



**Asia-Pacific
Economic Cooperation**

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Day 2 Session 2

Digital Product Markets and New Technologies After the Pandemic

Submitted by: National Research University Higher School of Economics



**Workshop on Protection of Intellectual
Property Rights in Digital Content Trade
20-21 April 2021**



НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ
УНИВЕРСИТЕТ

DIGITAL PRODUCT MARKETS & NEW TECHNOLOGIES AFTER THE PANDEMIC

Protection of Intellectual Property Rights in Digital Content Trade Workshop

Session 2: Access to New Technologies related to Digital Content Trade

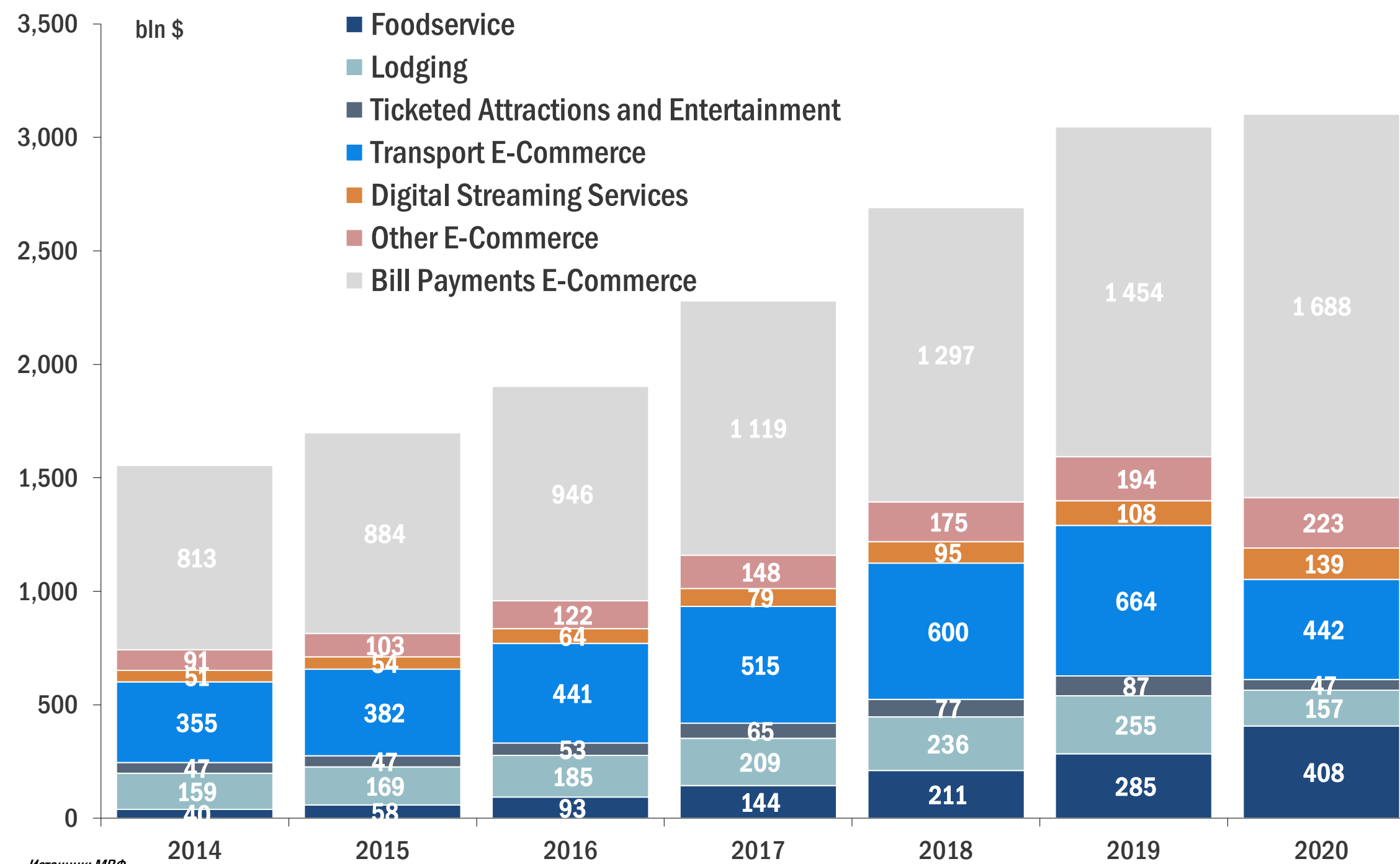
Salikhov Marcel (msalihov@hse),
Director of Economic Expert Analysis Center,
@ IPAG Higher School of Economics (HSE)

April 21, 2021



Digital markets and e-commerce have become a driving force of the global economy

Increase in technology spending to COVID-19



Источник: МВФ

4.5 bn

Internet users globally in 2021,
which equates to 57% of the
population **~2 bn in APEC**

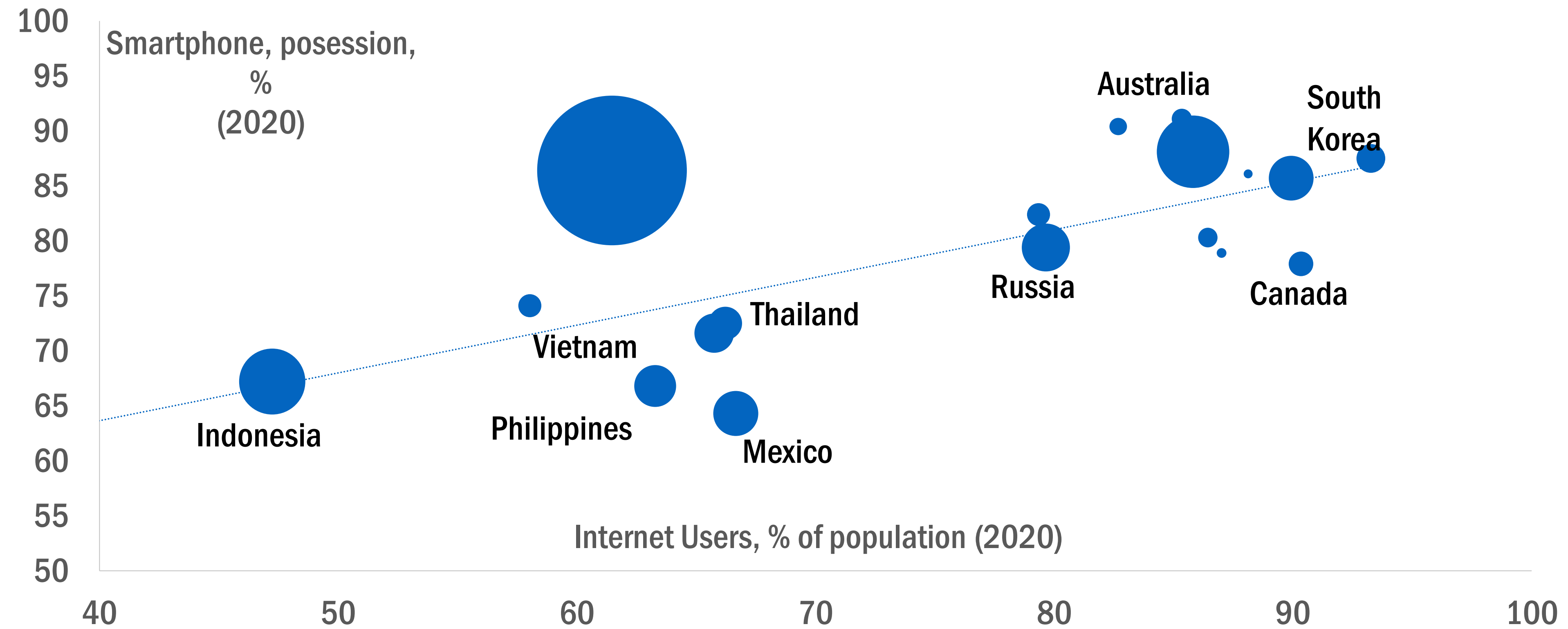
\$3.4 tn

Projected spend for digital services and
ecommerce services globally in 2021

- Most technologies digital product markets have started to develop in the early 2010s (For example, speech recognition got a massive boost after new deep learning algorithms began to be implemented in existing solutions. Hadoop technology for Big Data appeared in 2006 but got wide recognition in the early 2010s.
- But over the last couple of years, many existing technologies (AI, Big Data, IoT etc) have started to become available for mass users.



Higher penetration is expected to continue

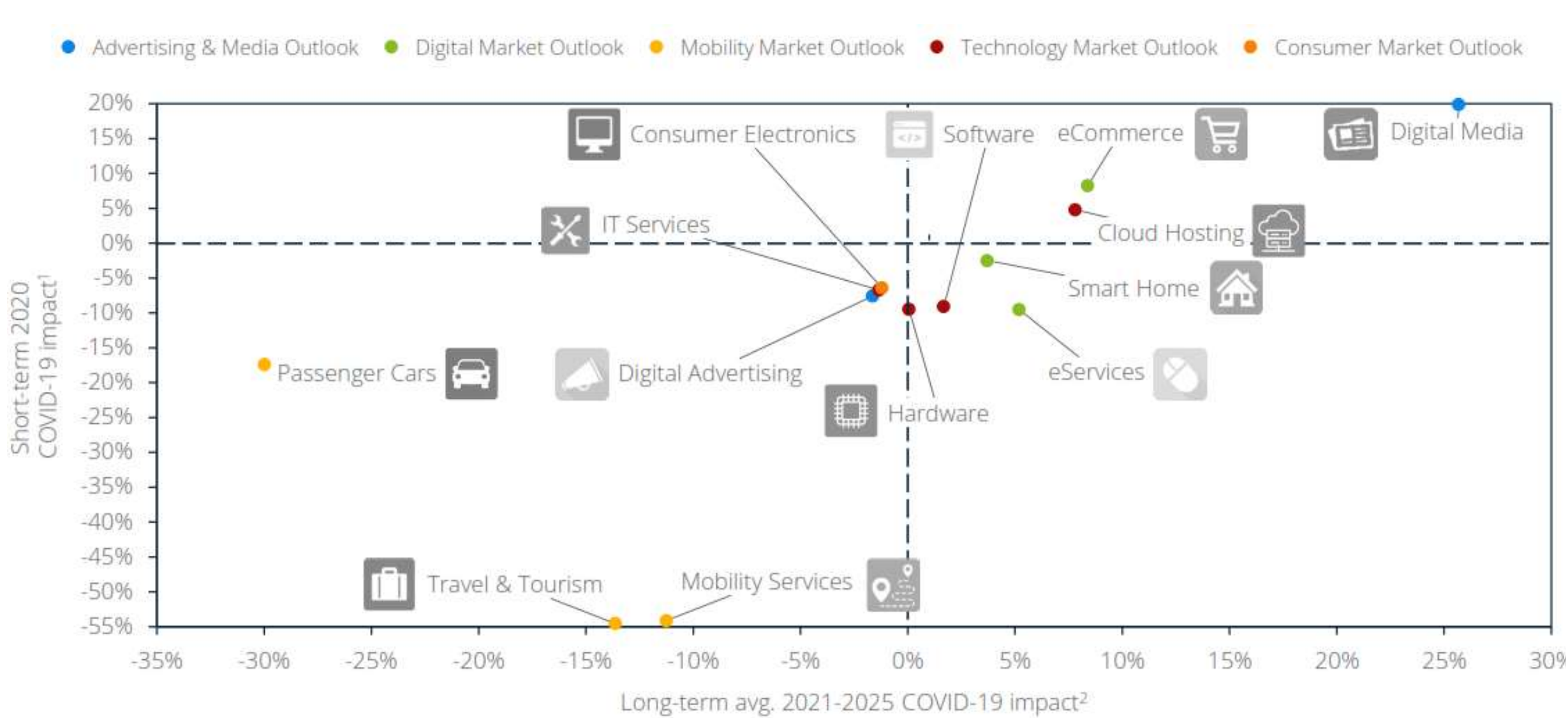


- Internet accessibility is a key prerequisite for the development of digital products markets
- There is large variability in Internet and smartphone penetration in APEC member economies
- In large economies there is large potential to increase consumer base
- Access to broadband internet is crucial for establishing digital services
- With rising smartphone usage, customers also consume their favorite digital media on the go

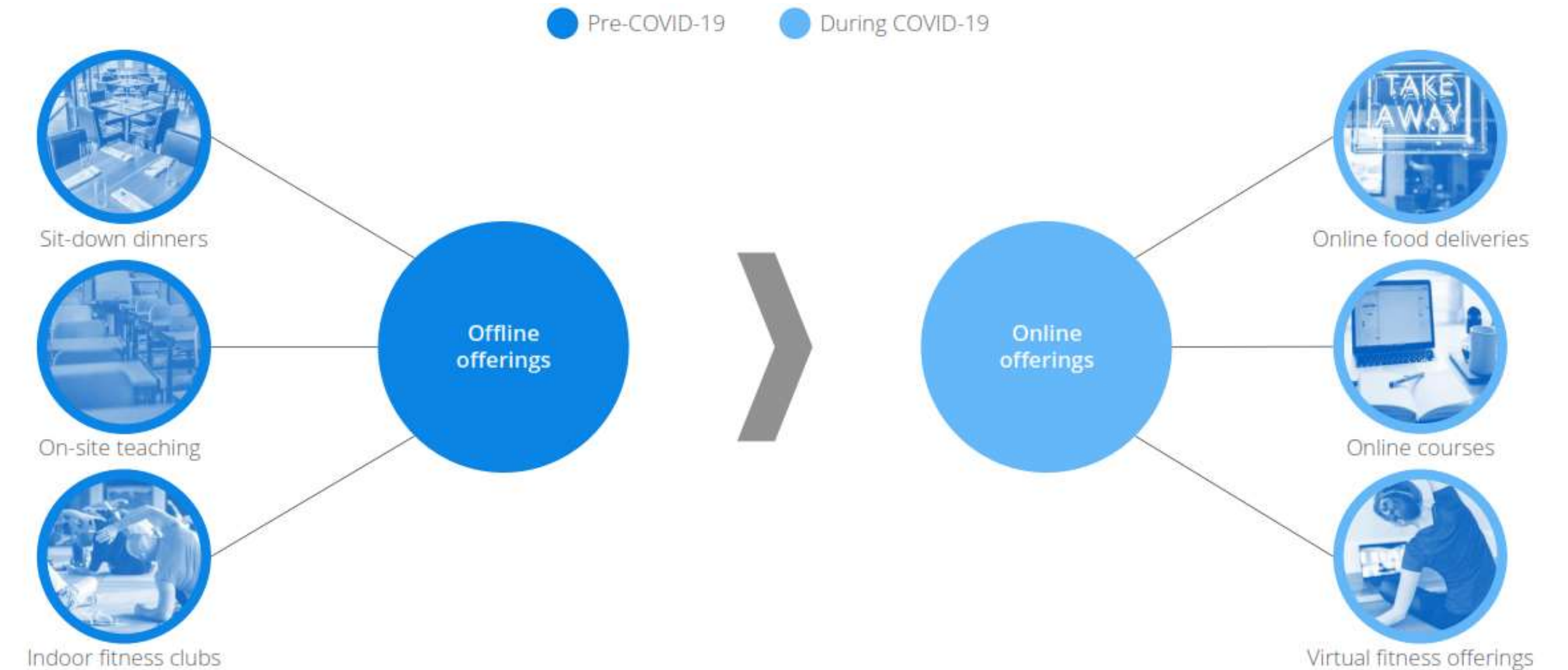


COVID-19 accelerated trends that have started to form earlier

Long & short term impact of COVID-19 on selected digital markets



Indicative COVID-19 induced transformation of sample industries

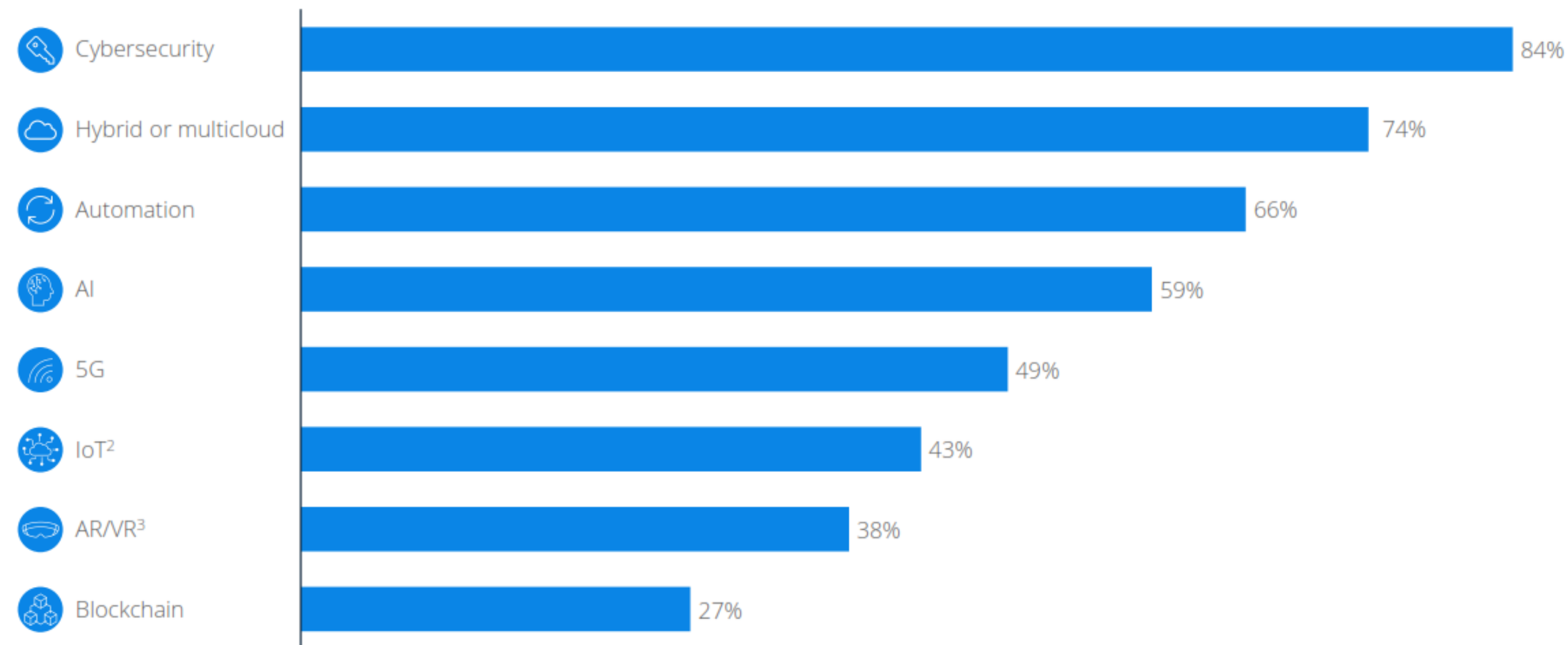


- Specific impact of COVID-19 is much less mobility & transport opportunities and much more media usage and remote digital services.
- Most technology giants prospered during the pandemic which is reflected in share price performance
- Other industries have experienced losses in the crisis, especially in mobility, accommodation, and travel. Some industries faced economic disaster but became more resilient by transforming to digital. For example, online food delivery experienced a sudden rush in popularity. Health & fitness apps have become increasingly popular and offer a wide range of application areas. eLearning and online learning platforms experienced high growth.
- Digital media and ecommerce are expected to get the most positive benefit due to the pandemic



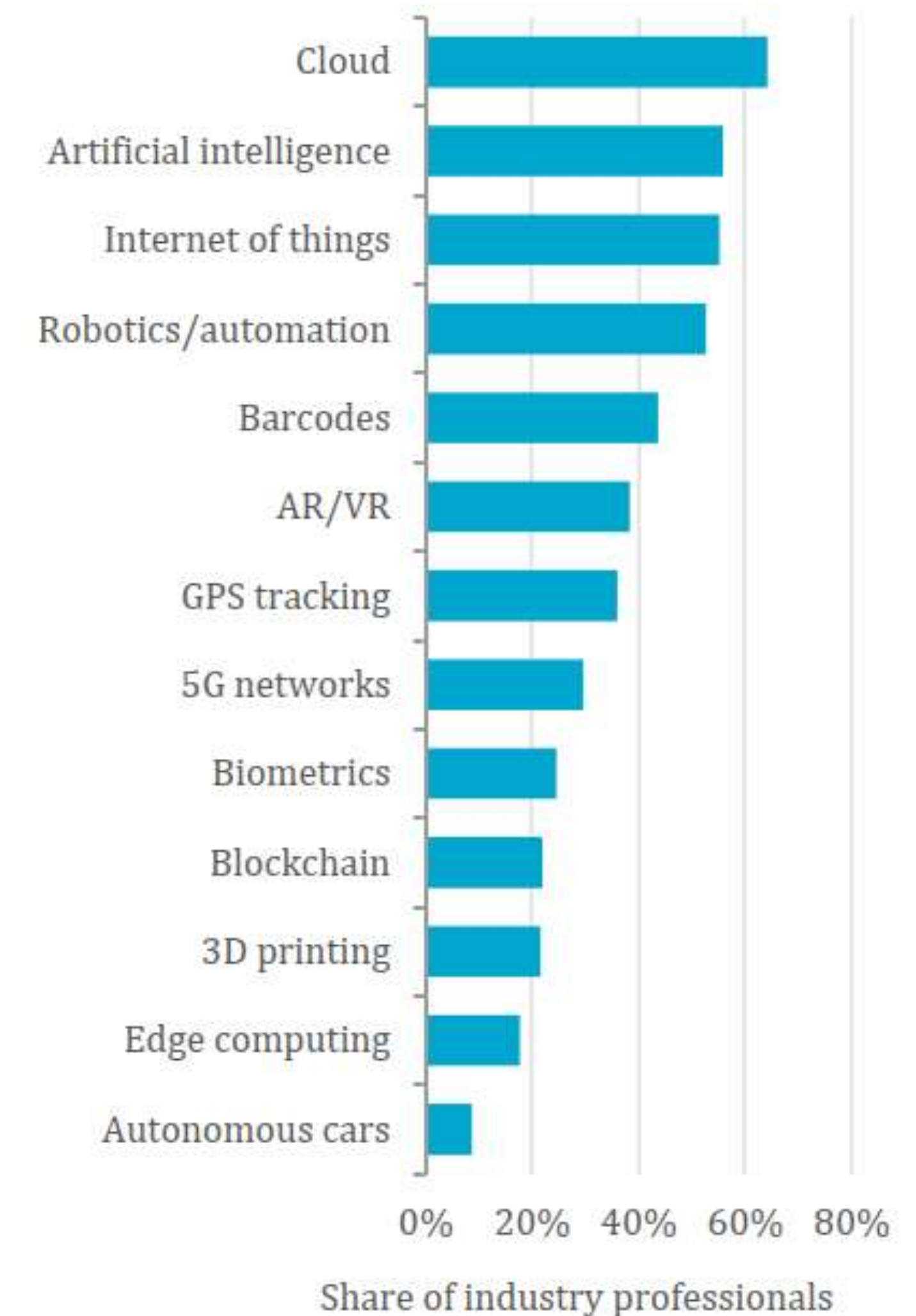
COVID-19 has influenced technology priorities in most industries ...

Increase in technology spending due to COVID-19



- COVID-19 change technology priorities for a lot of markets, including digital products
- Cybersecurity, cloud solutions are set to benefit the most due to increased spending
- 5G development should help to increase connectivity and create a myriad of new products and solutions (especially in IoT).

Planned Investment in the Next Five Years, November 2020





There is direct response in terms of technology to the COVID-19

Some startups working on COVID-19 responses

Reported use of robots as COVID-19 response

HR	Risk/data analytics	New work	Community	Health
retorio TALENTCUBE carewithcare SKILLARY	Climedoscale inspirient appinio traversals statista GREYCORTEX CIVEY coronika castor polyteia adjust TakeTask	quofox publicplan CAYA jolt SlidePresenter LiveChat VALSIGHT enabley Grover Zenkit echometer Staffbase SOSAFE SPENDIT AG webtogo	nebenan.de Unipos HilfeLokal.de	CASPAR media4care CLINISERVE evermood KRY madGo cerascreen idana midga BLUSENSE symptoma aidminutes GYANT Allm SHARING HEALTHCARE TeleClinic SeDiDoc verisana Caseform doctorlink simplinic pflge.de
Automation	Retail & consumer	Crisis management	Education	
neohelden VITAS SPECTRM Hilfe Lokal.de	NavVis Glovo ESHOP GUIDE	Taxy.io PREVISEC SERINUS alarmdispatcher	edyoucated ANTON StudySmarter Studybees Kognity Sdui StuDocu.com sofatutor ubiMaster	

Laboratory and supply chain automation

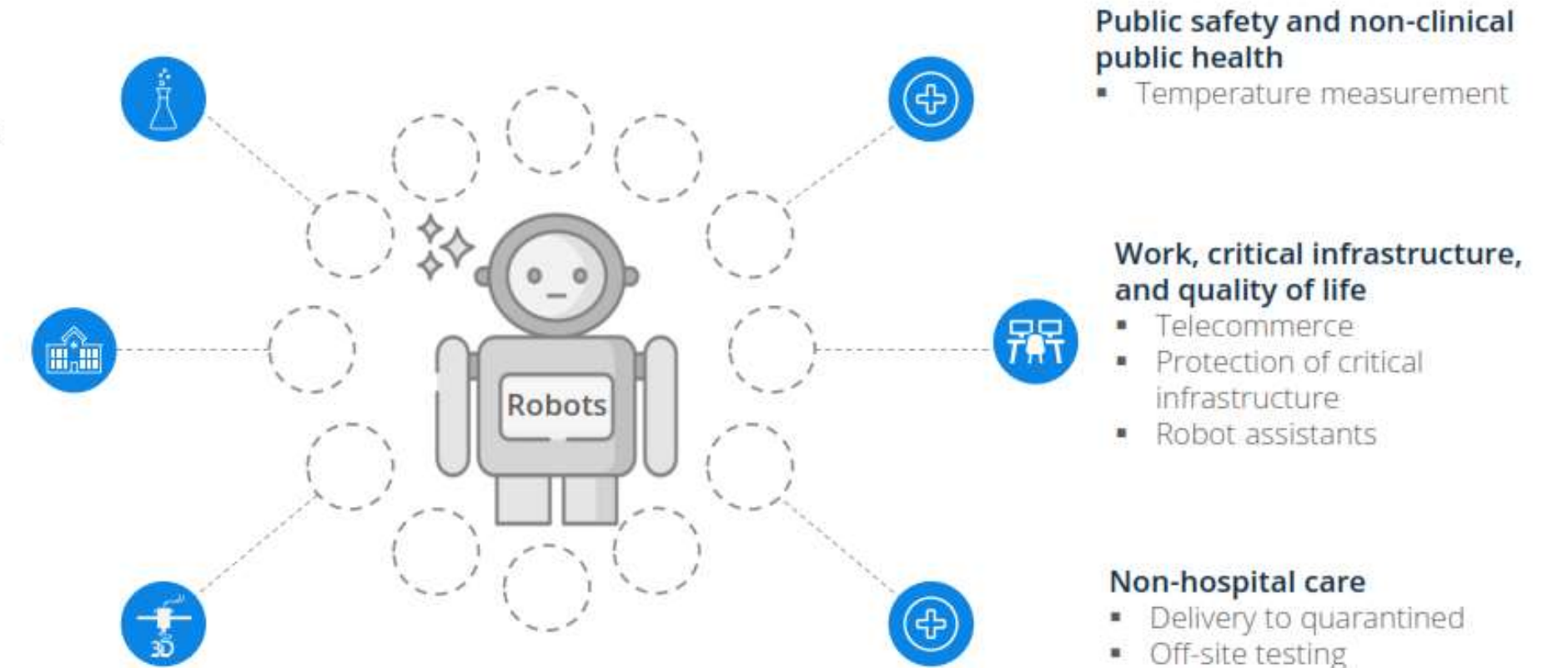
- Laboratory automation
- Handling of infectious materials

Clinical care

- Disinfection at point of care
- Patient intake & visitors

Production of 3D printed tools

- Nasopharyngeal swab
- Face shields/masks

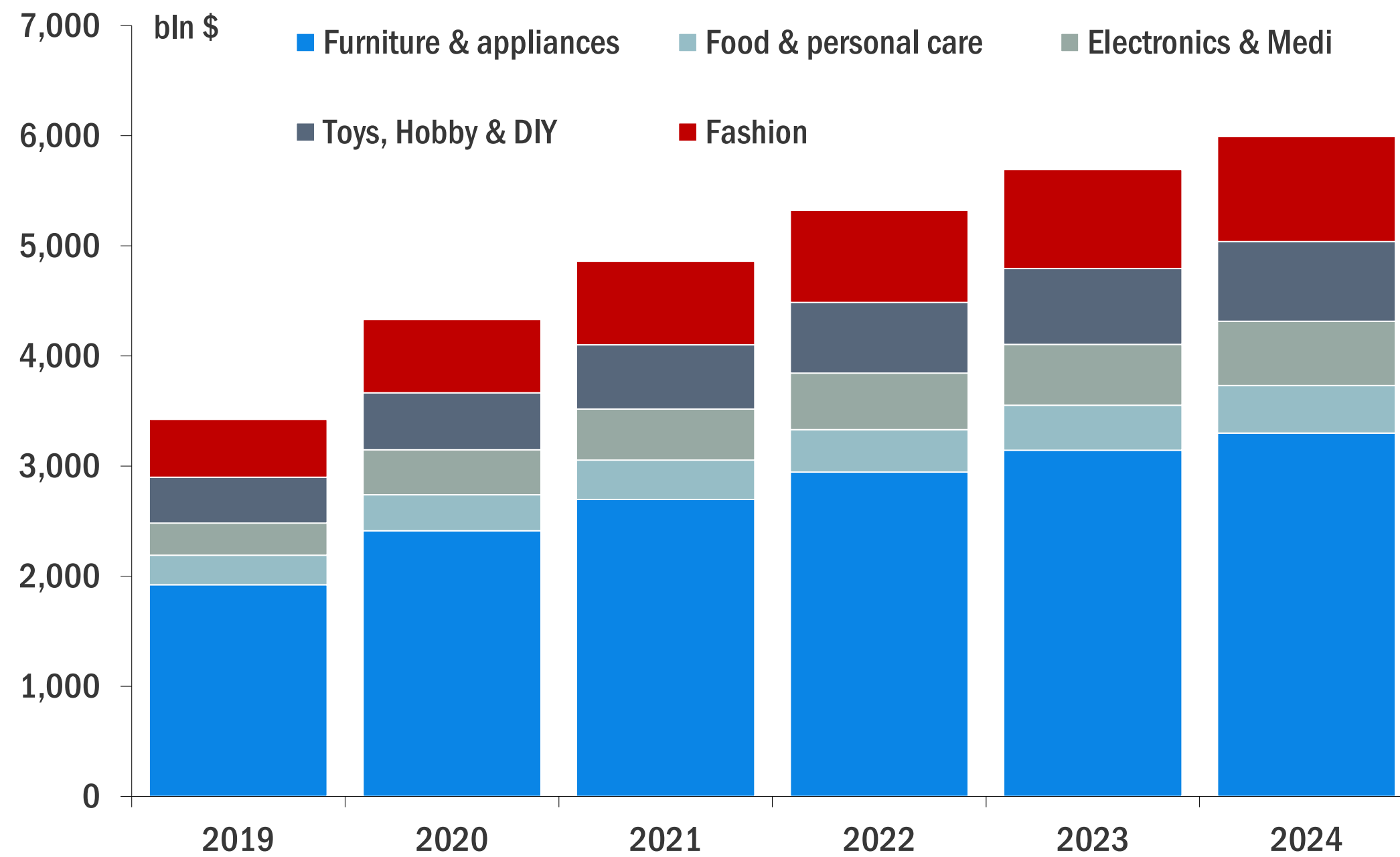


- Areas of direct response to COVID-19: major discovery, diagnostics & prevention, and treatment
- Mostly digital companies, mostly in data analytics, health, and new work, have developed specific solutions in response to COVID-19
- Contact tracing apps, too, have proven to be of utmost importance to during the pandemic.
- COVID-19 has prompted more robot usage around the world to fight the pandemic
- 3D printing has proven to be a particularly relevant technology for reacting quickly to new demands

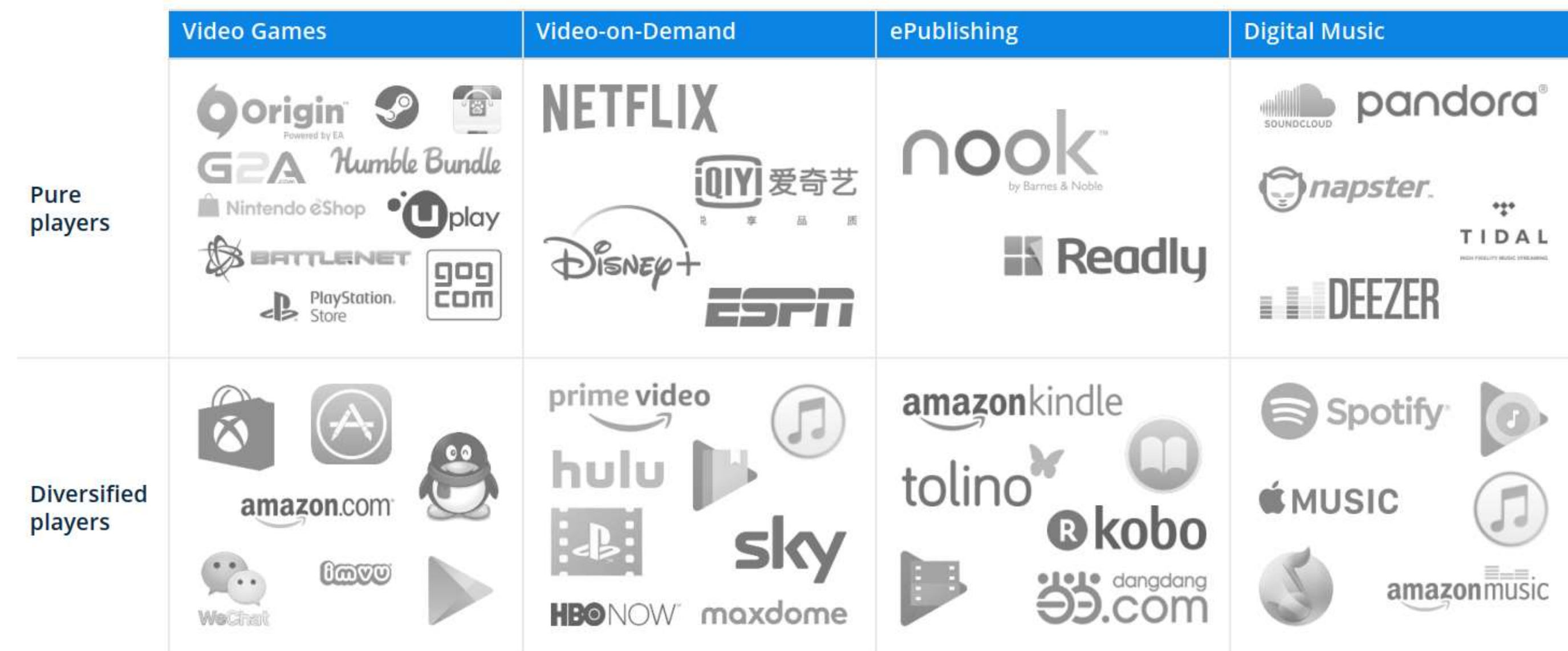


Changes in consumer behavior support technology development

Global eCommerce revenue forecast



Selected players in Digital media markets

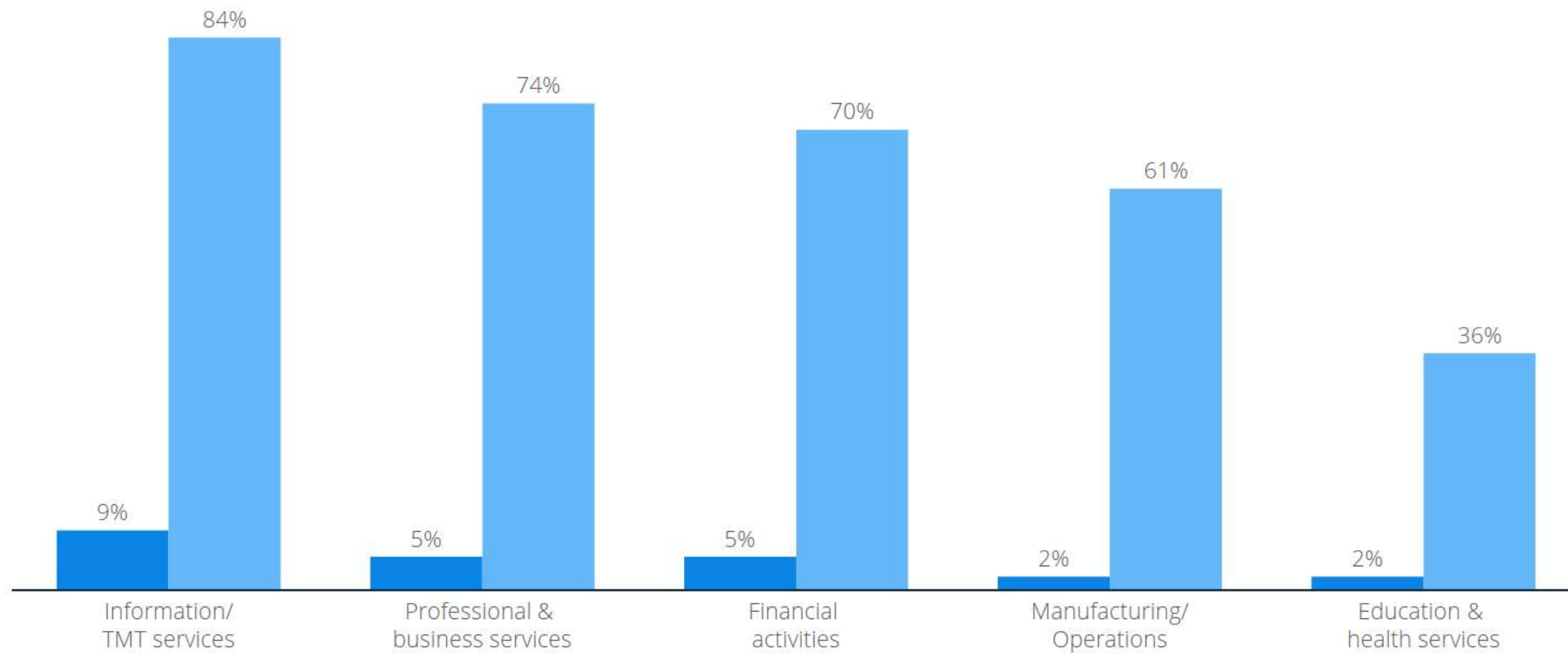


- Consumer online interests shifted during COVID-19 and pushed web traffic to online shopping and media
- Content consumption moved towards news, streaming, TV, messaging, and social media
- Video streaming spiked as soon as COVID-19 hit
- Video games significantly increased their sales and number of players since the outbreak of COVID-19
- Online learning landscape professionalized into segments with key players establishing themselves



Remote working is expected to stay widely spread, even after COVID-19

Share of remote workers by industry in the US, 2020



Selected players in collaboration and social software

Team collaboration, presentation & virtual offices	Social VR	Meetings & events	Medical training
Education & training	Visualization & review	Architecture	Design, creation & prototyping

- IT industry went almost entirely into remote working; other industries had lower shares
- Benefits and struggles of working from home became quickly apparent
- The collaboration software ecosystem has particularly thrived and comprises a multitude of segments
- Corporate remote working policies have changed with a majority allowing a full or hybrid remote model
- Increased popularity of remote working supports further investment in cybersecurity, videoconferencing and cloud technologies
- Longer term impact will be for the automation technologies, AR/VR technologies