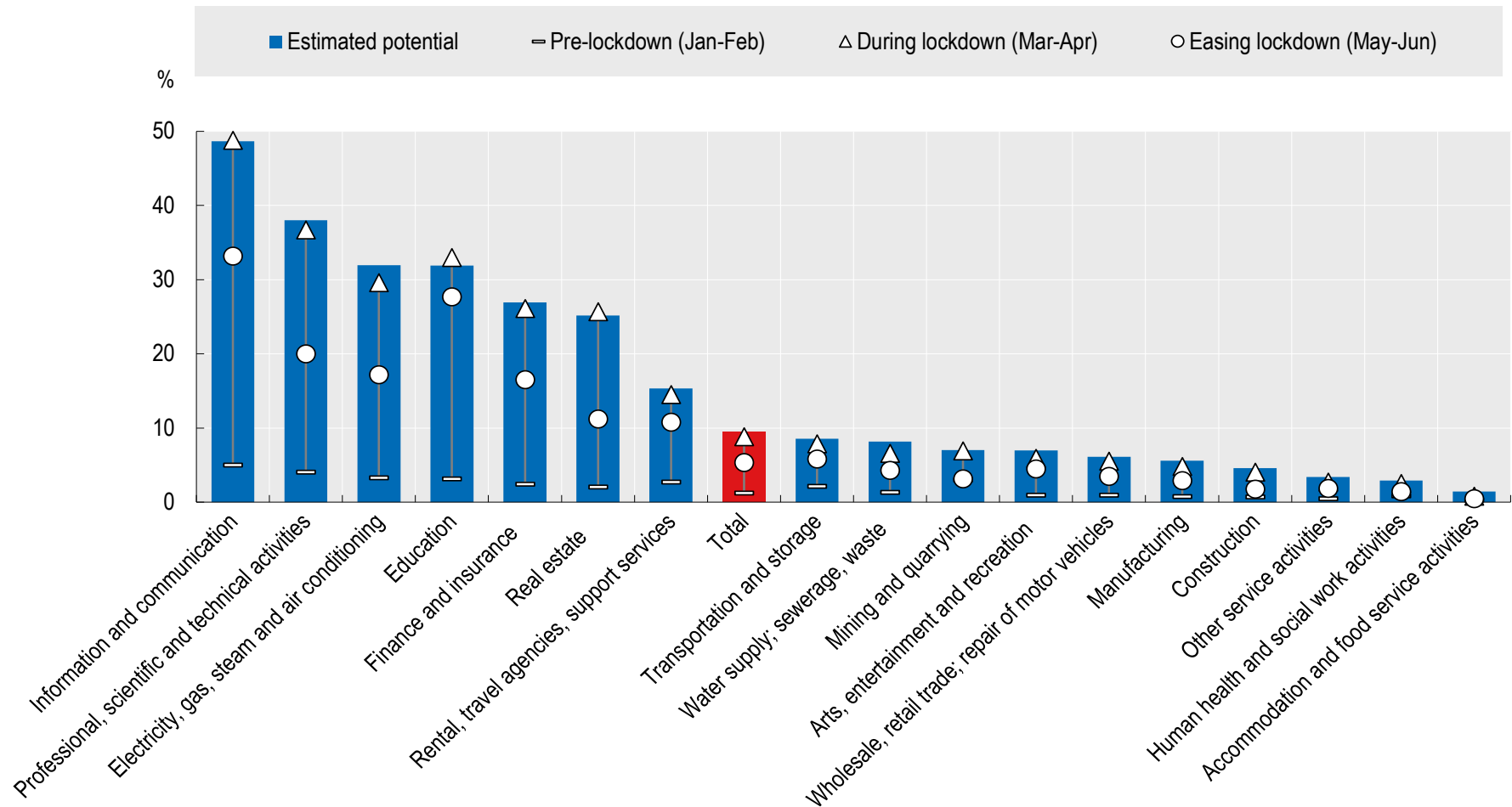


2. DIGITAL TRANSFORMATION AND THE COVID-19 CRISIS

COVID-19 has accelerated the digital transformation ...

Teleworking before and during the COVID-19 crisis in Italy, by industry, 2020

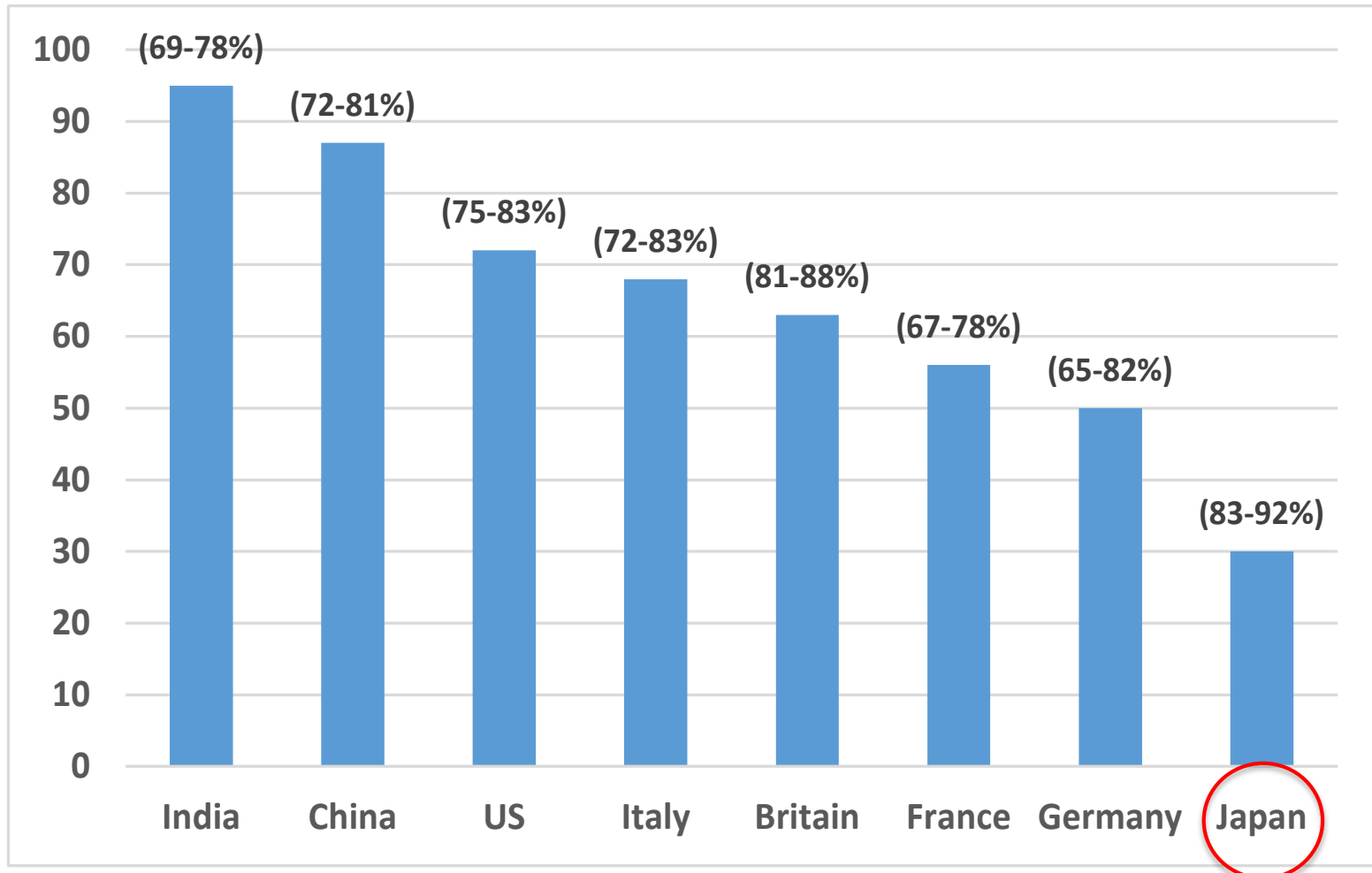
Estimated teleworking potential and teleworking shares as a percentage of employees in each industry





... and part of this acceleration is like to be permanent

Customers who have tried new shopping behaviours since COVID-19 (% responding)
[and % that intend to continue new behaviour]



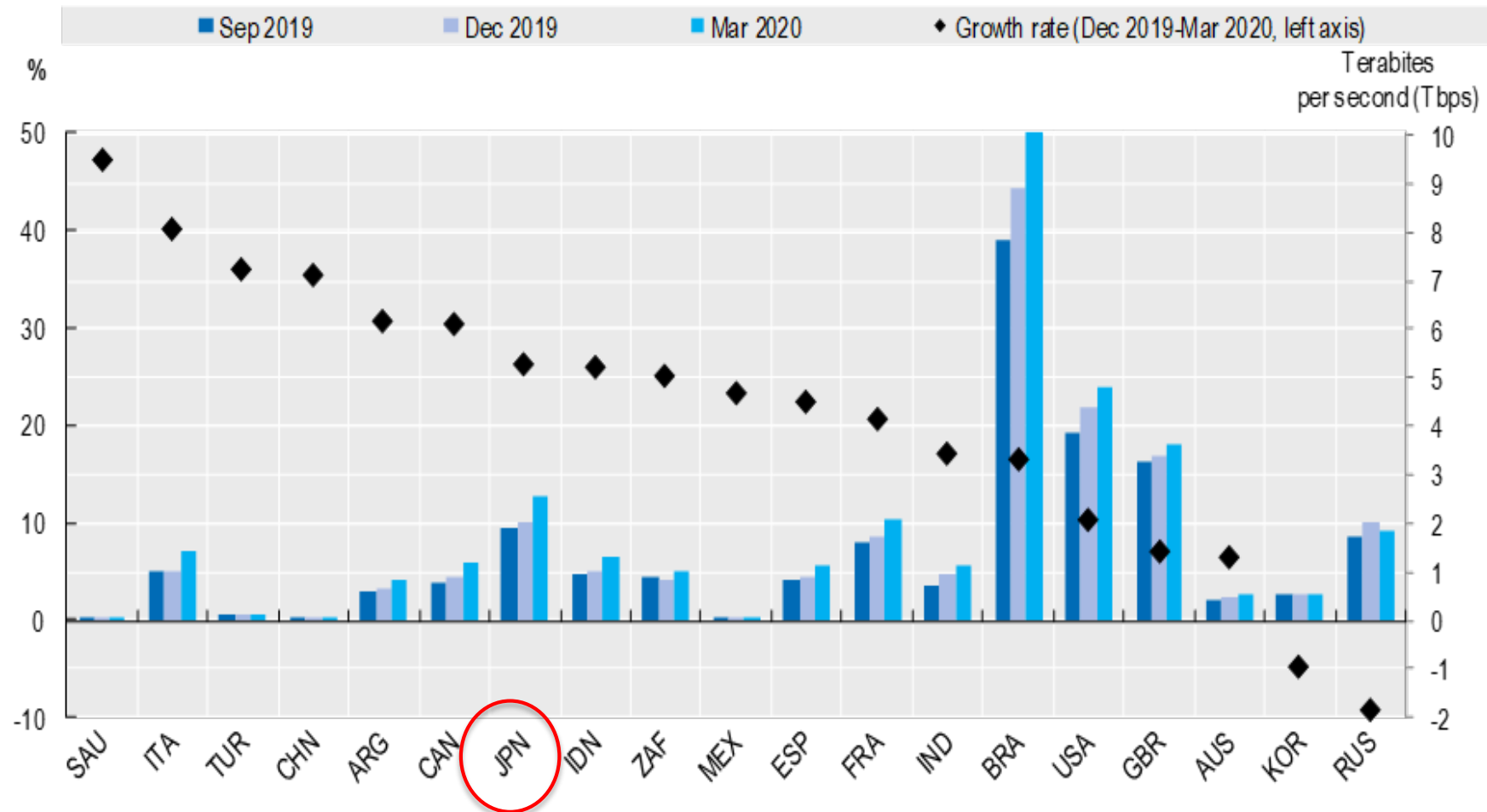
Source: McKinsey and Company

<https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/a-global-view-of-how-consumer-behavior-is-changing-amid-covid-19>



Networks coped with unprecedented demand

Bandwidth produced at Internet exchange points, 2020



Source: OECD (2020), *A Roadmap toward a Common Framework for Measuring the Digital Economy*, OECD, Paris,
<http://www.oecd.org/sti/roadmap-toward-a-common-framework-for-measuring-the-digital-economy.pdf>

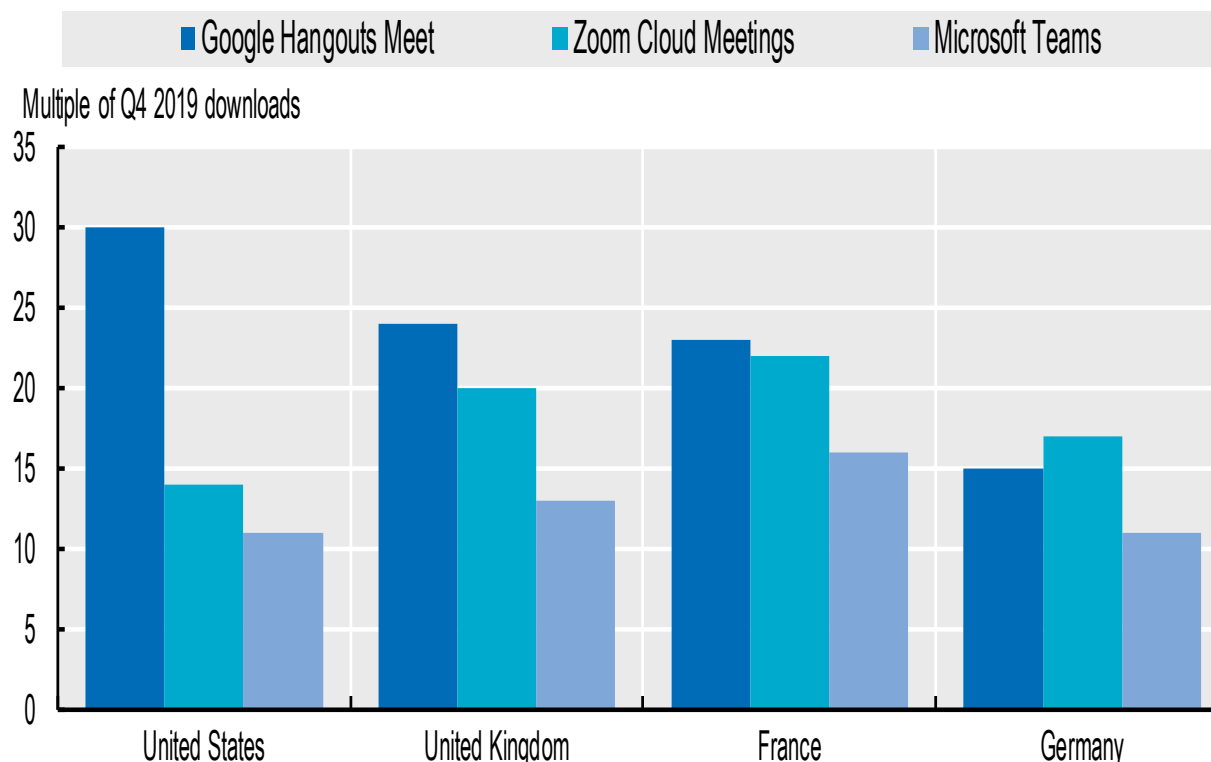
Governments supported a shift to digital business models

- G20 survey highlighted policies to support:

- ✓ Connectivity
- ✓ Online business models
- ✓ Access to digital services
- ✓ Remote working
- ✓ Upskilling
- ✓ Electronic payments
- ✓ Digital security

OECD (2020), www.oecd.org/sti/policy-options-to-support-digitalization-of-business-models-during-covid-19-annex.pdf

Growth in downloads of selected video conferencing apps, 2019-20
15-21 March 2020 compared to Q4 2019 weekly average



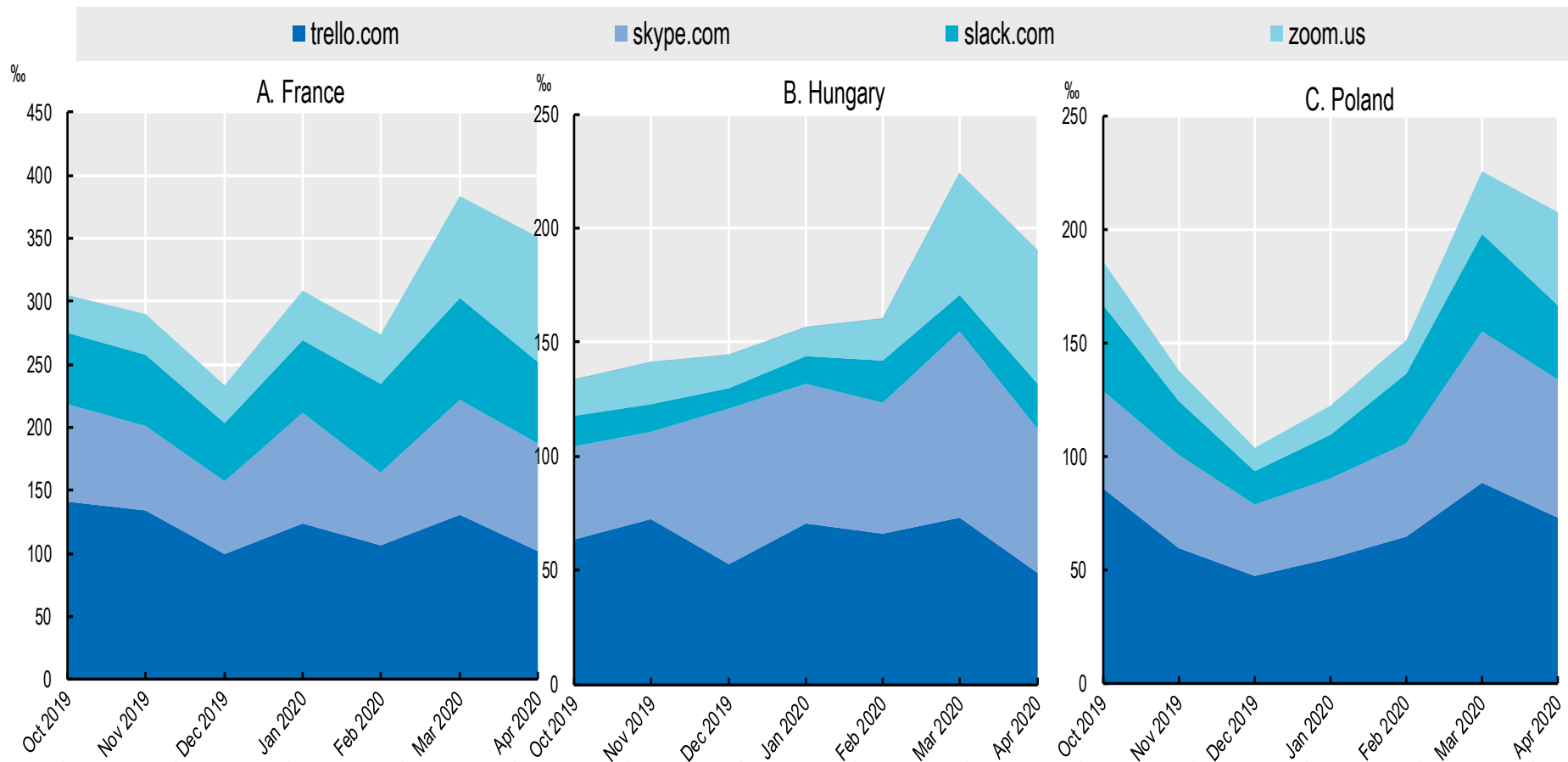
Source: OECD, *Digital Economy Outlook 2020*, OECD publishing, Paris,
<https://doi.org/10.1787/888934192794>.



COVID-19 has fostered the use of digital tools ...

Monthly traffic on remote working platforms during COVID-19, October 2019 – April 2020

Users per thousand employed



Source: OECD, Digital Economy Outlook 2020, OECD publishing, Paris, <https://doi.org/10.1787/888934192813>

... and increased the role of e-commerce

Figure 1.a. Share of e-commerce in total retail sales, United Kingdom and United States (2018-2020)

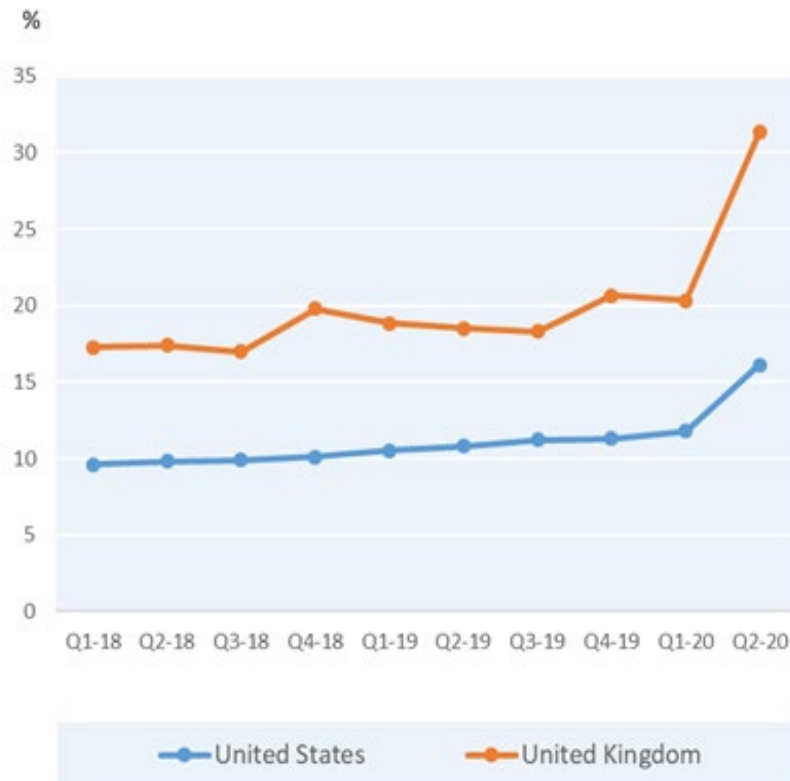


Figure 1.b. Retail turnover, year-on-year change, EU-27 (July 2019-20)



Source: OECD, E-commerce in the time of COVID-19, <http://www.oecd.org/coronavirus/policy-responses/e-commerce-in-the-time-of-covid-19-3a2b78e8/>.

Artificial intelligence is being harnessed to tackle the virus ...

AI and COVID-19 A crisis management framework

Detection

Early warning

Detecting anomalies and digital "smoke signals"
eg. BlueDot

Diagnosis

Pattern recognition using medical imagery and symptom data
eg. CT scans

Prevention

Prediction

Calculating a person's probability of infection
eg. EpiRisk

Surveillance

Monitor and track contagion in real time
eg. contact tracing

Information

Personalised news and content moderation to fight misinformation
eg. via social networks

Response

Delivery

Drones for transporting materials; robots for high exposure tasks at hospitals
eg. CRUZR robot

Service automation

Deploying triaging virtual assistants and chatbots
eg. Canada's COVID-19 chatbot

Recovery

Monitor

Track economic recovery through satellite, GPS and social media
eg. WeBank

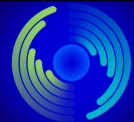
Accelerating Research

Open data projects and distributed computing to find AI-driven solutions to the pandemic, e.g. drug and vaccine development



TACKLING CORONAVIRUS (COVID-19):
CONTRIBUTING TO A GLOBAL EFFORT

oecd.org/coronavirus



Using artificial intelligence to help
combat COVID-19





3. POLICY IMPLICATIONS

The digital transformation: accelerating the journey ...

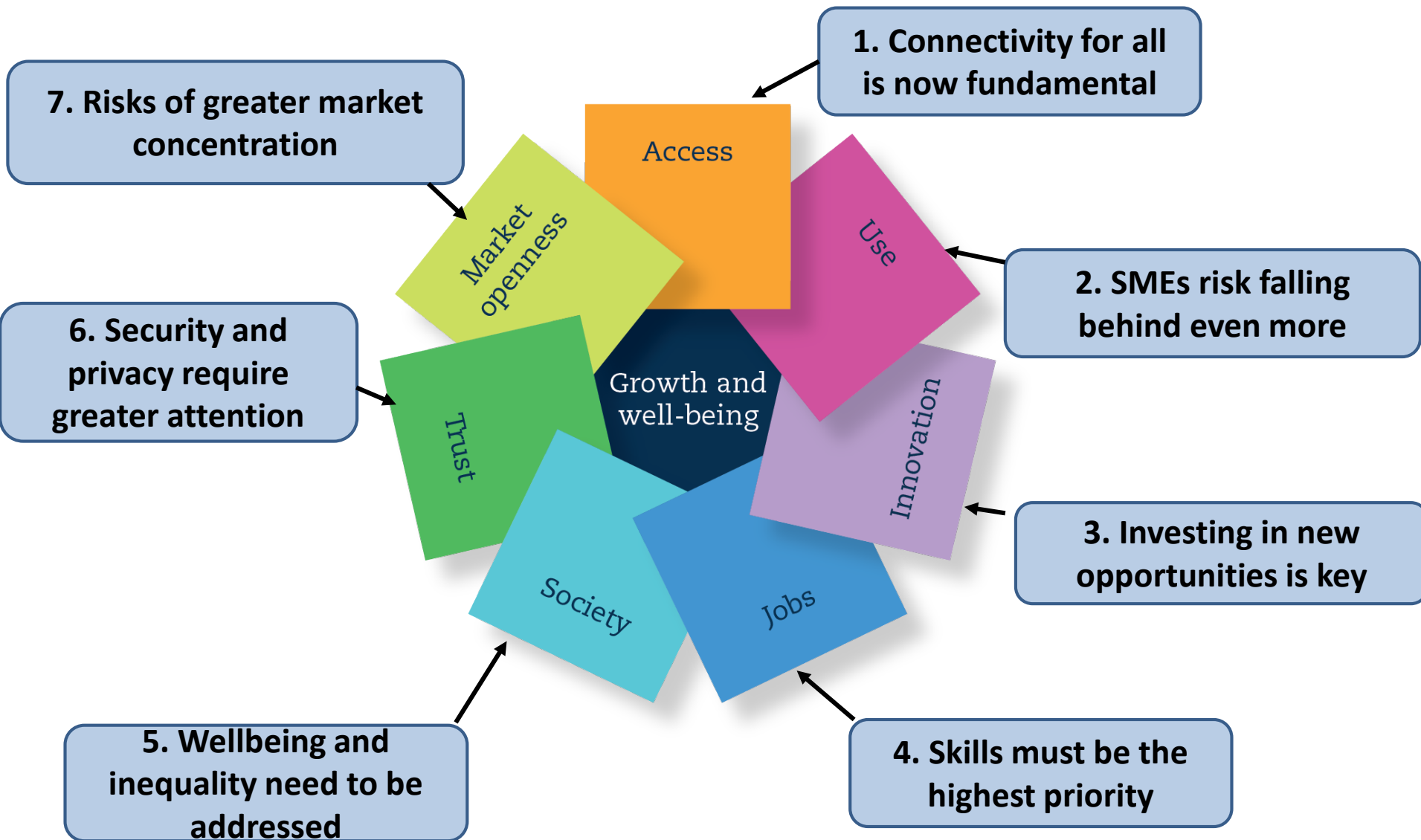


We are still at the beginning of the
journey toward digital
transformation...

the pace is accelerating rapidly,
impacting the economies and
societies differently...

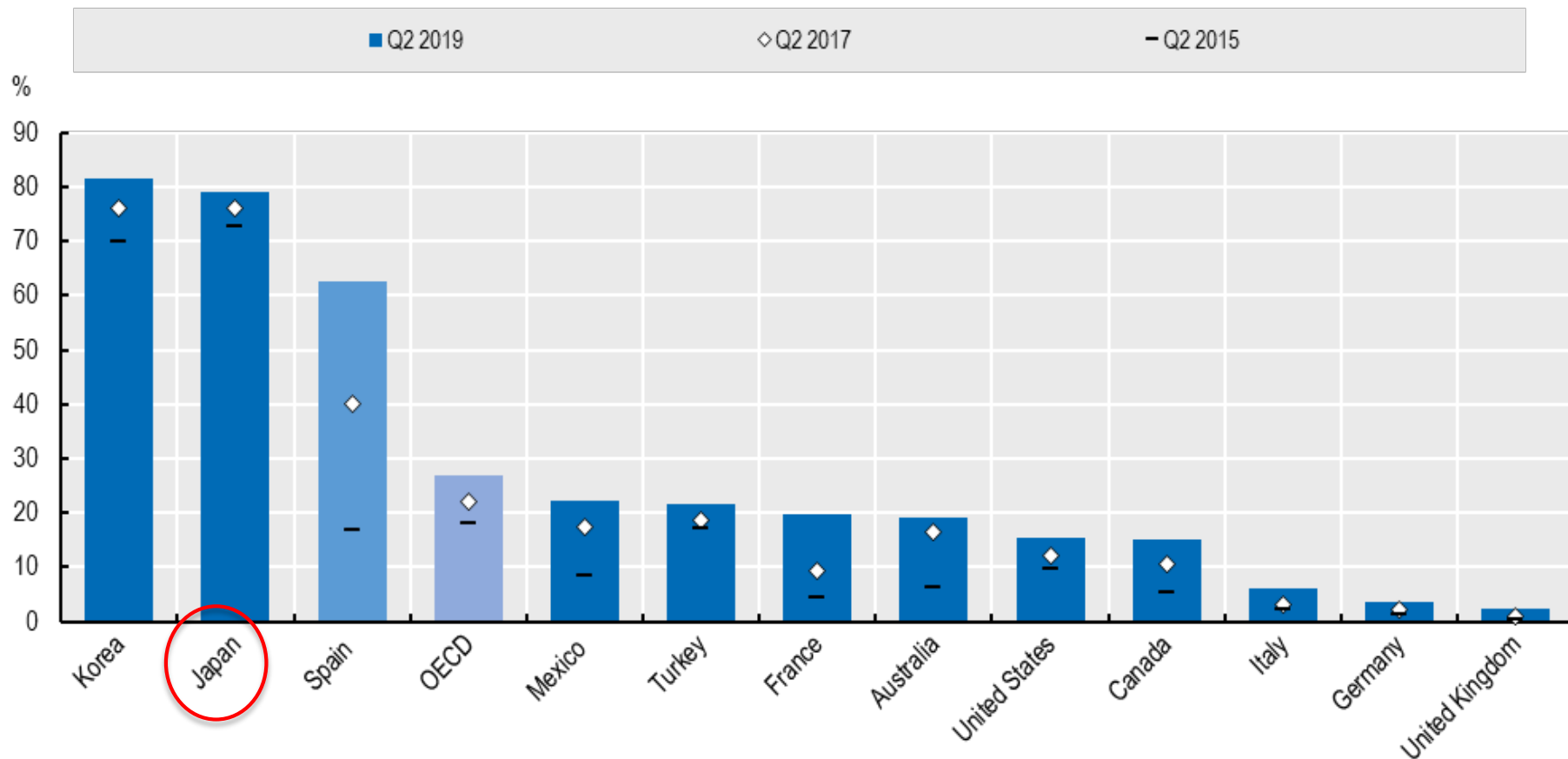
... policy action is needed

... while addressing the new challenges



1. Connectivity: digital divides may hamper a resilient recovery ...

Fibre broadband connections, June 2019 As a percentage of total fixed broadband subscriptions

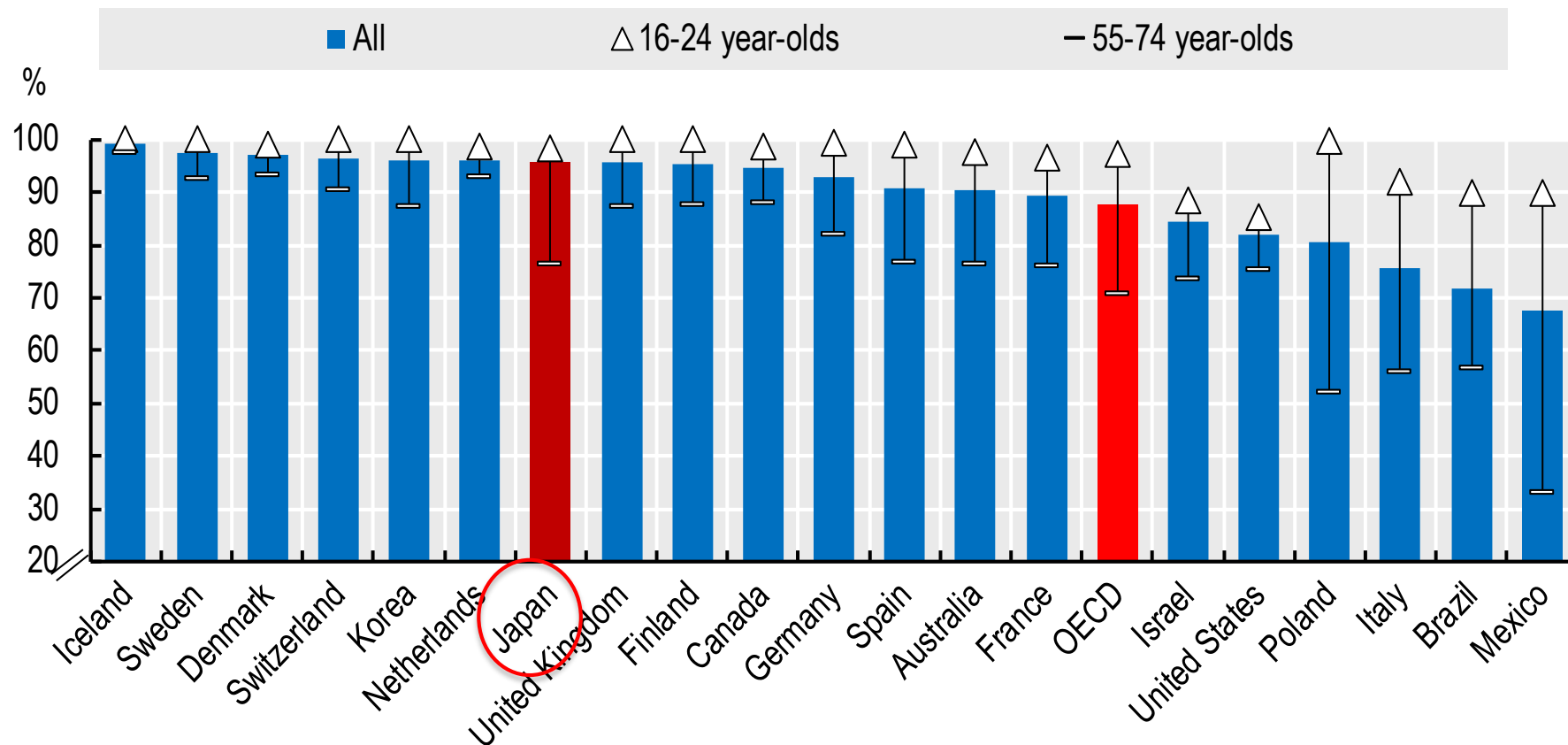


Source: OECD, Digital Economy Outlook 2020, OECD publishing, Paris, <https://doi.org/10.1787/888934191331>.

... e.g. for certain social groups, like the elderly

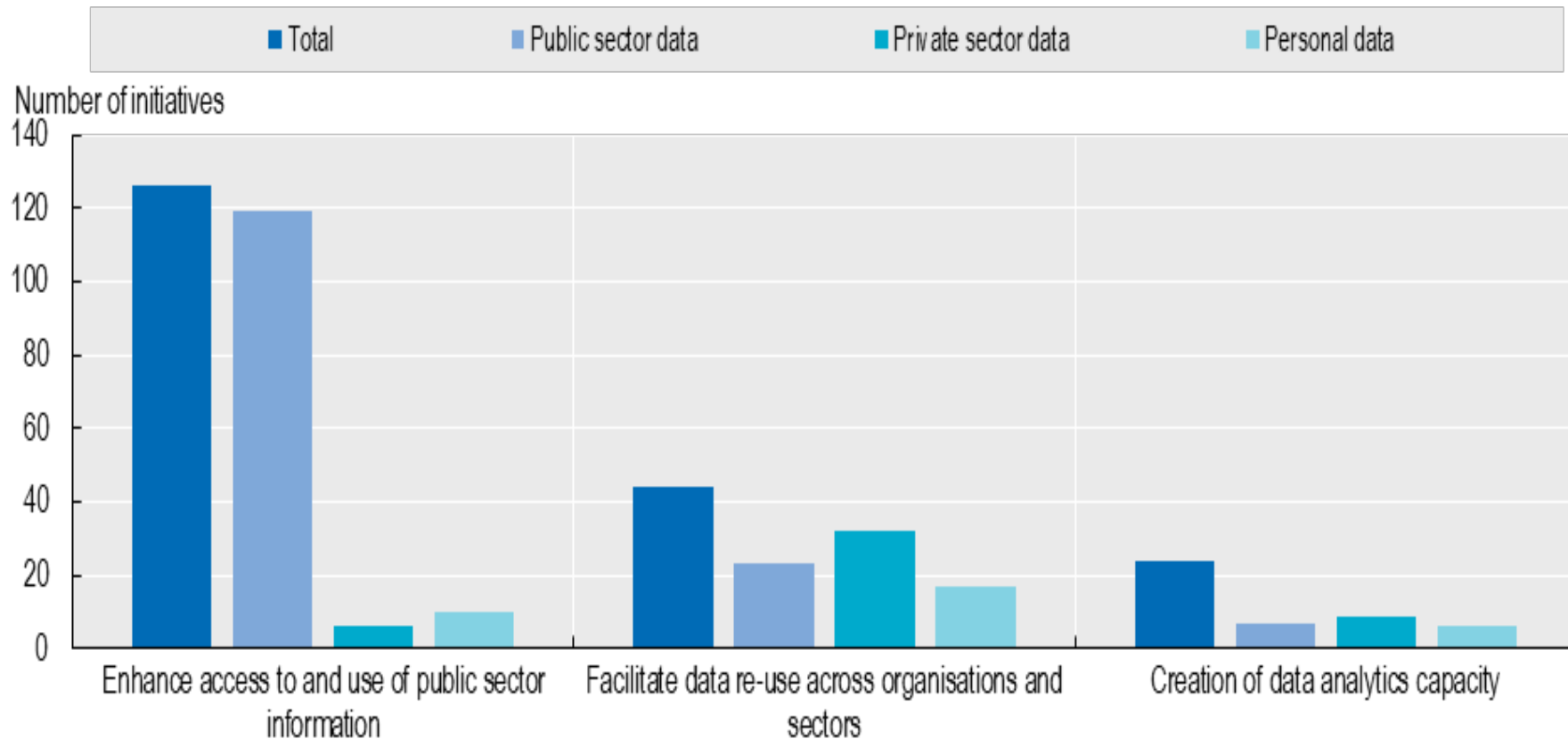
Internet users by age, 2019

As a percentage of the population in each age group



1. Connectivity: Access and sharing of data needs to be improved

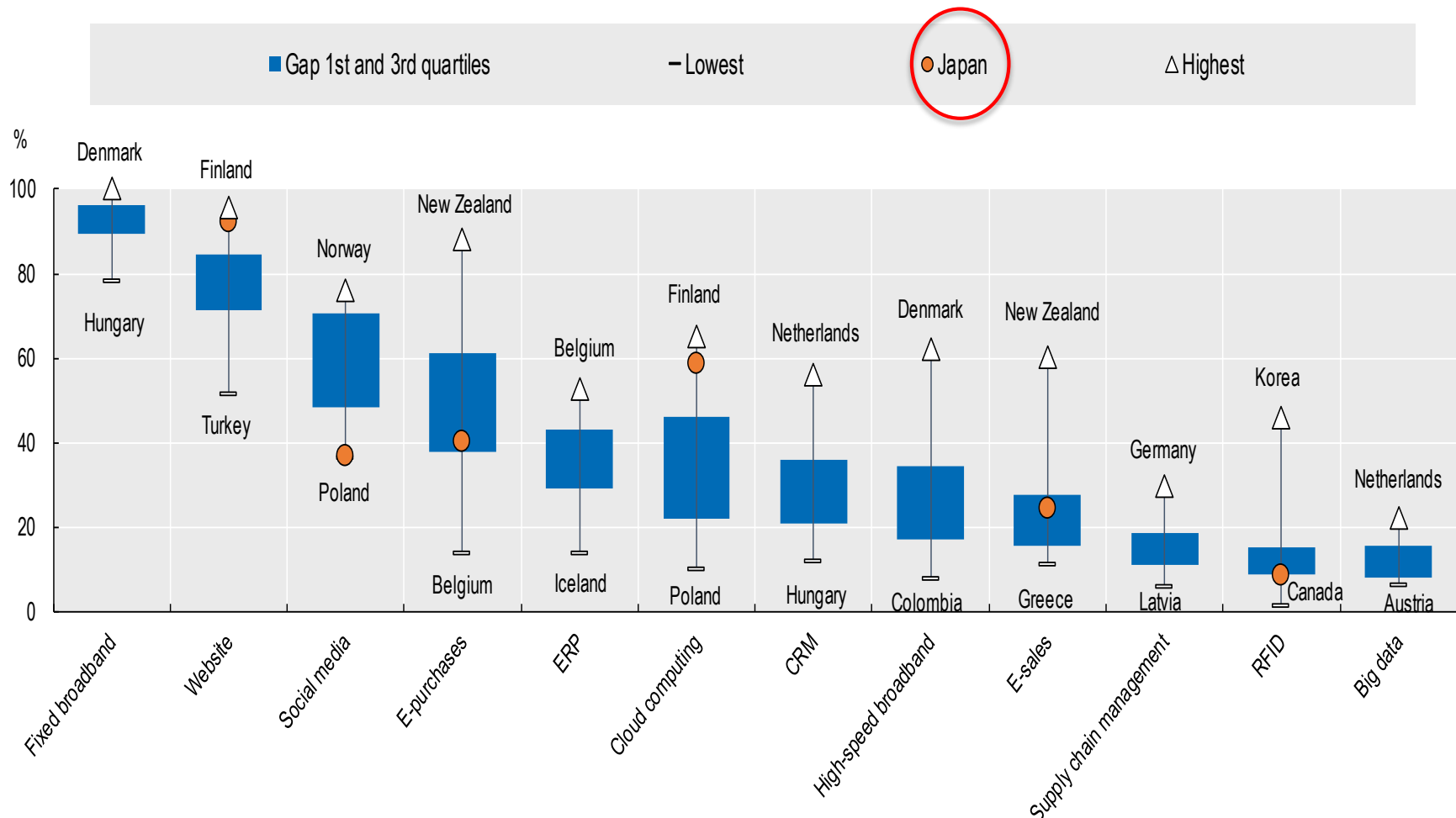
Government policy initiatives enhancing data access and sharing, 2017-18



Source: OECD, *Digital Economy Outlook 2020*, OECD publishing, Paris, <https://doi.org/10.1787/888934192184>.

2. Use: Japanese firms are connected, but advanced use of digital technologies is low ...

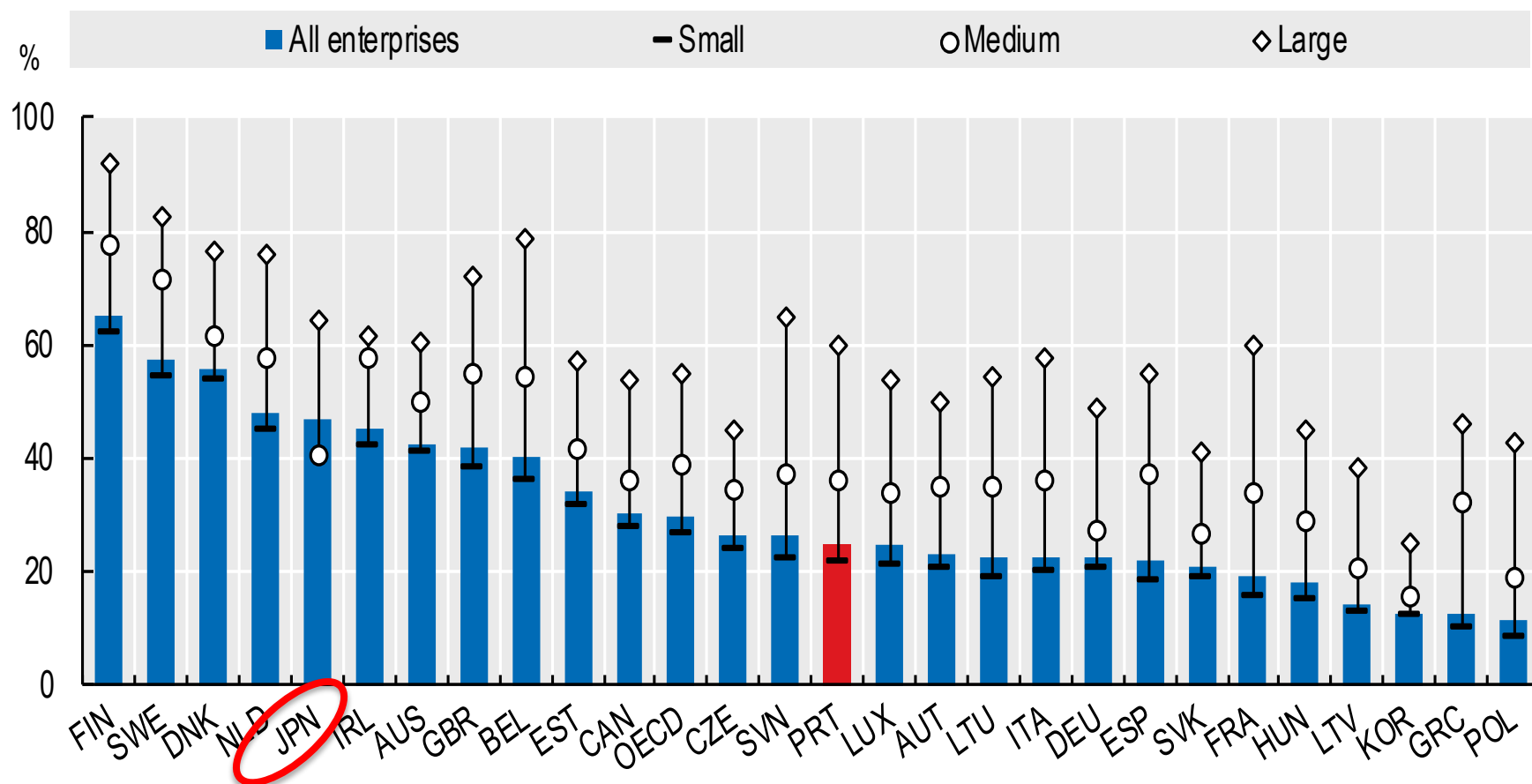
Diffusion of selected ICT tools and activities in enterprises, 2019



... and SMEs lag, even in highly beneficial technologies, such as **cloud computing**

Enterprises purchasing cloud computing services, by size, 2018

As a percentage of enterprises in each employment size class

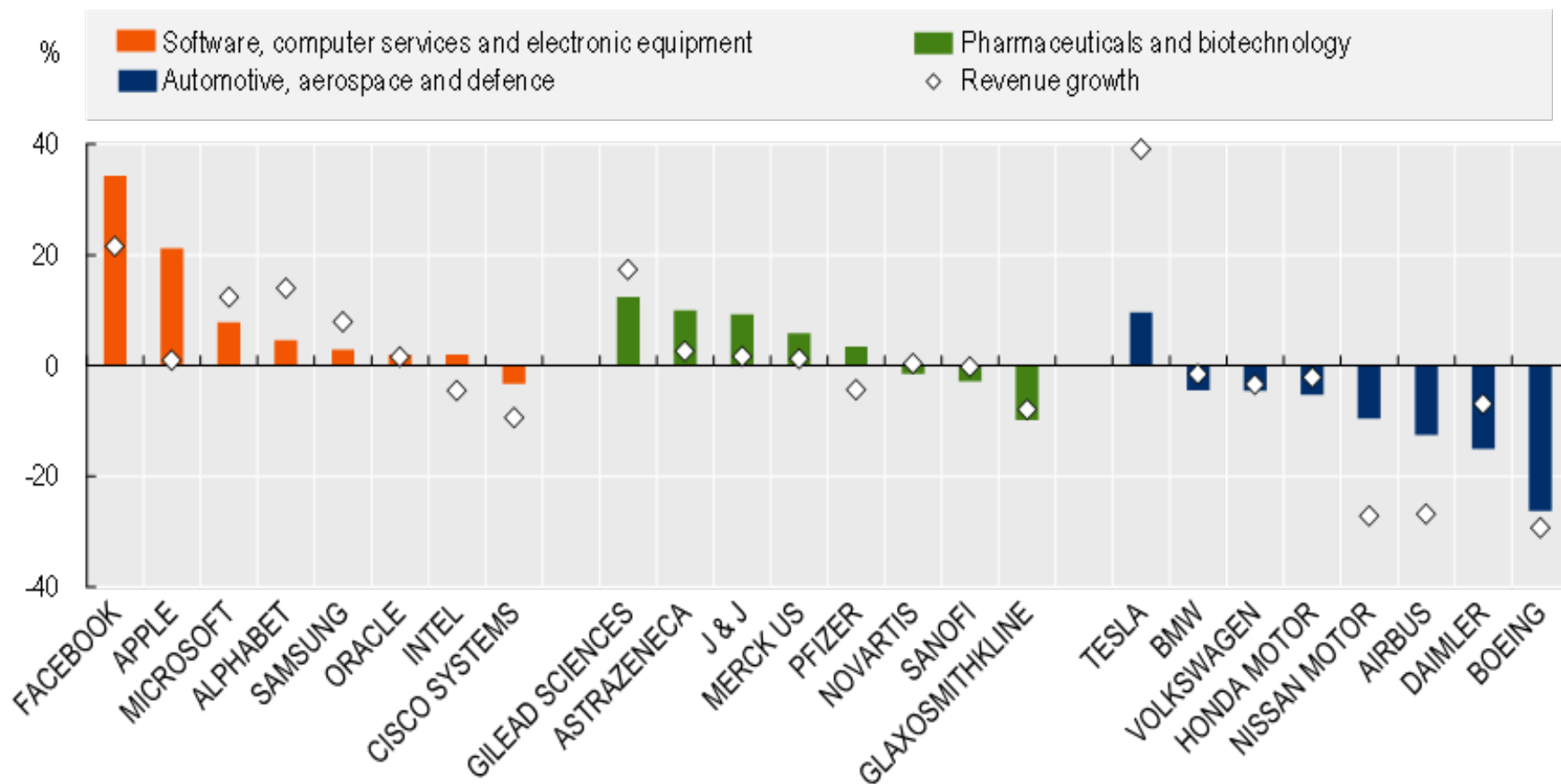


Source: OECD (2019), *Measuring the Digital Transformation*, based on OECD, ICT Access and Usage by Businesses Database, <http://oe.cd/bus>, December 2018.

3. Innovation: COVID-19 is an opportunity for some, a challenge for others

Reported R&D expense and revenue growth in selected R&D companies

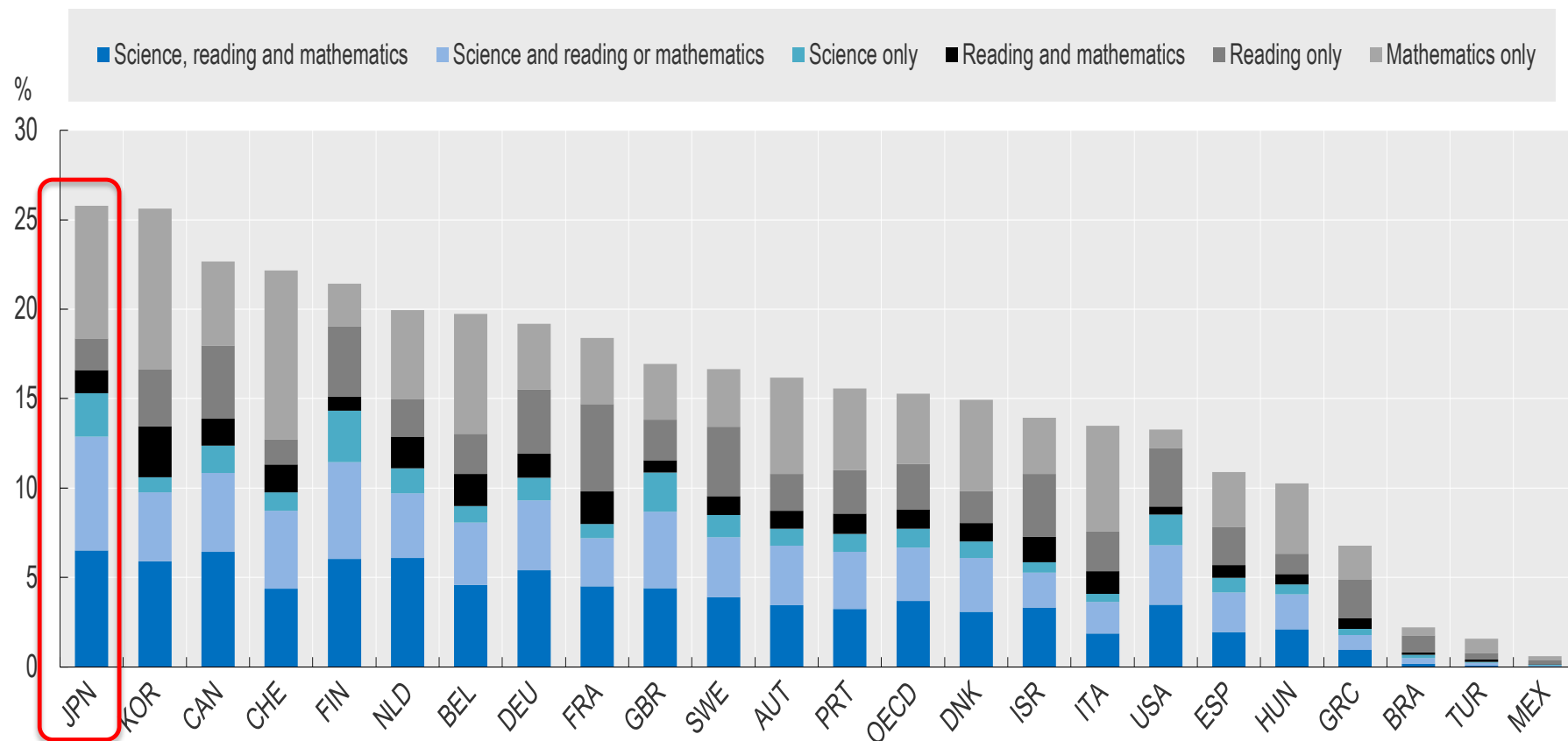
Percentage change in Q3 2020 compared with Q3 2019



4. Jobs: Skills for the digital era are key



Top performers in science, mathematics and reading as a percentage of 15 year-old students

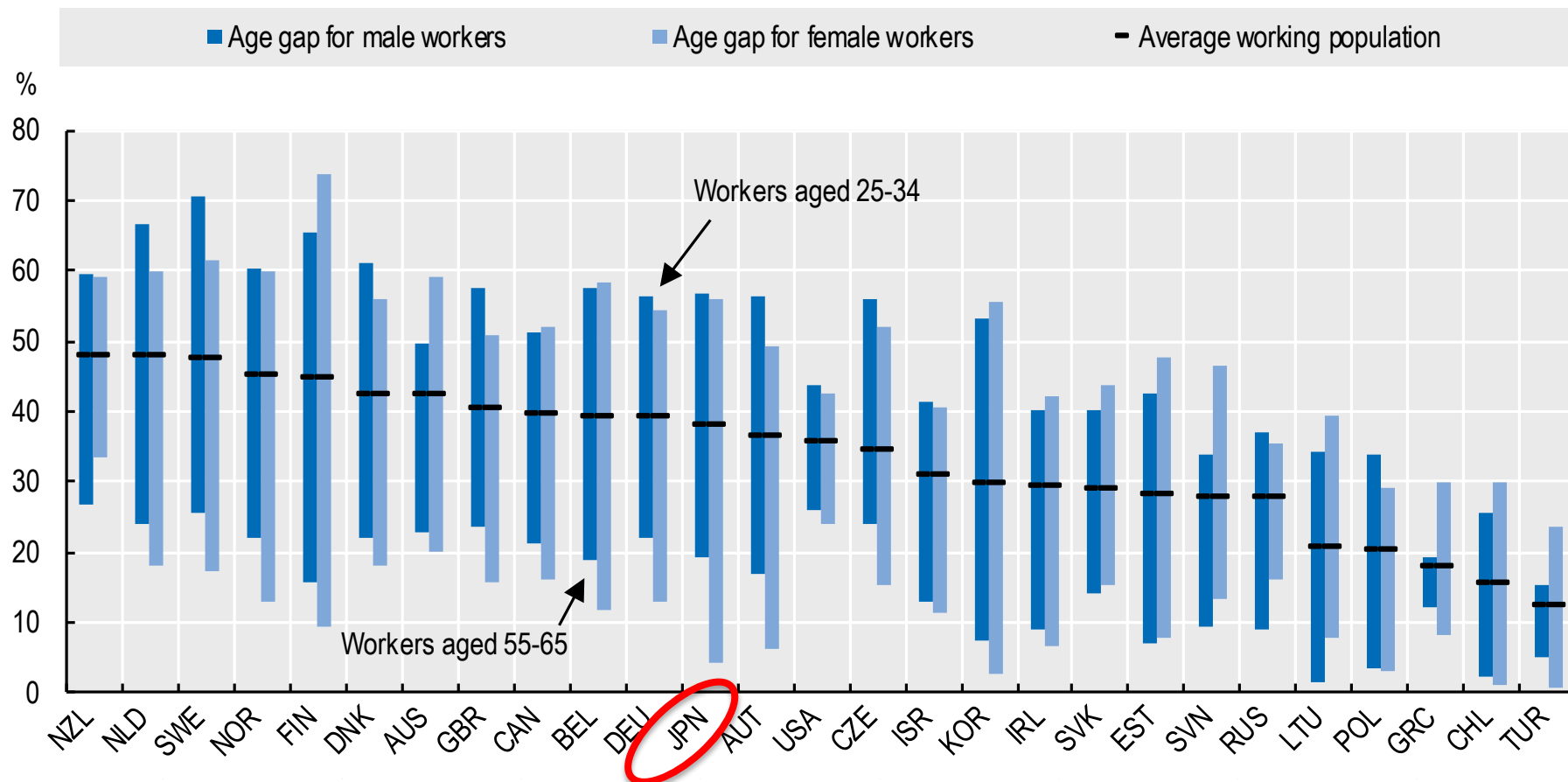


Source: OECD (2019), [Measuring the Digital Transformation](#),

But new skills will be needed, ...

Problem solving in technology-rich environments, 2012 or 2015

Percentage of workers with medium and high performance, by gender, for workers aged 25-34 and 55-65

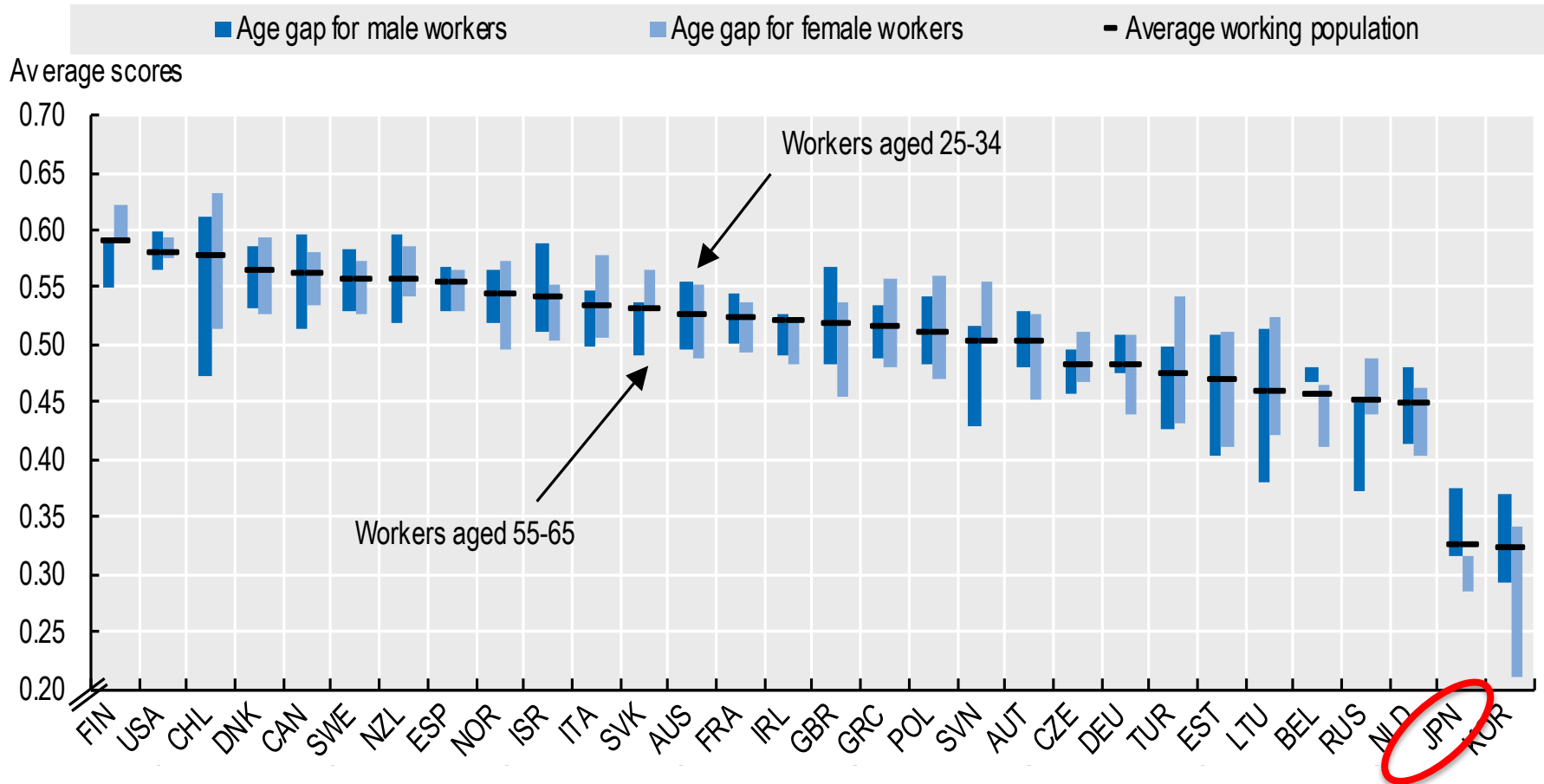


Source: OECD calculations based on the Survey of Adult Skills (PIAAC) Database, June 2017

... including the skills to learn

Readiness to learn and creative thinking, 2012 or 2015

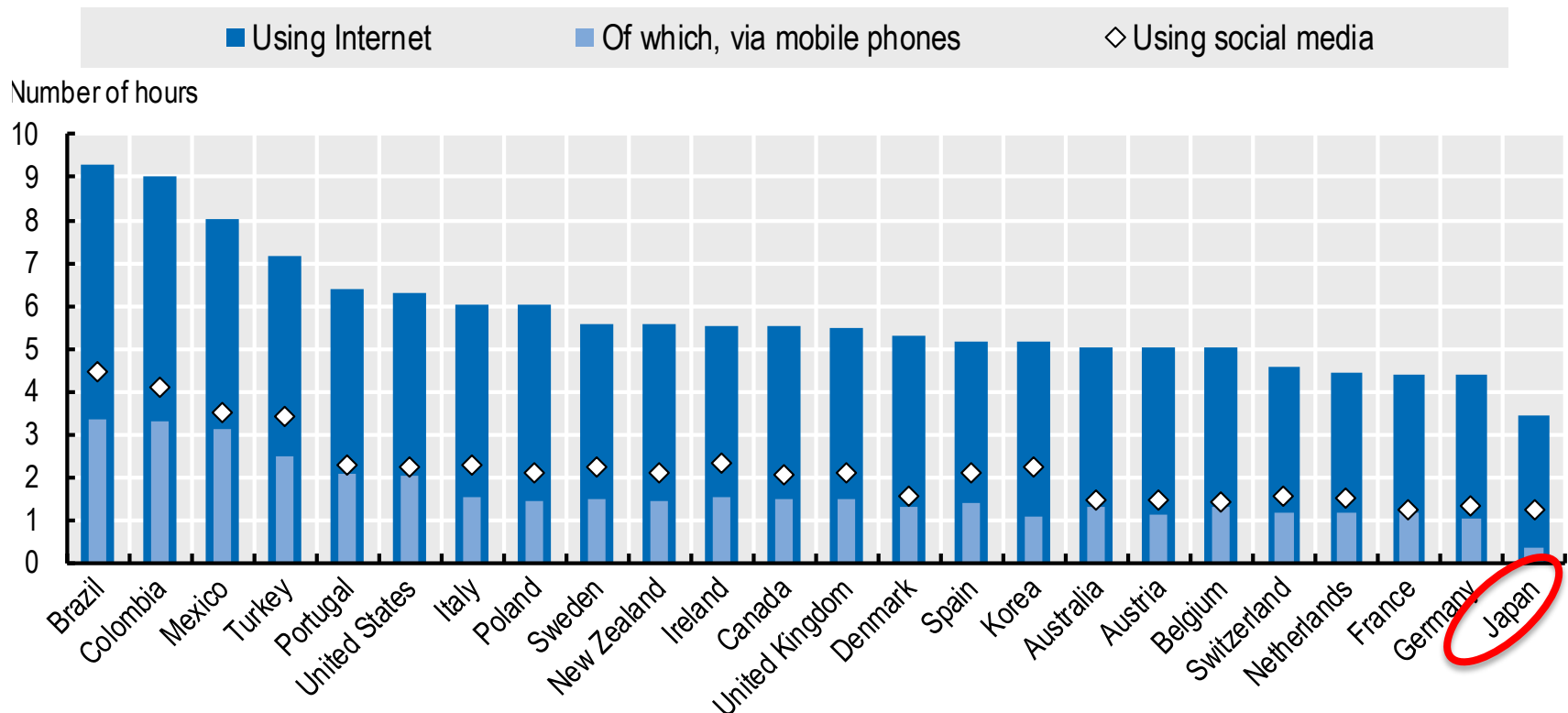
Average scores by gender for workers aged 25-34 and 55-65



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) Database, June 2017

5. Wellbeing: also a concern for Japan?

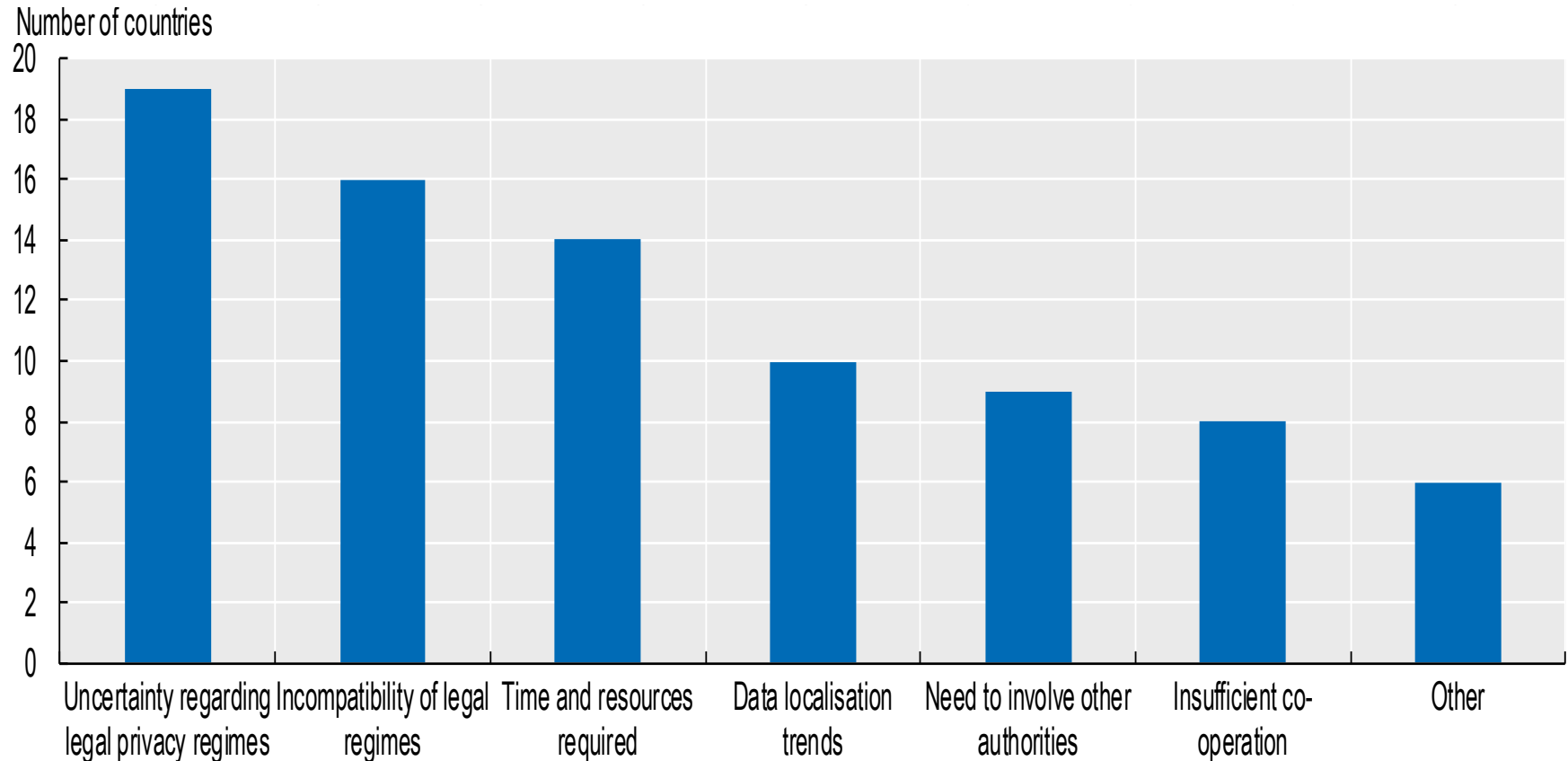
Average daily time spent using Internet, mobile Internet and social media, 2019



Source: OECD, Digital Economy Outlook 2020, OECD publishing, Paris, <https://doi.org/10.1787/888934191654>

6. Trust: Its importance has never been higher

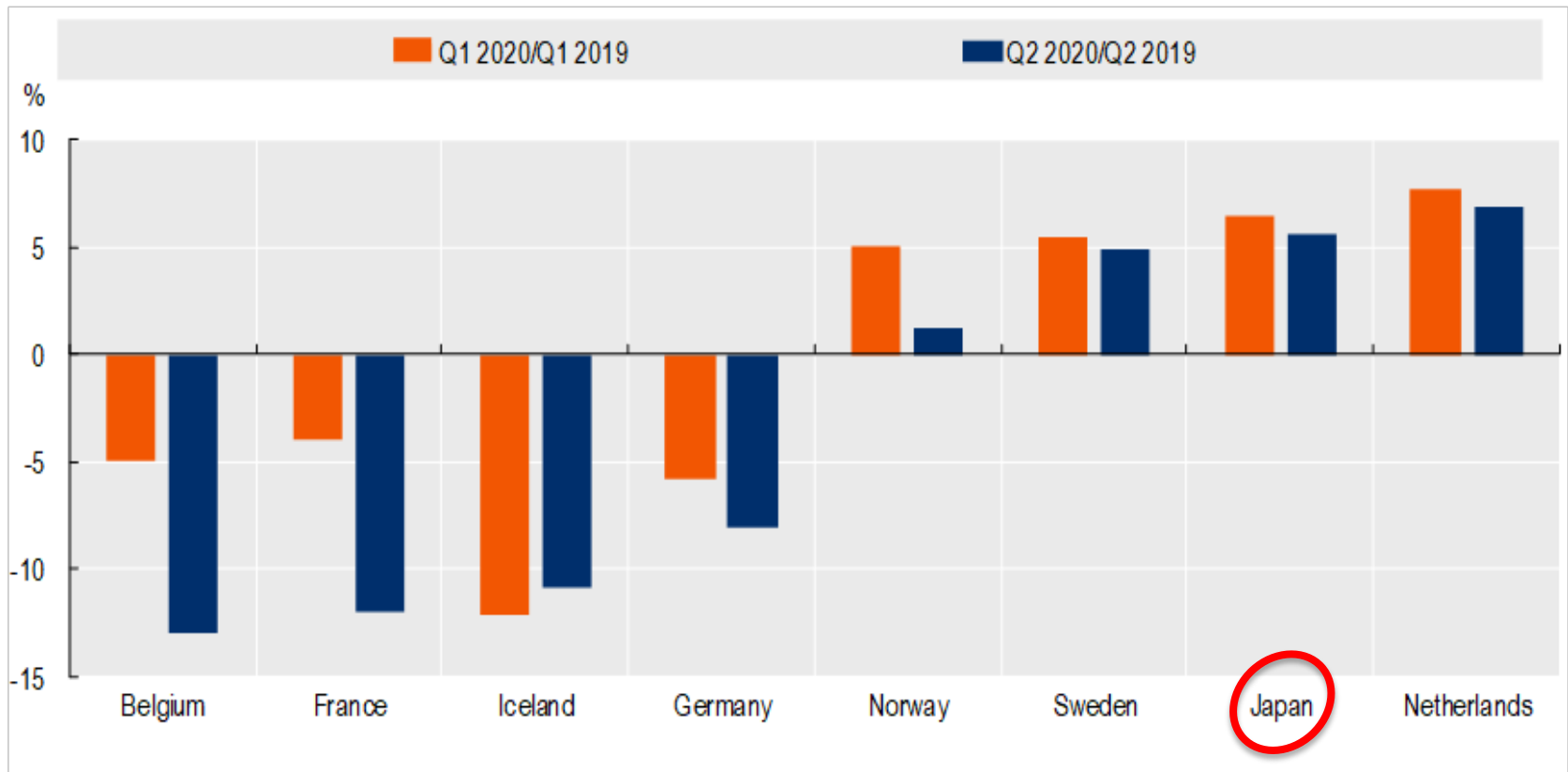
Main challenges to transborder data flows, 2019



Source: OECD, *Digital Economy Outlook 2020*, OECD publishing, Paris, based on 2019 OECD Privacy Guidelines questionnaire: <https://doi.org/10.1787/888934192224>

7. Markets: risk of fewer entrepreneurs and new firms – less so in Japan

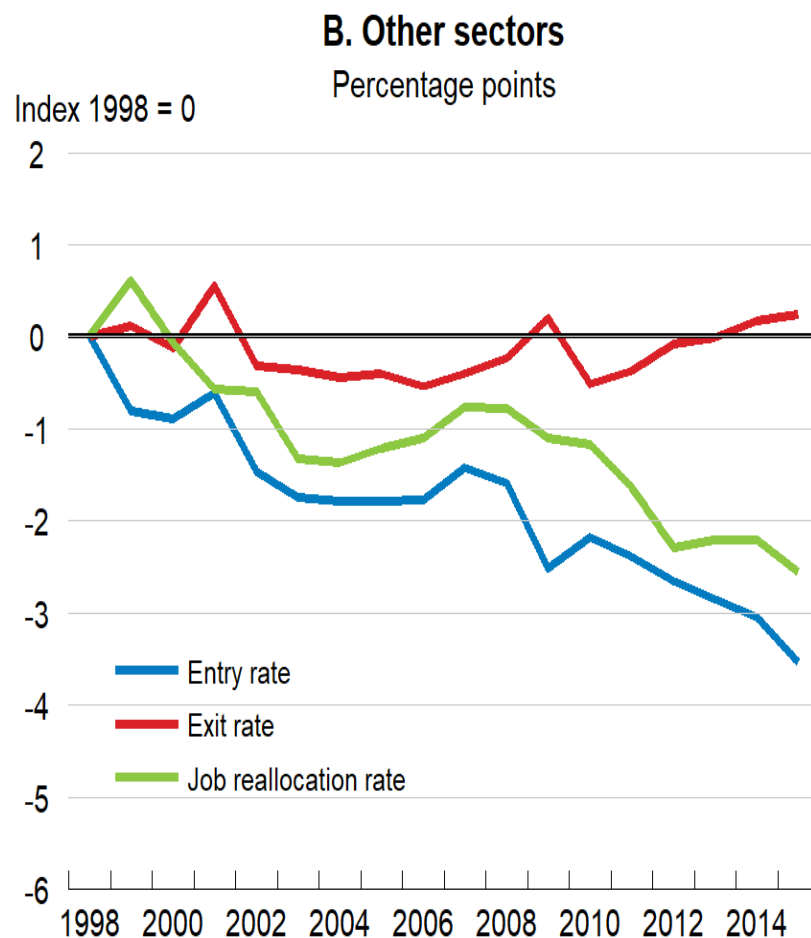
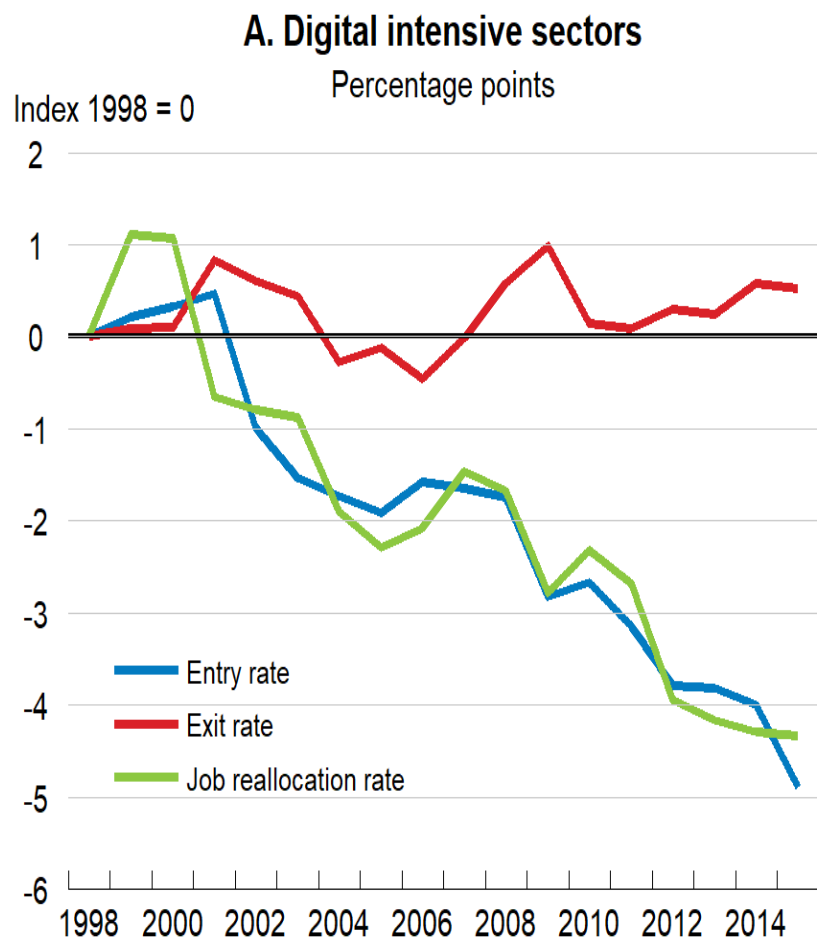
Growth rates in enterprise creation
Q1 2020/Q1 2019 and Q2 2020/Q2 2019 for a selection of



Source: OECD, Science, Technology and Innovation Outlook (2020) and OECD (2020) “Start-ups in the time of COVID-19: Facing the challenges, seizing the opportunities”; Calvino, Criscuolo, Verlhac (2020), VoxEU 23 June 2020; and [Start-ups in the time of COVID-19: Facing the challenges, seizing the opportunities](#)

... though there are broader concerns about declining business dynamism ...

Business dynamism has been trending down



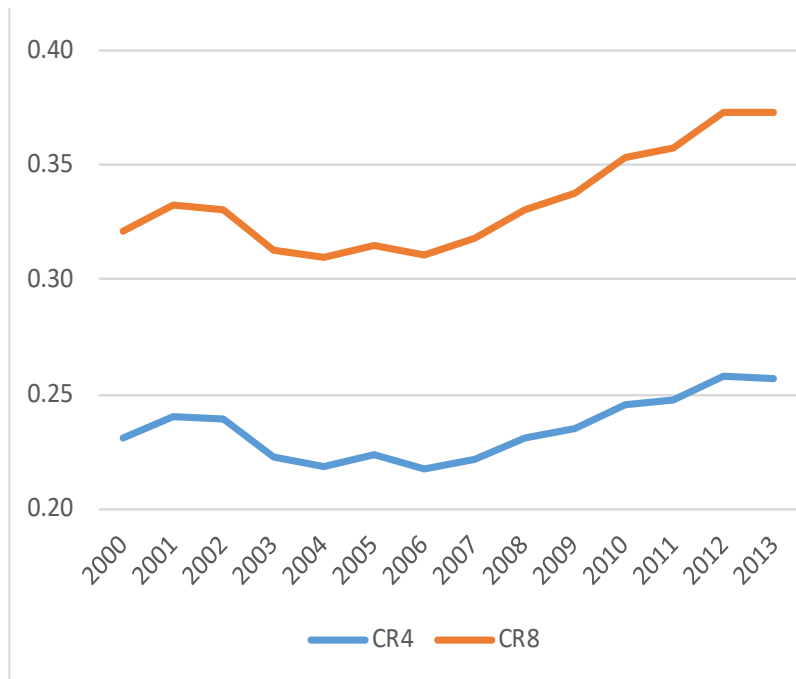
Source: Calvino, F. and C. Criscuolo (2019), "Business Dynamics and Digitalisation", *OECD Science, Technology and Industry Working Paper*, No. 62, OECD Publishing, Paris. <https://doi.org/10.1787/6e0b011a-en>

... and growing industry concentration

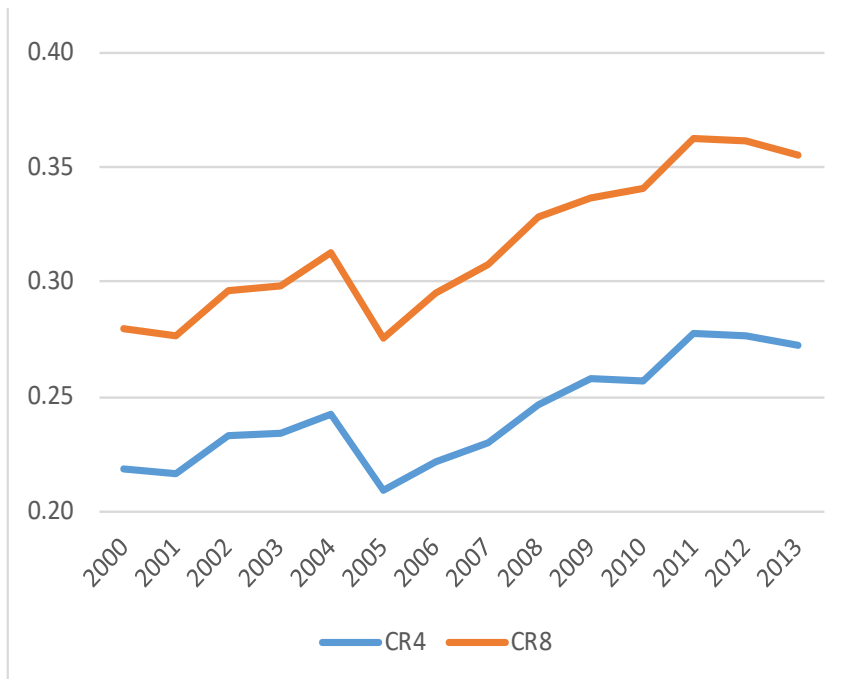


Industry concentration in Europe & North America, 2000-2014

Share of the top 4 firms (CR4) or the top 8 firms (CR8) sales in Europe



Share of the top 4 firms (CR4) or the top 8 firms (CR8) sales North America



Note: The countries for Europe include BE, DE, DK, EE, ES, FI, FR, GB, GR, HU, HR, IE, IS, IT, LV, NL, NO, PL, PT, RO, SI, SE, and for North America include CA and US. Included industries cover 2-digit manufacturing and non-financial market services. Concentration metrics are the share of the top 4 firms (CR4) or the top 8 firms (CR8) sales. The top firms are defined as the 4 or 8 firms with the largest sales in each year. The reported figures in each industry in the total industry correspond to averages across all industries in each region and year. The measures capture concentration within the respective global regions (Europe, North America), not within individual countries.

Source: Bagjar et al, 2019. <https://doi.org/10.1787/2ff98246-en>

Some policy challenges for Japan



1. **Access**: Connectivity is high, but now needs to cover all social groups, firms and regions.
2. **Use**: Sophisticated use of technology is still low. Scaling of new digital firms remains difficult in Japan – SMEs risk falling behind.
3. **Innovation**: Strong science and innovation needs to be turned into start-ups and new growth opportunities.
4. **Jobs and skills**: Strong technical skills, but **challenges with new skills needs**, e.g. creativity and the ability to learn.
5. **Wellbeing**: A growing concern as digital technologies don't benefit everyone equally and have societal implications.
6. **Trust**: Digital security and privacy are growing challenges. Cross-border data flows remain a priority.
7. **Market openness**: **E-commerce & digital trade** offer new opportunities. **Competition** is a challenge in high-tech markets.

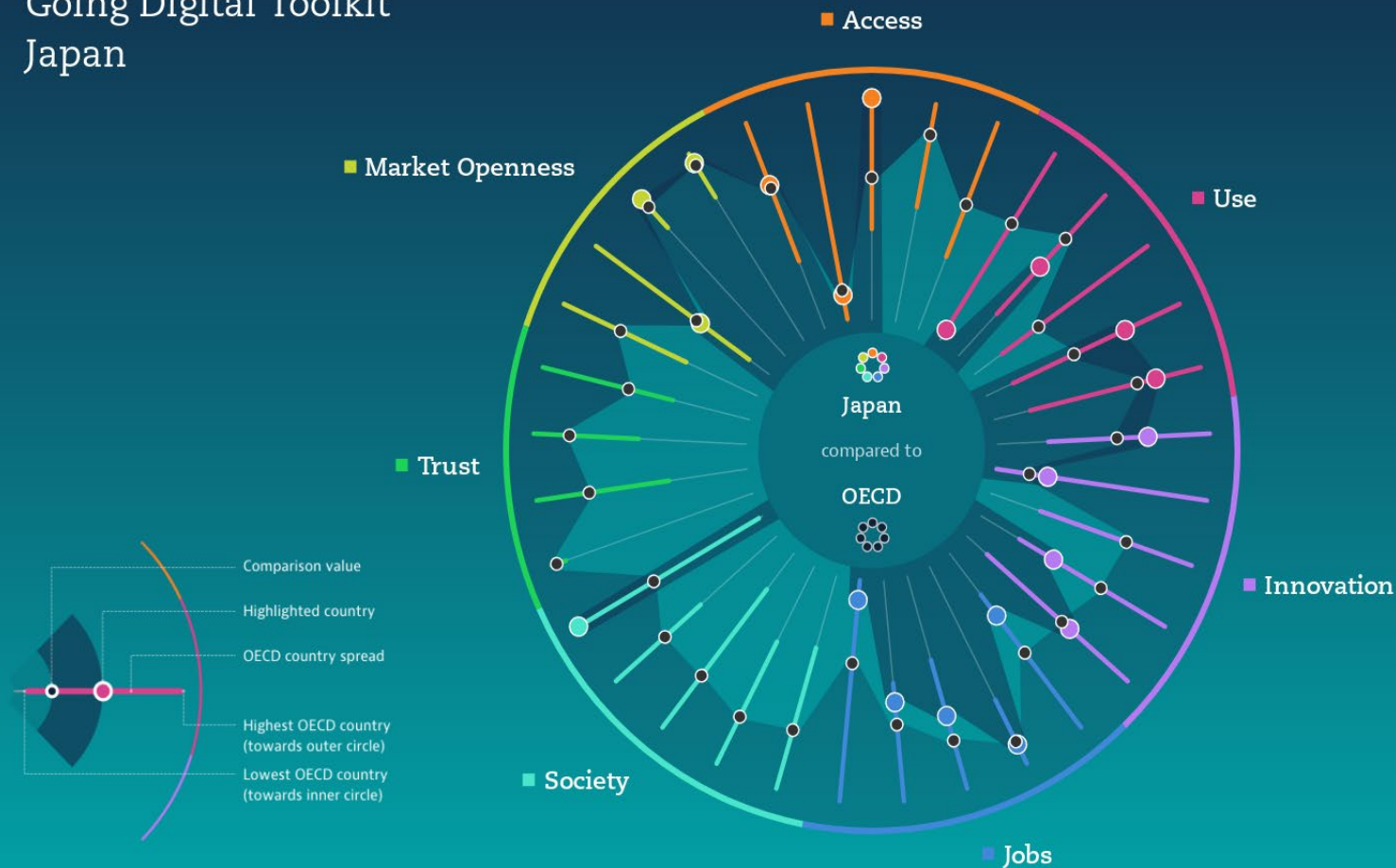
COVID-19 raised the bar – national policies must respond ...

More than ever, countries need co-ordinated, whole of government policy approaches to digital transformation.



... supported by robust measurement frameworks ...

Going Digital Toolkit Japan



Source: OECD Going Digital Toolkit, <http://www.oecd.org/going-digital-toolkit>

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.



<https://goingdigital.oecd.org/en/countries/jap/>

.. and new approaches to policy making



- **Review policies** to identify whether those based on analogue concepts still work: e.g. physical locations
- Avoid narrow, specific regulations or rigid standards that may quickly become obsolete – rather **set broad principles** (lines on the road);
- **Use experimental policies and iteration**, e.g. through sandboxes, to facilitate risk-taking and innovation.
- **Revisit policies frequently** to ensure that they remain “fit for purpose”; don’t be satisfied with regulate and sit, rather iterate;
- Improve understanding of the digital transformation with government (**CTOs, geeks for/in government**)
- **Use data and digital tools** for better policy making

Learn more about OECD's work ...



OECD Digital Economy Outlook website: <http://oe.cd/deo2020>

COVID response resources: <https://www.oecd.org/coronavirus/en/#policy-responses>

OECD Science, Technology and Innovation Outlook (forthcoming): <https://www.oecd.org/sti/science-technology-innovation-outlook/>

... and our policy briefs on digitalisation and the COVID-19 crisis



- [Crowdsourcing STI policy solutions to COVID-19](#)
- [Start-ups in the time of COVID-19: Facing the challenges, seizing the opportunities](#)
- [Using Artificial Intelligence to help combat COVID-19](#)
- [Keeping the Internet up and running in times of crisis](#)
- [Why open science policies are critical to respond to the COVID-19 crisis](#)
- [Tracking and tracing COVID: Protecting privacy and data while using apps and biometrics](#)
- [Ensuring data privacy as we battle COVID-19](#)
- [Dealing with digital security risk during the Coronavirus \(COVID-19\) crisis](#)
- [Productivity Gains from Teleworking in the Post COVID 19 era](#)
- [E-Commerce in the Time of COVID-19](#)
- [Seven Lessons Learned about Digital Security during the COVID-19 Crisis](#)

THANK YOU!

Going Digital: Shaping Policies, Improving Lives

<https://doi.org/10.1787/9789264312012-en>

OECD Digital Economy Outlook 2020

<https://doi.org/10.1787/bb167041-en>

OECD Science, Technology and Innovation Outlook 2021

<https://www.oecd.org/sti/science-technology-innovation-outlook/>

