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Digital Challengers on the next frontier

Central and Eastern Europe thriving in digital commerce

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Digital Challengers on the next frontier

Central and Eastern Europe thriving in digital commerce

Amadeusz Andrzejewski

Gergely Antal

Kamil Górecki

Madalina Kmen

Tamara Kruczek

Milena Malinowska

Tomasz Marciniak

Jurica Novak

Borys Pastusiak

Marcin Purta

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Preface

We find ourselves in the midst of a period of political and economic change. Citizens and their countries are looking to recover from the shocks of the COVID-19 pandemic, while at the same time responding to increasing macroeconomic uncertainty.

Against this backdrop of uncertainty, we set out to examine the potential of the digital economy for Central and Eastern Europe (CEE) and the role of digital growth in the period to 2030. This report is the fruit of our research and analysis. It is the continuation of a series of studies focusing on the digital economy in the region. Thus, in 2018, we published the report *The rise of Digital Challengers*, covering ten countries with the potential to experience strong digital growth: Bulgaria, Croatia, the Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. We followed this up with Digital Challengers reports on selected individual countries, including Poland, Romania, Slovakia, and Slovenia. In 2020, we updated our research in the report *Digital Challengers in the next normal*. In it, we discussed the early effects of the COVID-19 global pandemic and the heightened importance of digitization to respond effectively to the disruption it caused, as well as analyzing how digital can fuel future growth in CEE.

Budapest, Hungary ©Bence Balla-Schottner/Getty Images

Executive summary

The digital economy was a key contributor to the economic development of Digital Challengers' in 2017–21

The digital economy has historically been a key growth driver for the ten countries that are known as Digital Challengers—Bulgaria, Croatia, the Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. This trend continued in the past five years, the digital economy of the Digital Challengers cluster growing by €42 billion (+51 percent) in 2017–21, with annual growth at 9 percent in 2017–19 and 13 percent in 2019–21. The pace of this growth was higher than the annual GDP growth in the region, which was 4 percent in 2017–19 and 3 percent in 2019–21.

In the five years 2017–21, Digital Challengers outperformed their European peers in two key areas. European peers were clustered into two groups—Digital Frontrunners (Belgium, Denmark, Estonia, Finland, Ireland, Luxembourg, the Netherlands, Norway and Sweden) and the Big 5 (France, Germany, Italy, Spain, and the United Kingdom). The two areas where Digital Challengers outperformed these groups of countries were growth of the digital economy (Digital Challengers: 10.9 percent, Digital Frontrunners: 7 percent, Big 5: 6.5 percent) and GDP growth (Digital Challengers: 3.6 percent, Digital Frontrunners: 2.8 percent, Big 5: 0.2 percent).

This development confirms the trend outlined in our previous report, namely that Digital Challengers digital economy is catching up with the leading European countries. One could posit they have been successfully tapping into the growth potential identified in our 2018 report *The rise of Digital Challengers*.

Digital commerce shot ahead by two to five years during the COVID-19 pandemic and is expected to continue as a growth engine

Digital commerce in the Digital Challengers cluster grew by more than €21 billion in 2019–21, accounting for more than 80 percent of growth in the digital economy in the period. COVID-19 sped up the growth rate of digital commerce to 21 percent a year in 2019–21, as in-store shopping was halted by lockdowns across the region. This led to an acceleration of the development of online channels by two to five years.

However, even before the growth driven by COVID-19, digital commerce was on a strong advance trajectory, experiencing a 14 percent annual growth rate in 2017–19. Driving this expansion was GDP growth and greater levels of disposable income, combined with an increased level of digitization. As a result, Digital Challengers grew twice as fast as the Big 5 and Digital Frontrunners in 2017–19, which both grew by 7 percent.

Despite these advances, Digital Challengers are still behind other clusters in terms of the penetration of digital commerce. This lies at 16 percent in 2021, compared to 23 percent for Digital Frontrunners and 21 percent for the Big 5, suggesting further growth potential exists.

More than €200 billion value potential can be captured by 2030

According to our updated scenario, the digital economy of Digital Challengers could secure up to €206 billion in growth by 2030. Within digital commerce, this growth can be fueled by the sectors home goods and electronics (€19 billion potential) and apparel (€9 billion), with the highest growth rates expected in activities

(8 percent CAGR), apparel (7 percent CAGR), and groceries (7 percent CAGR). However, unlocking this full potential would likely require governments and business to increase focus in advancing ICT—in our 2018 report, we developed an "Aspirational scenario" for ICT of €42 billion growth in 2017–21, but the actual growth achieved by Digital Challengers in the period was ultimately only around €10 billion. An acceleration in ICT growth took place during the pandemic (from a 4.6 percent annual growth rate in 2017–19 to a 6.7 percent annual growth rate in 2019–21), yet this growth was not enough to counteract the slower pre-pandemic growth rate.

The digital economy also improves resilience to crises

Advances in the digital economy may make countries more resilient to crises. Research showed countries with a higher level of digitization on average experienced a less severe economic slowdown during the first waves of the COVID-19 pandemic: −2.3 percent GDP growth for Digital Frontrunners compared to −3.9 percent GDP growth for Digital Challengers. By investing in digitizing enterprises and government, and promoting broad communication networks, data analytics, and digital fluency across their populations, countries were better able to respond to crises and soften their impact on the country's economy.

Of course, resilience is important not only for governments, but also for companies. Digitally resilient companies commonly outperformed their non-resilient peers during previous crises, as indicated by the evolution of total shareholder return during the 2008 financial crisis. Companies thus should consider their resilience by investing in digital capabilities, thereby helping their future success.

Businesses can use digital and data solutions to unlock value by meeting evolving customer needs

Rising consumer-centrism is a defining force in the digital commerce landscape. The consumer needs that are gaining importance revolve around availability of products, convenience across the end-to-end customer journey, innovation and personalization, trust and sustainability. This is reflected in trends such as the omnichannel experience, leveraging of customer data, and innovative payment methods. Local players in individual Digital Challenger countries are competitive when it comes to devising solutions suited to customer needs—Allegro, Alza, and Vinted have responded to the expectation of wide availability of products, for example, while InPost and Rohlik offer exemplary solutions for convenience, and traditional leaders such as CCC Group invest strongly in innovation. Businesses can unlock further value from digital commerce by improving digital consumer-centricity with a focus on innovation and personalization, investing in data capabilities, developing ecosystem solutions, ensuring seamless fulfillment, and strengthening customer trust.

How policymakers could support digital potential of the region

Policymakers that want to identify ways to help unlock growth of the region's digital economy could consider the following. They could look at ways to support the digitization of the public and private sectors, developing digital talent, strengthening digital infrastructure, and enabling export and cross-border trade and cooperation. To scale and realize the future value of technological changes, policymakers could also help to articulate a vision for digital transformation and keep it alive over time. Although complex to implement, by enabling user-friendly, widely-used digital public services, policymakers can increase efficiency, reduce the burden on groups

involved in interactions, and contribute to greater productivity. Digitization can improve the private sector's operational efficiency—by automating processes, allowing remote servicing, or replacing front-end work, all of which allows humans to invest more time and energy acting on the insights provided by the data.

Digitization is also a key enabler for businesses to grow their domestic and foreign markets. It does this by increasing access through digital platforms to additional financing solutions and providing a deeper understanding of customers, allowing a more targeted offering to those customers. An enabling regulatory environment could support private sector for example, through basic measures such as recognition of e-documents and e-signatures, and more advanced measures, such as trust-building regulation and revisions to the limitations on digital trade. Digital talent and skills are a further foundation of growth for all components of digital economy: Digital fluency among citizens fuels the development of solutions and enables their wider implementation.

Policymakers looking to support the post-COVID recovery might decide to continue to support the virtual delivery of teaching, online education, and digital platforms. They can also consider providing funds for open educational resources, personalized adaptive learning and experiential or immersive education to promote digital lifelong learning. The latter is particularly important given the rising demand for digital and technical skills on the labor market.

Room for improvement in exports, requiring learning from regional success stories

In the context of this report, international digital commerce trade is determined based on the country of origin of the buyer and the country of origin of the website or platform being used for the sales of goods and services. In

this view, Digital Challengers have a negative digital commerce trade balance of €21 billion. Only the Czech Republic and Romania record positive balances, due to the wide expansion of marketplace companies such as Alza and eMag within CEE. Approximately €25 billion worth of goods and services are imported into the region, mainly from global players such as Amazon and AliExpress.

Digital commerce is still a regional game in CEE, with around 70 percent of total exports staying within the region. Key barriers to increasing exposure outside CEE include logistics costs, product localization, difficulties with multilanguage complaint resolution, and the upfront investment needed to acquire customers. Gaming and other software, digital media subscription services, aggregators and digital tourism service providers are examples of digital services verticals where Digital Challengers can potentially capture further export value. Raising exports to the levels of Romania and the Czech Republic could unlock around €8 billion of additional digital economy value. To do so, companies will need to develop appropriate capabilities and infrastructure—an area where, again, policymakers can consider what support to provide.

Riga, Latvia ©Myron Kross/Getty Images

Bucharest, Romania ©Paul Antonescu/Getty Images

Digital Challengers at a glance

Since the transition to a market economy over three decades ago, CEE has enjoyed what many have called a golden age of growth. However, the factors propelling that growth, such as labor-cost advantages, foreign investment, and strong traditional industries, are losing momentum. In 2018 and 2020, we published a series of reports that show how the digital economy could be the new growth engine for the region—a force that can unlock further growth of industries and increase the productivity of labor.

To provide a comparison and identify growth opportunities, we closely analyze three European country clusters with different levels of digitization. The focus of this report is the current state and growth potential of the digital economy in the Digital Challenger cluster—a group of small and medium-sized countries with strong potential for fast digitization, comprising Bulgaria, Croatia, the Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. We draw comparisons with two other clusters in Europe. The first are the Digital Frontrunners—a group of relatively small countries with high digitization rates, comprising Belgium, Denmark, Estonia, Finland, Ireland, Luxembourg, the Netherlands, Norway, and Sweden. The second are the Big 5—the largest economies in Europe, with lower digitization rates than Digital Frontrunners, made up of France, Germany, Italy, Spain, and the United Kingdom. In this report we expand our perspective to include a number of global benchmarks—countries that showcase digital leadership in selected areas.

While the countries in the Digital Challenger cluster have lower average GDP than countries in the Big 5 and Digital Frontrunners, Digital Challengers experienced the strongest GDP growth between 2017 and 2019. Moreover, our analysis shows that Digital Challengers have nearly caught up with the other clusters in terms of the digital economy as

a share of GDP (8 percent in 2021), and overtook the other clusters in terms of growth of the digital economy between 2017 and 2019. Nevertheless, Digital Challengers lag behind in overall digitization, as demonstrated by the low "digital economy per capita" value.

In 2020, when we published our report *Digital Challengers in the next normal*, Europe had just experienced the first few months of the COVID-19 pandemic. During the two years that the pandemic lasted, the world as we knew it was reshaped. Society, enterprises, and the public sector were transformed. The effects of the crisis, such as social distancing and remote work, had a strong impact on growth of the digital economy. At the same time, it became evident that a country's digital maturity affected its resilience during the pandemic, limiting the negative impact of the crisis on the country's economic performance. Indeed, our analysis shows that, of the ten countries that recorded the least severe impact of the pandemic (measured as a

slowdown in GDP between 2019 and 2020), seven are in the Digital Frontrunners cluster, which is characterized by high digitization rates.

Today, CEE is once again facing uncertain times. Digital Challengers are facing the humanitarian crisis caused by the Russian invasion of Ukraine. The customer sentiment is deteriorating due to rising inflation in the region, and pinpointing the exact moment of the crises resolution is an impossible task. In this report, however, we reflect on the growth of the digital economy, drawing up growth scenarios for the period to 2030. As digital commerce represents the biggest component of the digital economy and has shown the fastest acceleration during the past two years. We therefore conduct a "deep dive" into the growth trajectory, trends and factors unlocking for digital commerce across the region. Finally, we make recommendations for how policymakers, businesses and individuals can contribute to digitally-led growth in the coming years.

Digital Challengers are 30% bigger than Digital Frontrunners, but their GDP is at almost 50% of the Frontrunners. GDP growth rate is the highest amongst regions

Total regional population vs country average, 2021, million

- Digital Challengers
- Digital Frontrunners
- Big 5

Digital Frontrunners 63 / 7 Avg.

Big 5 325 / 65 Avg.

Digital Challengers 101 / 10 Avg.
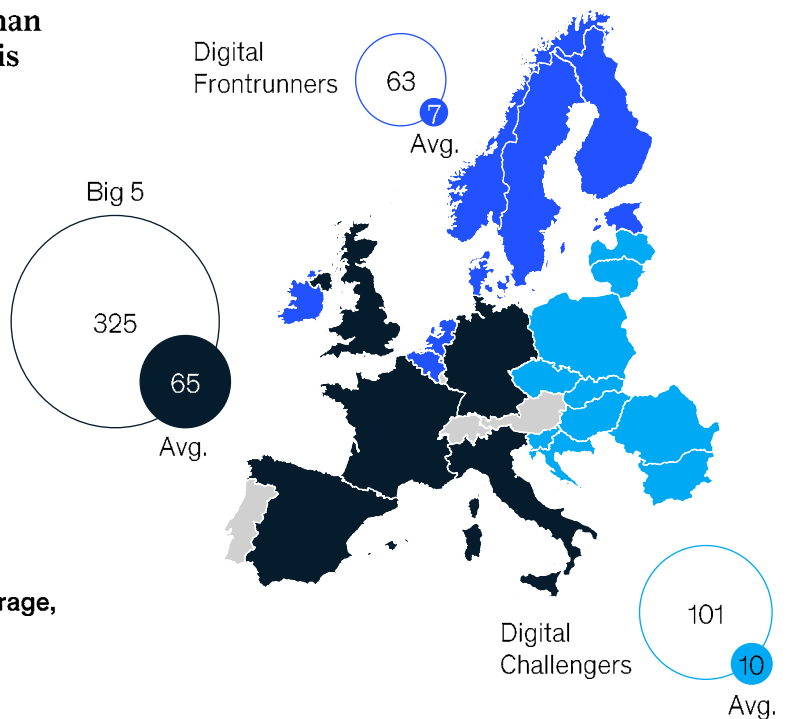
Total GDP, 2021, € trillion
11.9 / 3.4 / 1.6
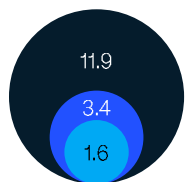
GDP country average, 2021, € trillion
2.4 / 0.4 / 0.2
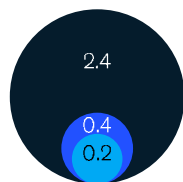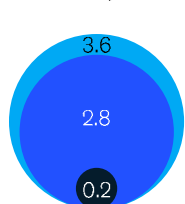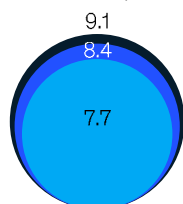
GDP growth, 2017–21, %
3.6 / 2.8 / 0.2

Digital economy as % of GDP, 2021
9.1 / 8.4 / 7.7

Digital economy per capita, 2021, €
4,552 / 3,319 / 1,232

Growth of digital economy, 2017–21, %
10.9 / 7.0 / 6.5
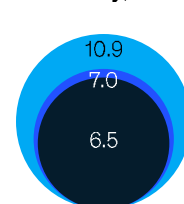
Source: Euromonitor; IDC; World Bank; McKinsey Global Payments Map; McKinsey analysis

1

The digital economy of Digital Challengers today and tomorrow

In this chapter we focus on the digital economy of Digital Challengers. We present:

— A review of the growth and digitization of Digital Challengers, and how they compare to the scenarios outlined in our 2018 report.[1] This takes into account recent changes in the global economic and social environment. It also compares the performance of Digital Challengers to other, more digitally mature clusters

— An analysis of the current role of digitization as a resilience-building factor in the light of COVID-19, the Russian invasion of Ukraine, and rising inflation

— Identification of future growth paths and opportunities for the digital economy of Digital Challengers, and enabling factors

Overview of growth of the digital economy 2019–21

Revisiting digital economy

Our definition of the "digital economy" is based broadly on that used in our 2018 report.[2] It includes three key components:

— **Digital commerce:** The value of online retail spending by consumers and small businesses on goods and services:

  • Goods: Home goods and electronics, apparel, media products, personal care, and groceries

  • Services: Restaurants, activities, transport, and hotels and accommodation

— **ICT:** The value of IT, telecommunications and media spending by governments and companies across all sectors on hardware, software, infrastructure, and related services

— **Offline spending on digital:** The value of offline spending by consumers and small businesses on digital equipment (computers, smartphones, IT infrastructure, and so on)

Our definition of the "digital economy", while covering a consistent set of components between reports, has been partially adjusted to respond to current trends in the digital environment. Specifically, we have extended it to include omnichannel purchases and purchases of both goods and services—an increasingly significant component of the digital economy. We have also changed the approach that we use to define the size of the ICT sector from a cost-based to a spend-based one.

Size and growth of the digital economy, 2017–21

Two years have passed since COVID-19 was declared a global pandemic—two years in which the world has been through a global health crisis of immense proportions. In this time, we have weathered multiple infectious variants of the disease and administered over 12 billion doses of vaccines globally (as per the end of June 2022).[3] Currently, the restrictions related to the COVID-19 pandemic are loosening in many parts of the world. This, of course, may change in the event of a new, more virulent variant emerging.[4]

The pre-COVID-19 world was already characterized by rapid communication and digital engagement across many areas of life. The pandemic amplified these aspects. COVID-19 added unforeseen restrictions to physical contact between people. As a result, governments and companies sped up their process of digitization to a level that had not been expected to occur until several years later. Over the past two years, "digital" became central to most interactions and policymakers, enterprises, and individuals moved up the adoption curve. This led to a rapid expansion in remote education, remote work, and digital communication. It also meant that digital commerce became more important than ever before.[5]

According to our estimates, the digital economy of Digital Challengers grew by €42 billion in 2017–21, a 10.9 percent annual growth rate. Most of this growth came from digital commerce; ICT also experienced growth, but in the single-digit range. At the same time, offline spend on digital stagnated. The growth rate for digital commerce sped up in particular between 2019 and 2021, as COVID-19 led to increased online penetration.

Growth of the digital economy of Digital Challengers accelerated in 2019–21, reaching 12.8% a year

Digital economy of Digital Challengers, 2017–21,
€ billion
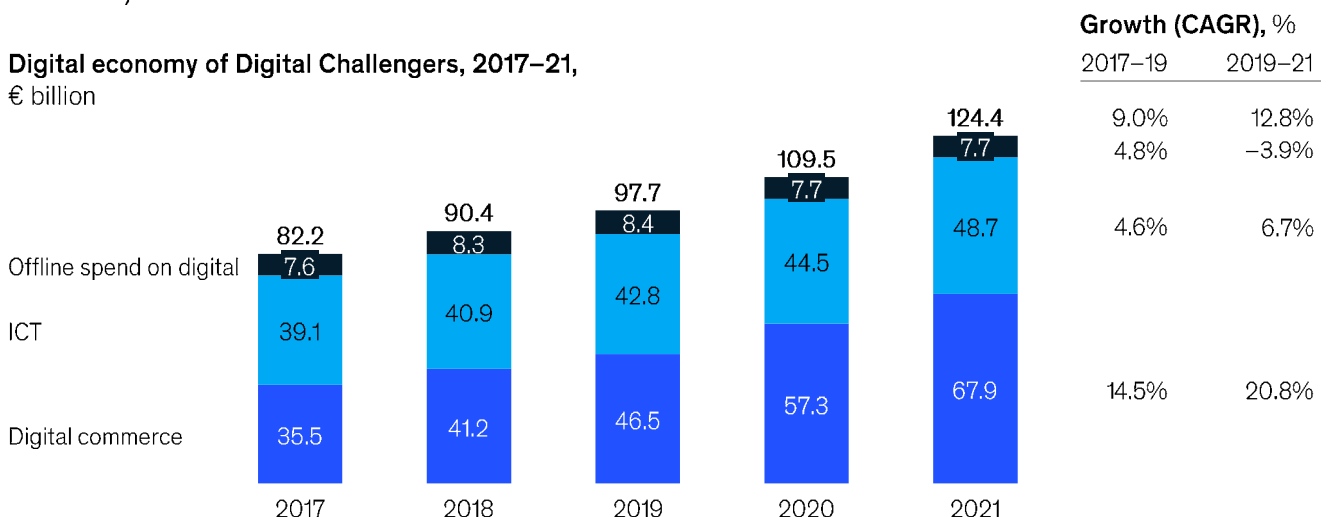
	2017	2018	2019	2020	2021
Total	82.2	90.4	97.7	109.5	124.4
Offline spend on digital	7.6	8.3	8.4	7.7	7.7
ICT	39.1	40.9	42.8	44.5	48.7
Digital commerce	35.5	41.2	46.5	57.3	67.9

	Growth (CAGR), %	
	2017–19	2019–21
Total	9.0%	12.8%
Offline spend on digital	4.8%	−3.9%
ICT	4.6%	6.7%
Digital commerce	14.5%	20.8%

Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

Growth of the digital economy is significantly higher than growth of GDP

Economy of Digital Challengers, 2017–21, € billion

GDP growth

+4% p.a.

2017	2018	2019	2020	2021
1,402	1,465	1,524	1,465	1,613

Growth of digital economy

+11% p.a.

2017	2018	2019	2020	2021
82.2	90.4	97.7	109.5	124.4

Source: Euromonitor; IDC; World Bank; McKinsey Global Payments Map; McKinsey analysis

Our 2018 report *The rise of Digital Challengers* introduced the idea that the digital economy was a driver for further growth of the CEE region. The figures bear this out: Our analysis shows that in 2017–21, the digital economy fueled the economic growth of the CEE region and compensated for the non-digital slowdown in GDP during the period of COVID-19 disruption.

In our *Digital Challengers* report series, we introduced two potential growth scenarios: a "Business-as-usual" scenario, which assumed a continuation of historical growth rates, and an "Aspirational" scenario, which assumed that Digital

Challengers would match the digital growth rates of leading countries in the Digital Frontrunners cluster and certain other globally-leading digital players. We revisited this 2018 perspective in 2020, during the first months of the COVID-19 pandemic. According to our estimates, in 2019−21 the digital economy of the Digital Challengers cluster recorded a growth rate of 12.8 percent annually, reaching a value of €124 billion in 2021. Thus, Digital Challengers outperformed the predictions (adjusted for the updated methodology used in the current report) of the Business-as-usual scenario by €17 billion, but underperformed the predictions of the Aspirational scenario.

Digital Challengers outperformed the Business-as-usual scenario by €17 billion

Digital economy of Digital Challengers, 2017–21, € billion
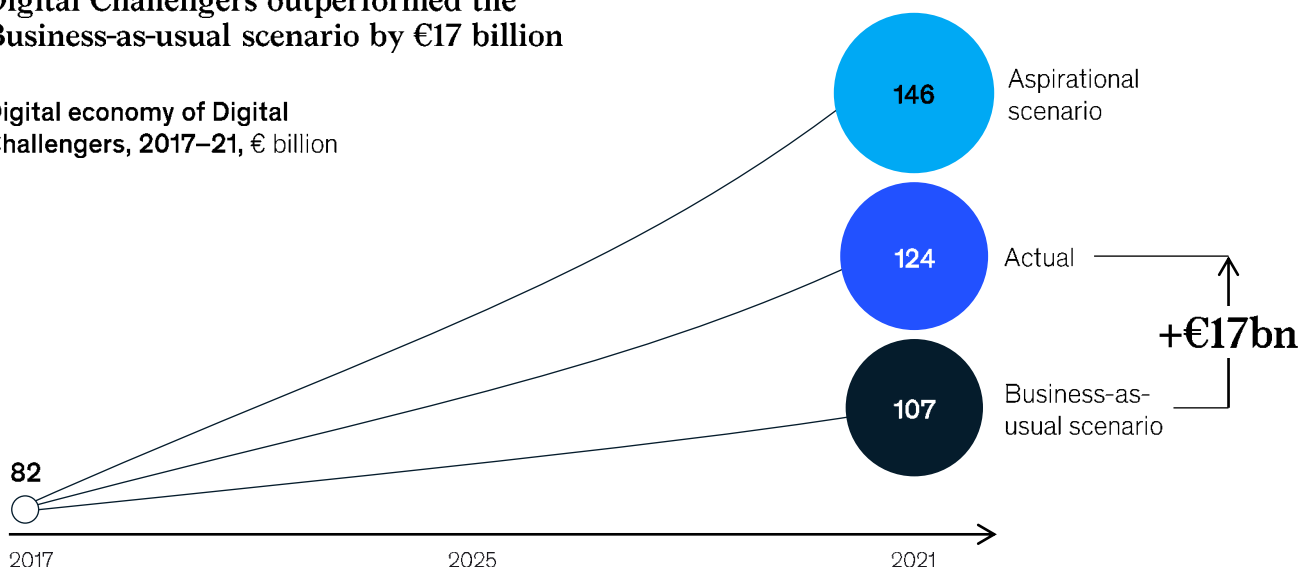
82

146 — Aspirational scenario

124 — Actual

107 — Business-as-usual scenario

+€17bn

2017	2025	2021

Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

Growth of the digital economy is primarily driven by digital commerce

**Breakdown of growth of the digital economy of Digital Challengers,
2017–21,** € billion
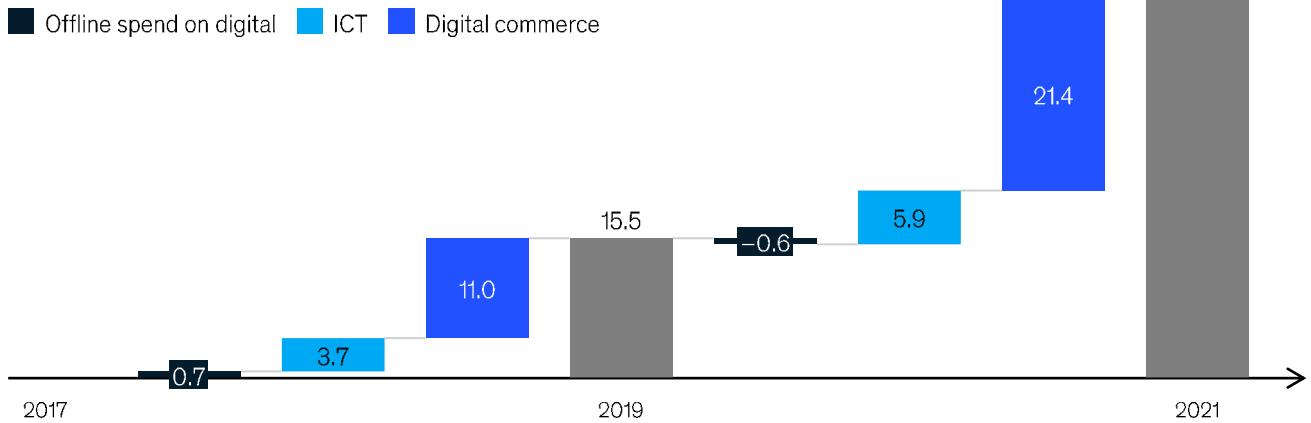
■ Offline spend on digital ■ ICT ■ Digital commerce

Source: Euromonitor; IDC; World Bank; McKinsey Global Payments Map; McKinsey analysis

Digital growth in the region was mainly driven by digital commerce. According to our estimates, digital commerce represented over 80 percent of the growth of the digital economy in 2019–21, contributing €21.4 billion in this period.

Digital commerce outperformed the predictions of both the Business-as-usual and the Aspirational scenarios, reaching €68 billion in value in 2021. According to our analysis, it represented over half the size of the digital economy.[6] The growth rate picked up particularly after 2019 as a

consequence of COVID-19, when lockdowns and other pandemic-related concerns shifted consumers toward digital channels and caused higher average digital commerce penetration levels among Digital Challengers—from 11 percent in 2019 to 16 percent in 2021. Our analysis shows that this growth occurred despite a shrinking retail market (total retail growth was −6.2 percent in 2019–20). In other words, the shift from in-store shopping to digital commerce was an important factor for growth during the pandemic.

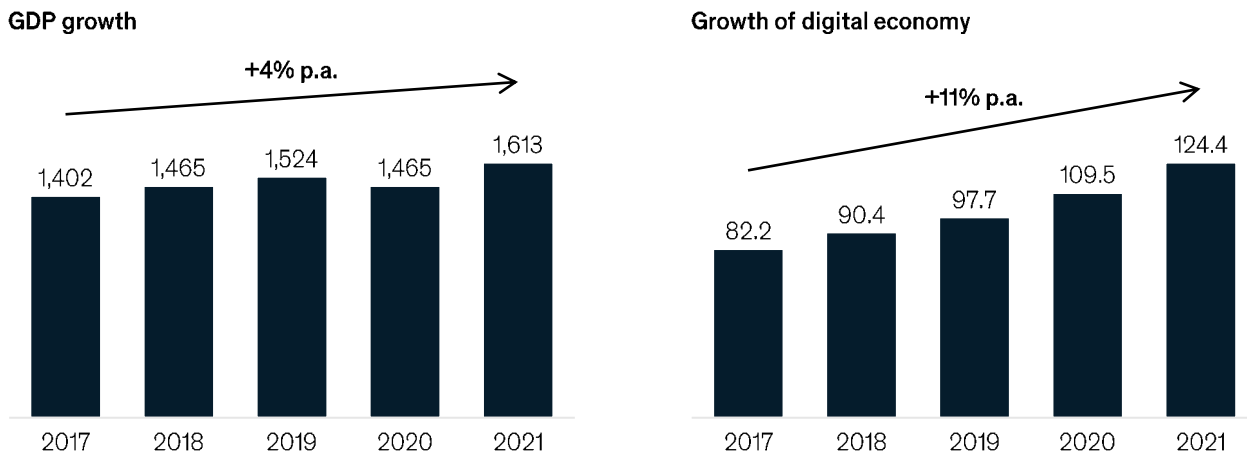# Growth of the digital economy was driven by digital commerce outperforming all predictions

**Digital commerce in Digital Challengers,
2017–21,** € billion
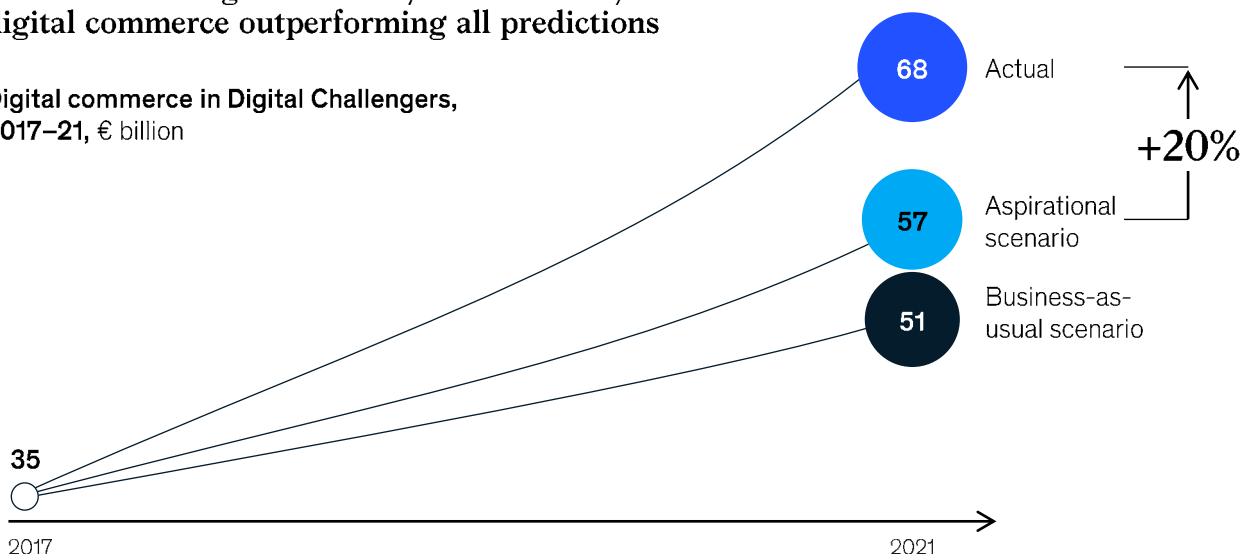
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

## ICT only slightly outperformed the Business-as-usual scenario in 2017-21

ICT in Digital Challengers, 2017–21, € billion
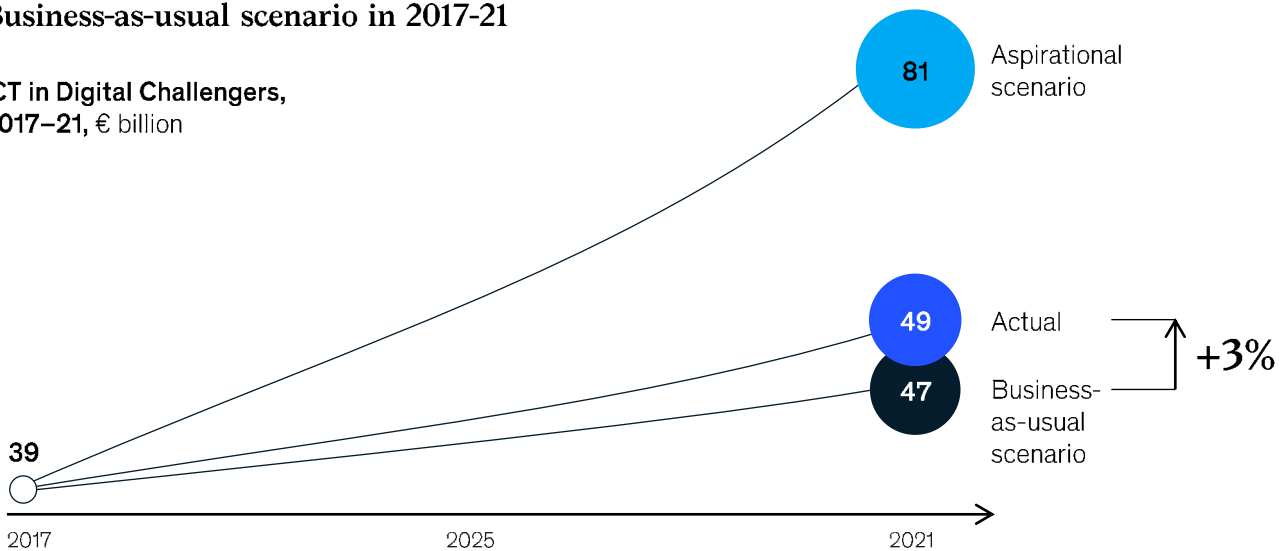
39
2017

81 — Aspirational scenario

49 — Actual
47 — Business-as-usual scenario

+3%

2017   2025   2021

By contrast, ICT growth, while outperforming the Business-as-usual scenario by €2 billion, did not realize the full potential identified, significantly lagging behind the Aspirational scenario. An acceleration in ICT growth took place during the pandemic (from a 4.6 percent annual growth rate in 2017–19 to a 6.7 percent annual growth rate in 2019–21). Yet, according to our estimates, the growth rate for ICT was slower than that of the digital economy overall.

Offline spending on digital dropped in 2019–21, mainly due to the impact of the economic slowdown that followed the outbreak of the pandemic. Consumers reduced their spending on non-discretionary items, especially in physical retail stores, and shifted toward online purchases during the lockdown.

Digital Challengers grew faster than the Big 5 and Digital Frontrunners

Digital economy of Digital Challengers, Digital Frontrunners, and Big 5
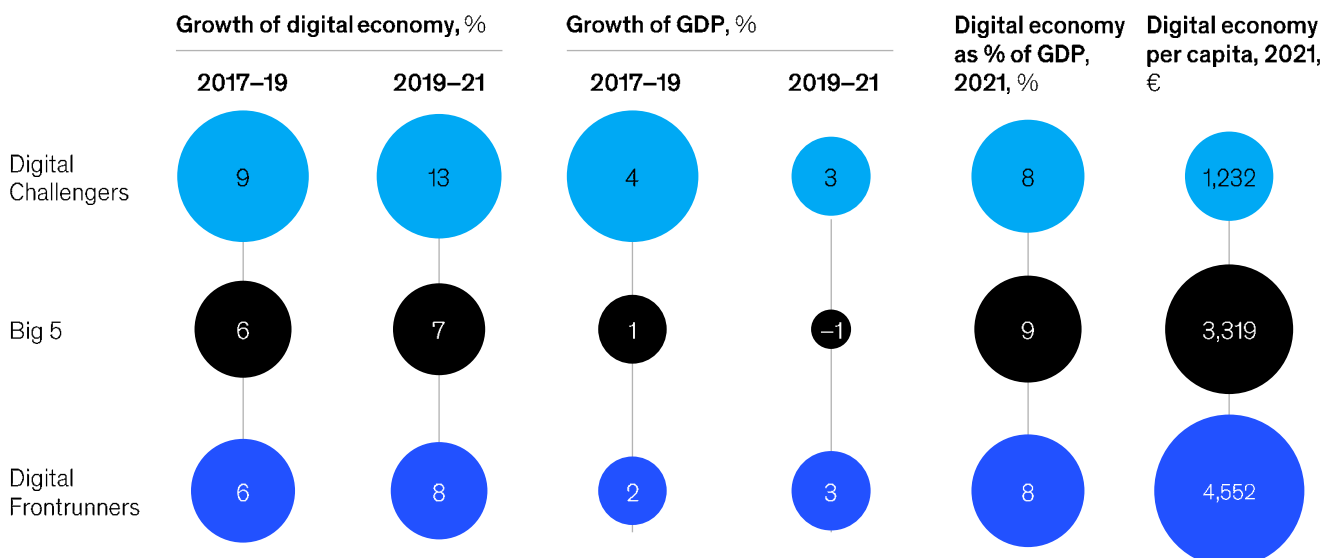
	Growth of digital economy, %		Growth of GDP, %		Digital economy as % of GDP, 2021, %	Digital economy per capita, 2021, €
	2017–19	2019–21	2017–19	2019–21		
Digital Challengers	9	13	4	3	8	1,232
Big 5	6	7	1	−1	9	3,319
Digital Frontrunners	6	8	2	3	8	4,552

Comparison with the rest of Europe

For a broader perspective on the performance of Digital Challengers, we compare them to our two other clusters: Digital Frontrunners and the Big 5.

Our estimates shows that the digital economy of Digital Challengers grew (9 percent per annum) in the pre-COVID period, 2017–19, faster than that of Digital Frontrunners (6 percent) and the Big 5 (6 percent). This was due to the fact that the GDP of Digital Challengers was also growing significantly faster than that of their peers in this period. Between 2019 and 2021, the growth rate of the digital economy of Digital Challengers remained higher than that of the other two clusters at 13 percent per annum (Digital Frontrunners: 8 percent; Big 5: 7 percent).

Both Digital Frontrunners and the Big 5 are more mature digital economies. According to our analysis, the value of their digital economies per capita is higher than that of Digital Challengers—3.7 times higher in the case of Digital Frontrunners and 2.7 times higher for the Big 5. However, the digitally mature Digital Frontrunners are already showing signs of saturation, as reflected in their digital economies' falling growth rates in the period prior to the COVID-19 pandemic.

Comparison with global benchmarks

Our discussion so far has focused on comparisons with Digital Frontrunners and the Big 5. But we also need a global perspective to see where the potential of the digital economy lies in 2022 and beyond. Global benchmarks help extend our perspective with standout examples in digital economy subcategories and draw from a wider range of best practices.

In this study, we base our global benchmarks on high-performance countries with outstanding digital advancement outside the European Union, namely China, the United Kingdom, Singapore, and the United States. Each of these countries leads in one aspect or another of the digital economy. In 2021, their combined digital economy was approximately four times the size of that of all three of our clusters taken together. Moreover, according to our estimates, their digital economy grew by €1.4 trillion in 2017–21, accounting for much of the growth seen in the global digital economy. With their varied social, political, and economic features, these four countries' booming digital economies showcase characteristics of digital leadership, each with a unique spike. They set a best-in-class standard in digital commerce penetration, ICT exports, and digital economy per capita.

Global benchmark countries accounted for 85% of growth of the digital economy between 2017 and 2021

Growth of the digital economy, 2017–21,
€ billion

Legend: Global benchmark countries ■ Big 5, excl. UK ■ Digital Frontrunners ■ Digital Challengers

	Global benchmark countries	Big 5, excl. UK	Digital Frontrunners	Digital Challengers
2017	3,006	567	216	82
Growth	1,392	68	146	42
2021	4,398	713	284	124
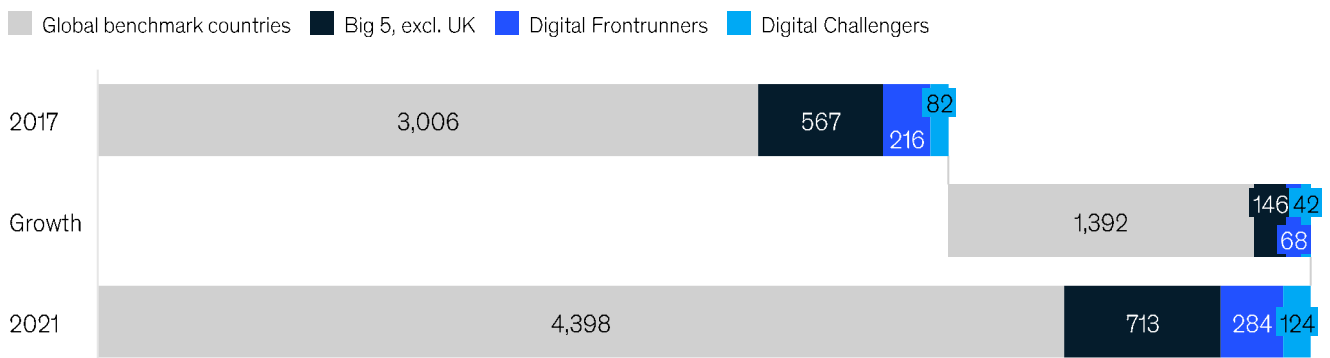
Source: Euromonitor; IDC; World Bank; McKinsey Global Payments Map; McKinsey analysis

Profiles of global benchmark countries

Globally, China is a benchmark for the penetration of digital commerce, 2021, %

Digital Challengers	16
Digital Frontrunners	23
Big 5	21
China	29

Singapore is a global benchmark for ICT, with higher spend per capita than the discussed clusters, 2021, €

Digital Challengers	483
Digital Frontrunners	2,181
Big 5	1,347
Singapore	3,881

In Europe, the UK leads in the penetration of digital commerce, 2021, %

Digital Challengers	16
Digital Frontrunners	23
Big 5 (without UK)	18
United Kingdom	30

The US is a global benchmark for value of the overall digital economy per capita, 2021, €
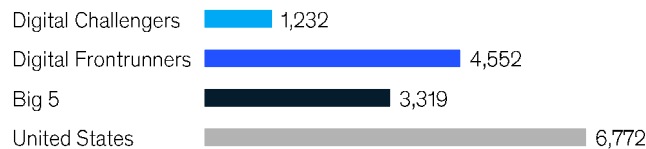
Digital Challengers	1,232
Digital Frontrunners	4,552
Big 5	3,319
United States	6,772

Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

Digital commerce is a key pillar in the Chinese economy. According to our analysis, digital commerce penetration is 29 percent in China, compared to 23 percent in Digital Frontrunners, 21 percent in the Big 5, and 16 percent in Digital Challengers (2021). China showcases best-in-class digital commerce practices, such as livestreaming with in-platform purchasing, services like Alipay providing online escrow to enable trusted digital payments, and vast marketplaces that function as trusted hubs for goods. The high level of digital adoption, combined with more than 782 million online consumers, provides both supply and demand for one of the world's top digital commerce economies.[7,8]

The United Kingdom has the highest digital commerce penetration in Europe, having risen from 22 percent in 2019 to 30 percent in 2021, according to our estimates. The country went through two lockdowns in 2020, which contributed to the acceleration of digital commerce growth. The second of these lockdowns lasted until December 2020, causing a shift to online channels during the intense shopping periods associated with Black Friday and Cyber Monday. Strong fundamentals, including a combination of above-average household discretionary spending power and businesses with strong online platforms, enabled rapid digital commerce acceleration during the COVID-19 pandemic.[9]

Singapore is one of the world leaders in ICT, with a strong ICT talent pool, a vibrant ecosystem of startups and partners (for example, incubators, licenses providers), and well-funded government 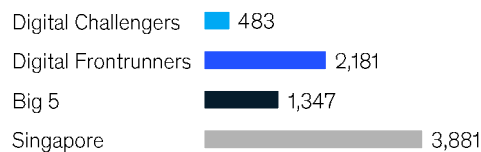programs. Our analysis shows that Singapore's ICT spend of €3,129 per person is 43 percent more than in the relatively mature Digital Frontrunners cluster. Singapore excels in government programs,

such as the open data platform, consolidating data from over 70 agencies, and has a GovTech team under the Prime Minister's office to fast-track digital initiatives. Additionally, a strong development and cybersecurity ecosystem for businesses is a national priority, with a National Cybersecurity Response Plan that has three tiers of response to cyberthreat incidents based on their type.[10]

The United States leads in the overall value of the digital economy per capita, at €6,772—some 49 percent higher than Digital Frontrunners and 104 percent higher than the Big 5, according to our estimates. The United States has strong foundations for its digital economy, with over €300 billion in startup venture capital available, strong protection of intellectual property rights, and uniform identity and payment systems easing online purchasing.[11] The country has created an effective loop of innovation, education, production, and consumption.

Development of digital foundations in Digital Challengers

We introduced the concept of "digital foundations" in our series of *Digital Challengers* reports. It describes the core areas for Digital Challengers that enable and drive digital maturity and continuous growth of the digital economy. The relative importance of the individual digital foundations may change over time, but overall they remain valid as the basis for digital advancement.

Macroeconomic performance
We quantify the digital economy in this report by looking at spending by individuals, enterprises and governments on ICT, digital commerce, and offline media. The ability of these players to spend is heavily dependent on the overall economic

performance of the region. At the same time, economic instability can create new levers for the digitization journey. For this reason, we consider the macroeconomic performance of clusters a critical factor enabling the growth of digital.

Macroeconomic performance was impacted by the COVID-19 pandemic across the world. Our estimates show that Digital Challengers saw a bigger slowdown (−3.9 percent GDP growth between 2019 and 2020) than Digital Frontrunners (−2.3 percent), but performed better than the Big 5 (−7.7 percent). Between 2020 and 2021, Digital Challengers' GDP growth rate was the strongest of the three clusters, at 10.0 percent (Digital Frontrunners: 9.0 percent; Big 5: 6.2 percent). This is in line with the historical pattern of dynamic growth in CEE, contributing to the attractiveness of the region.

An important factor attracting investors to a region is the affordability of its workforce. Digital Challengers have an average hourly wage of €12, which is 3.1 times less than Digital Frontrunners and around 2.6 times less than the Big 5.[12] However, this advantage is weakening over time, as Digital Challengers have the lowest unemployment levels, at approximately 5.5 percent (Digital Frontrunners: 6.0 percent; Big 5: 8.0 percent).[13] This translates into low labor reserves and the increasing importance of investment to boost productivity.

Education and talent

Digital talent is a core foundation of the further development of the digital economy and society as a whole. According to the Program for International Student Assessment (PISA) results from 2018, Digital Challengers' quality of education is close to the level of Digital Frontrunners and the Big 5.[14] Due to the COVID-19 pandemic, the PISA survey planned for 2020 has been delayed until the second half of 2022; however, it is already clear that the COVID-19 pandemic caused tremendous disruption to education, taking a substantial toll on students' academic progress, as well as on their mental health.[15] Beyond the direct effect on students, delays in learning may also affect further economic growth. According to McKinsey analysis, by 2040, the COVID-19-related impact on learning could translate into losses equivalent to 0.9 percent of global GDP.[16] Globally, students may be even eight months behind where they would have been were it not for the pandemic. COVID-19 also increased pre-existing educational inequalities, with historically vulnerable and marginalized students now at an increased risk of falling further behind.[17]

Europe, on average, had lower learning delays than other continents. However, among the clusters in focus, Digital Challengers may have experienced a bigger negative impact on students' learning than countries with more advanced schooling systems, such as those in Digital Frontrunners and the Big 5.[18] The reason for this would be the larger gaps in digitization between urban and rural areas in Digital Challengers, which may have disproportionately affected historically vulnerable students due to their lack of digital infrastructure (for example, laptops, phones, internet connection). Another potential cause could be lower spending on digital equipment (for example, networks, devices) by schools in Digital Challengers compared to the other clusters, which played an important role during the movement towards remote learning.[19]

The long-term impact on education across countries will depend on their response in the near future. To limit the effects of the disruption on education, it would be beneficial for the school systems of Digital Challengers to focus on core actions such as guaranteeing a safe environment for in-person learning, promoting reenrollment, and ensuring needs-based individual support for students.[20]

To fuel growth of the digital economy, Digital Challengers need to strengthen education and opportunities for ICT talent. The countries in the cluster have a growing pool of ICT specialists within the employed population. This pool is also growing faster than in other clusters, with annual growth of 8 percent in 2019−21 (Digital Frontrunners: 7 percent; Big 5: 6 percent).[21] Yet, they still have room for improvement when it comes to the total share of ICT specialists in employed population, which was just 4 percent in 2021 (Digital Frontrunners: 6 percent; Big 5: 5 percent).[22]

Digital Challengers would be well advised to ensure a strong talent pipeline in technical areas, especially the cloud and AI. Despite the quality of STEM and ICT courses in the CEE region, Digital Challengers saw a decrease in the number of STEM students between 2017 and 2019, from 236,000 down to 208,000, while in other clusters this figure grew. The number of ICT students in Digital Challengers remained stable in 2017−19, at around 39,000 students.[23]

Countries can further address the demand for talent through re-training programs, which become increasingly important as the pace of innovation increases. Digital Challengers saw higher growth in the share of enterprises providing ICT training to their employees in 2019−21 (annual 3 percent growth, compared to 2 percent growth in Digital Frontrunners). However, overall, the share of enterprises providing training remains lower in

Digital Challengers (17 percent) than in Digital Frontrunners (30 percent).[24]

Digital infrastructure

Traditional infrastructure refers to a country's core infrastructure, such as roads or powerplants. Digital infrastructure, by contrast, can take the form of integrated technical systems, technology assets (for example, data centers, fiber) or software platforms.[25] The connectivity facilitated by the digital infrastructure is a key enabler for access to online channels and growth of the digital economy.

Since our 2018 report, Digital Challengers have further strengthened their core digital infrastructure and continued to narrow the gap to Digital Frontrunners and the Big 5 in the provision of affordable core infrastructure. Among the countries in the cluster, 4G reached close to 100 percent coverage in 2021, and broadband of at least 30 Mbps 84 percent coverage.[26]

Further improvement is now focused on more advanced coverage solutions. While all three clusters recorded strong growth in the past two years, Digital Frontrunners are in the lead in infrastructure development, including 5G and broadband with a speed of at least 100 Mbps. In the case of ultrafast broadband (speeds above 100 Mbps), Digital Challengers saw annual growth of 17 percent in 2019–21, reaching coverage of 32 percent of households, behind both Digital Frontrunners (43 percent) and the Big 5 (39 percent).[27] Increasing network capacity is now essential for the further development of advanced digital solutions, such as the Internet of Things (IoT).

A vibrant business ecosystem

The tech ecosystem across the three country clusters supported the reaction to the pandemic by providing fast solutions in areas such as EdTech, eHealth, and supply chain management, highlighting its importance in times of crisis. Digital Challengers and the Big 5 improved their ranking in the Global Innovation Index in 2019–21, with Digital Frontrunners remaining in the lead.[28] Despite a slowdown in venture capital investments in 2020 due to the recession, the pace picked up again in 2021, increasing by up to 2.3 times compared to 2019 levels.[29] The combined enterprise value of CEE-born tech companies reached €186 billion in 2021.[30]

At the start of 2021, CEE had approximately 30 unicorns—rapidly scaling, tech-enabled companies that have reached a $1 billion valuation on the base of a funding round, acquisition, or IPO—up from just four in 2015. This group was joined by CEE-born companies such as Docplanner Group, Rohlik Group, Printful and eobuwie.pl in 2021.

As the venture capital and business ecosystem grow, a positive feedback loop may emerge between skilled talent, more quality startups, and new venture capital. This could create further opportunities for the region. However, it should be noted that the region is also experiencing rising interest rates, in line with the global trend, which in turn could adversely affect companies' valuations and fundraising capabilities. In distressed market conditions, investors could begin looking for opportunities in less risky locations. This would limit the capital supply for emerging markets such as Digital Challengers.

The positive flywheel is going into full effect, with startup success driving continued ecosystem growth

Experienced and skilled talent. Angels supporting early-stage startups

More quality startups

High-profile exits

Attracting global venture capital

More capital and bigger, more ambitious companies

More local venture-capital firms emerge, with global quality standards

Bigger outcomes
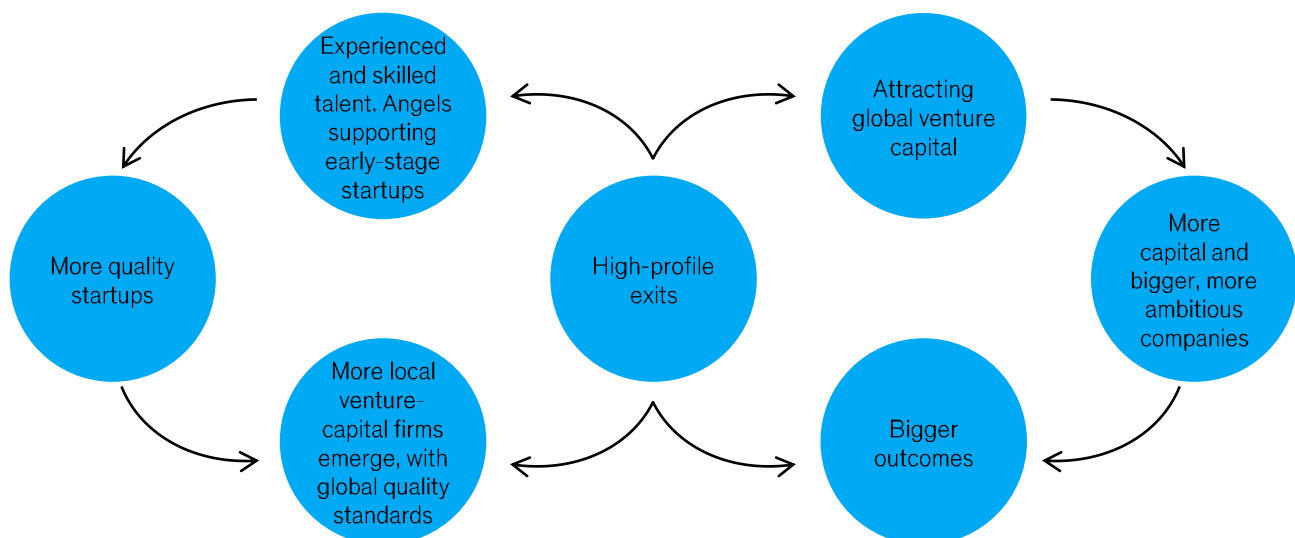
Source: Dealroom.co

EU Recovery and Resilience Facility

The EU Recovery and Resilience Facility (EU RRF) has a value of €723.8 billion. Its target for digital initiatives is 20 percent of funds, and for climate initiatives 37 percent, with other categories including social cohesion, inclusive growth, health and economic resilience, and policies for the next generation.[31] So far, an estimated 26 percent of funding has gone to digital initiatives as of 2022. Of our three clusters, Digital Challengers received the most funding on average in terms of percentage of GDP, at 6.2 percent (€100.5 billion), 3.5 percent (€325.9 billion) in the Big 5 (excluding the United Kingdom) and 0.7 percent (€20.9 billion) in Digital Frontrunners (excluding Norway).[32] The facility provides a unique opportunity for Digital Challengers to draw on the support of the European Union to invest in the digital economy at a higher rate than the other clusters.

Impact of the current crisis on digital foundations and the digital economy

As Europe emerges from the COVID-19 crisis, the geopolitical instability related to the invasion of Ukraine and rising prices have become the top areas of concern for Europeans.[33] Annual inflation in several of the Digital Challenger countries reached double digits at the end of first half of 2022.[34]

The Russian invasion of Ukraine has caused the greatest humanitarian crisis in Europe since World War II. To date, thousands of lives have been lost and millions of people displaced.[35] Some short-term implications for the digital foundations of the CEE region are already clear, however. Rising prices for food and energy, in particular, are impacting the region's macroeconomic performance, with inflation in April 2022 reaching over 10 percent annually in most Digital Challenger countries.[36] Increasing economic volatility, growing uncertainty, and disrupted supply chains are decreasing disposable income and consumer sentiment. According to a consumer survey carried out by McKinsey in the Big 5 countries and Poland in April 2022, rising prices and the invasion of Ukraine are the biggest concerns for consumers, having overtaken COVID-19.[37]

The invasion of Ukraine has also brought concerns about cybersecurity. In response, companies and governments have focused on evaluating their exposure to cyberattacks and making the necessary adjustments to their digital infrastructure to ensure cybersecurity. The business ecosystem, technology standards (for example, security provisions), and the interconnectedness of solutions are likely to differ increasingly between the regions, which may translate into more expensive services and lower productivity.[38]

In addition, the war in Ukraine has had a massive impact on migration. At present, Digital Challengers are experiencing a significant inflow of refugees due to the crisis. How this evolves depends strongly on further developments in Ukraine.

Rising prices and the invasion of Ukraine have now by far overtaken the COVID-19 pandemic as top concerns for consumers

Which of the following is your top concern today?
% of respondents

	Other	Extreme weather events	Unemployment/job security	COVID-19 pandemic	Invasion of Ukraine	Rising prices
Big 5	12	5	7	8	24	44
Germany	9	7	2	8	34	40
France[1]	21		8	6, 4	18	44
UK	11	3	7	4	15	60
Italy	9	6	11	11	32	32
Spain	8	3	14	7	21	47
Poland	13	2, 2	4		29	50
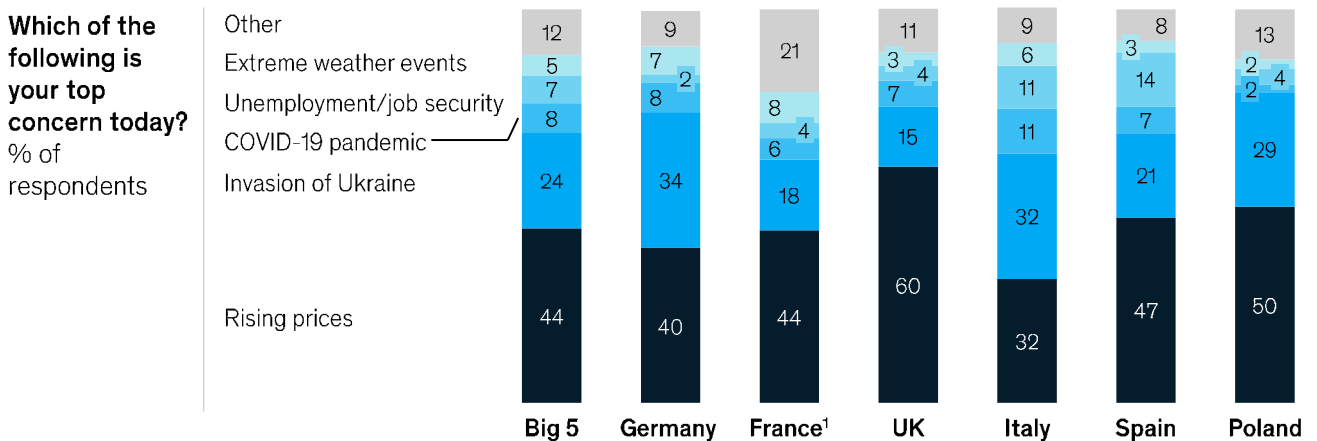
For France, political insecurity (9%) and immigration (8%) are concerns mentioned by more than 5% of consumers; bars may not sum to 100% due to rounding
Source: McKinsey & Company Europe Consumer Pulse Survey, December 4 to April 18, 2022; n = 5,075 (France, Germany, Italy, Spain, UK); sampled to match European general population aged 18+; McKinsey & Company Poland Consumer Sentiment Survey, May 2022; n = 1,006; sampled to match Polish general population aged 18+

The current environment could potentially impact all components of the digital economy. Digital commerce may see the strongest negative impact, as consumption by local populations is depressed by increased uncertainty, worsening consumer sentiment, and soaring prices—especially for essentials. Among the poorest European households, discretionary spend already shrank by over 10 percent between February and the end of April 2022.[39] Companies from CEE countries may further be impacted by declining exports to Ukraine and their withdrawal from operations in Russia.[40] At the same time, the demographic base of CEE countries is changing, with most of the refugees being women, children or the elderly. Based on border crossing data, the number of refugees that have entered CEE countries are up to 3.1 million in Poland, 0.8 million in Romania, 0.6 million in Hungary, 0.4 million in Slovakia, and 0.3 million in the Czech Republic.[41]

The ICT sector is high on the agenda of governments and businesses due to concerns about cybersecurity. Attacks on critical infrastructure can cause disturbance in multiple sectors—an attack on the telecommunications infrastructure may disrupt electronic payments, for instance. Individuals and businesses are also increasingly dependent on digital devices. Increased spending on cybersecurity is therefore necessary in order to ensure a thriving economy.

Many EU governments are also reshaping their spending priorities. Fifteen NATO countries, plus Sweden, have announced increased defense spending to date, partly dedicated to connectivity and digital devices. Increased defense spending may come, albeit to a limited degree, at the expense of government investment in local telecommunications infrastructure.[42] Supply chain disruption can also have an impact on the availability of finished goods within the IT sector. However, this impact is likely to be moderate compared to the impact on other sectors, as electrical equipment, appliances, and machinery have lower export dependency on Ukraine and Russia, these two countries being the exporter of around just 0.5 percent of total global exports.[43]

Offline spend on digital may be negatively impacted by shortages of raw materials (especially aluminum, nickel, copper, and neon) were sourced from Ukraine and Russia, in an already strained semiconductor supply chain. The long-term effect will depend heavily on the development of the conflict, and the success of businesses and governments in increasing supply-chain resilience.

Role of the digital economy in the new reality

Redefining resilience

Our analysis shows that the cluster experiencing the least severe economic impact of the COVID-19 pandemic was Digital Frontrunners, reflected in a smaller downturn in GDP in 2019−20 (−2.3 percent GDP growth) than Digital Challengers (−3.9 percent) and the Big 5 (−7.7 percent). Of the top ten countries from all clusters experiencing the least severe impact of the pandemic on GDP growth 2019−20, seven are Digital Frontrunners. This suggests a correlation between a country's degree of digital maturity and its resilience to crises. Most likely, digital technology, processes, and infrastructure allow countries to respond rapidly to changing economic conditions and provide support during a recovery.[44]

Looking closely at individual Digital Frontrunner countries, Ireland stands out as recording positive real GDP growth in 2019−20, at 5.9 percent, according to our estimates. The country saw an increase in exports during the initial stages of the pandemic due to the strong presence of multinational companies from the pharmaceutical[45] and digital sectors in the country, such as Google and LinkedIn, both headquartered in Dublin.

By contrast, three Digital Frontrunner countries saw relatively steep declines in GDP in 2019−20 compared to the cluster's average of −2.3 percent, namely Belgium (−5.7 percent), the Netherlands (−3.8 percent), and Estonia (−3.0 percent). Belgium, a small open economy, was hit hard by the decline in international trade, its exports falling by 4.6 percent and imports by 4.3 percent.[46] The Netherlands, as the world's 17th biggest economy but sixth biggest exporter, was more exposed to export changes, experiencing a pandemic-related decline of −10.6 percent in service exports.[47] According to the Organization for Economic Cooperation and Development (OECD), one third of Estonia's economy is made up of the sectors that were most impacted by restrictions on economic activity—construction, air transportation, real estate, wholesale, and so on.[48] This contributed to Estonia reporting −3.0 percent GDP growth in 2019−20.[49]

The Big 5 saw the greatest negative change in real GDP, according to our estimates. Individual countries ranged between −4.6 percent real GDP growth (Germany) and −10.8 percent (Italy) between 2019 and 2020. Several factors led to the Big 5 economies declining more than the smaller economies of Europe. As large countries with multiple dense population hubs, the Big 5 faced

Digital Frontrunners outperformed other clusters in GDP growth during the first wave of COVID-19

Real GDP growth, 2019–20,
%, 2016 fixed exchange rates

- ■ Digital Frontrunners
- ■ Digital Challenger
- ■ Big 5

Country	Value
Ireland	5.9
Lithuania	-0.1
Norway	-0.7
Denmark	-2.1
Poland	-2.5
Finland	-2.8
Sweden	-2.9
Estonia	-3.0
Latvia	-3.6
Netherlands	-3.8
Romania	-3.9
Slovenia	-4.2
Slovakia	-4.4
Bulgaria	-4.4
Germany	-4.6
Hungary	-4.7
Belgium	-5.7
Czech Republic	-5.8
France	-7.9
Croatia	-8.1
Italy	-8.9
United Kingdom	-9.4
Spain	-10.8
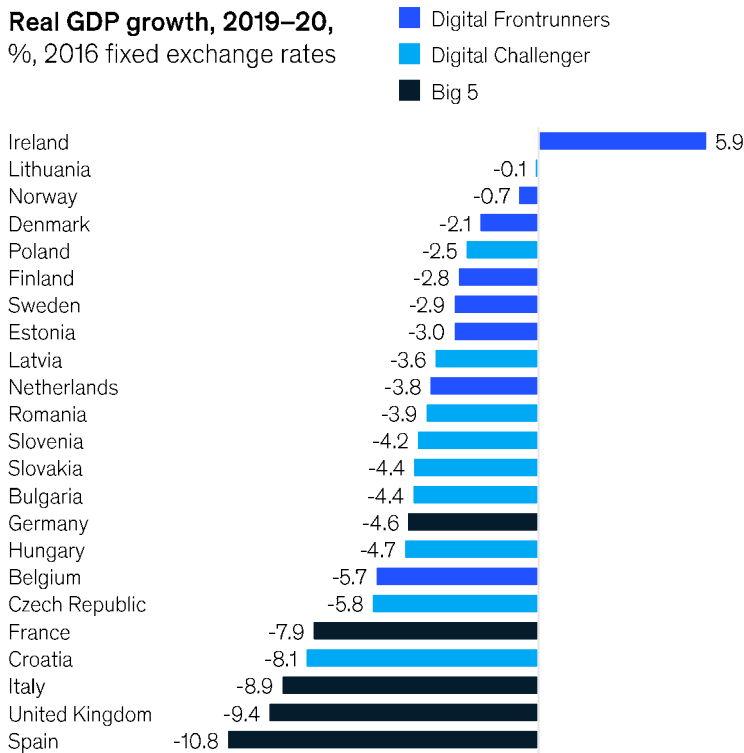
Source: World Bank; IMF

From March to December 2020, population mobility in the Big 5 decreased more than in other clusters

% change in physical mobility of population in selected areas, 2020

Index of mobility in workplace, retail and recreation, and public transit

- — Big 5
- — Digital Frontrunners
- — Digital Challengers

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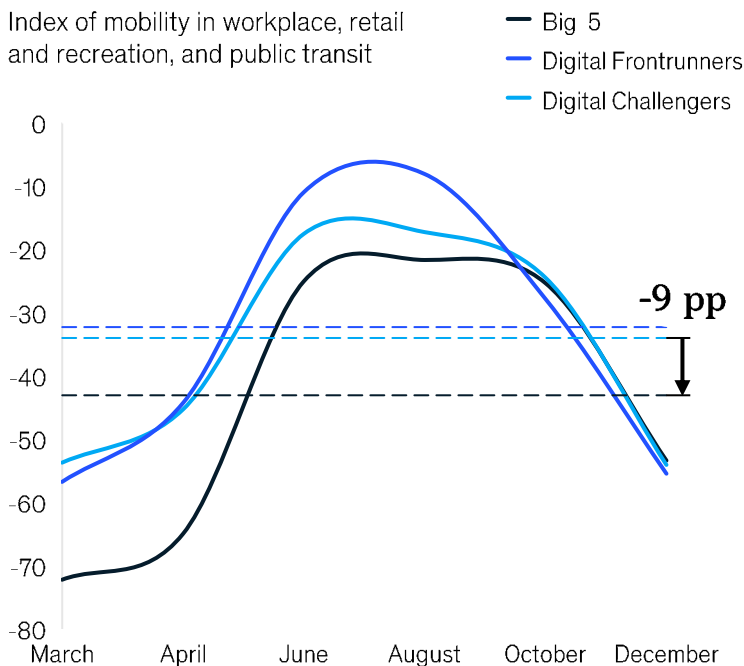
Source: OurWorldInData website (Google Mobility Trends)

high levels of economic disruption. Using Google Maps data, we are able to compare the presence of individuals before and after the pandemic, which we take as a proxy measurement for the strictness of social distancing. The level of physical mobility in the workplace, public transportation areas, and retail/recreation locations declined at varying degrees over the course of the pandemic, with mobility averages declining by more than 9 percentage points in 2020 in the Big 5, compared to Digital Frontrunners and Digital Challengers.[50] Decreased mobility during lockdowns had a major economic impact on the Big 5, with one month of lockdown affecting the 2020 annual GDP by −4.3 percent in Italy, −3.6 percent in France, −3.5 percent in Germany, −3.0 percent in the United Kingdom, and −2.9 percent in Spain, compared to a −2.4 percent global average.[51]

The Big 5 economies are characterized by equal or higher level of private consumption as a percentage of GDP compared to the EU average of 50 percent, at 50 percent in Germany, 52 percent in France, 55 percent in the United Kingdom, 57 percent in Italy, and 59 percent in Spain.[52] This high level of private consumption may have increased the vulnerability of Big 5 countries to the downturn in demand during the pandemic: Their economies were not focused on industries resistant to the pandemic crisis, but rather on sectors such as manufacturing, hospitality, construction, and tourism that were more impacted by COVID-19. For example, the tourism sector in Spain generated 12.3 percent of GDP in 2019 but was down as a whole by 40 percent in 2021 compared to 2019.[53]

Impact of the digital economy on inflation
The current macroeconomic conditions and the inflationary pressure emphasize the need for resilience. The digital economy is a proven driver of mitigating inflation in these circumstances: a paper by Goolsbee and Klenow[54] highlighted that online inflation was 1.3 percentage points lower than the CPI in 2014−2017 in the United States. The Economist[55] also argued in 2019 that "the internet in general is no place to go in search of inflation: in America online prices have been falling fairly steadily since about 2012 and are lower than they were at the turn of the millennium". This suggests that digital commerce is more resilient toward inflationary pressure than the overall economy and that increasing digital exposure can mitigate the impact of the current crisis.

Digital levers for resilience

We identify four key digital levers that helped economies mitigate the impact of pandemic. For each of the four digital levers, we identify standout government and corporate actions—digital solutions that helped build resilience to the challenges of COVID-19 during the pandemic.

Digitization of enterprises and government

Government investment in the digitization of services and support for enterprises' transition to the new normal

— **Singapore:** The government supported the shift by companies to the online channel. The "Productivity Solution Grant" provided funding to a pre-scoped list of IT digital commerce solutions, covering up to 90 percent of expenses, and subsidies for companies joining online marketplaces such as Amazon or Shoppee.[56] This initiative played a role in facilitating the development of digital commerce capabilities and reduced barriers to entering the online channel

Extensive communication and information networks

Broad networks enabling connectivity and fast, central communication across society

— **Estonia:** Suve was an AI-based chatbot, used on multiple government sites, that was able to answer citizens' questions about COVID-19 and provide information on behalf of the health authorities.[57] The user-friendly interface ensured easy access to information, which may be attributed for reducing misinformation about the pandemic and improving access to government information channels

— **Italy:** Private telecommunications company Italia collaborated with state-owned Infratel Italia to provide the fiber-optic backbone infrastructure for connections in rural areas. This sped up the rollout of broadband, addressing connectivity issues in less populated areas. The initiative led to a rapid increase in digital infrastructure coverage, connecting up to one million users in local communities[58]

Strong data analytics

Analytical capabilities based on large databases, allowing a data-driven reaction to crises and better solutions

— **European Union:** The European Union introduced the EU Digital COVID Certificate, which was adopted by both the EU countries and also 40 non-EU countries. The certificate provided digital proof of vaccination, enabling citizens to travel between countries.[59] It allowed the international exchange of reliable information, supported the re-opening of borders, and promoted economic recovery

— **Spain:** The GoAigua technology used analytics software combining data from testing sewage for the presence of the virus with geographic and demographic data to track the spread of the virus.[60] The information collected allowed a data-driven response to the pandemic, for example, the prioritization of responses across different areas or cities

— **International:** Amazon Web Services created the AWS COVID-19 data lake, a publicly-readable repository of datasets providing information on the spread and implications of COVID-19, including case numbers, hospital bed availability, and research articles.[61] This tool increased the availability of a large amount of official information, enabling better understanding and analysis

Digital fluency across populations

Analytical capabilities based on large databases, allowing a data-driven reaction to crises and better solutions

— **International:** Google activated its advanced, free Meet videoconferencing and cloud storage capabilities for G Suite customers globally.[62] The solution supported the shift toward remote modes of communication and work, increasing digital access for students and small businesses

— **International:** Microsoft gave free Microsoft Teams videoconferencing licenses to elementary and high-school students and small businesses,[63] which facilitated remote education and lowered the cost barrier for small businesses to shifting online

— **International:** SAP's Vaccine Collaboration Hub was a solution supporting the distribution and administration of COVID-19 vaccines. It consisted of tools providing transparency across supply chain processes, tracking tasks and user-friendly dashboards to be used by government and healthcare providers.[64] The solution supported the creation and adjustment of the supply chain during the crisis, reducing time-to-market and building more efficient distribution networks

— **Singapore:** The government initiative Seniors Go Digital is a learning program that helps seniors learn to use digital communication tools, access government digital services, and use e-payments and digital banking.[65] The purpose of the program is to increase digital literacy among older citizens, allowing them to participate in essential everyday tasks and activities

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Companies also invested in digital levers for their own operations. The COVID-19 pandemic upended many areas of business, from supply chains to interactions with customers. Companies who took action early, or in some cases before the pandemic, were able to minimize the disruption caused by the crisis.

— **Petrosea:** The East-Asian mining company invested in predictive maintenance in 2018, developing an AI suite to find the minerals they needed. During the pandemic, they then created a mobile app using gamification to reskill high-school-educated employees. The Tabang division of the company, where these digital initiatives took place, became one of the company's most profitable operations during the pandemic[6]

— **Nestlé:** After the pandemic started affecting their Chinese operations, Nestlé scaled up remote work. They used virtual training to help employees adapt to remote factory maintenance using augmented reality (AR). They used further tools (such as smart glasses, 360 degree cameras) to allow specialists to provide advice on tasks without visits to sites[67]

— **Levi's:** The apparel company invested in AI, predictive analytics, and digital channels before the pandemic, allowing them to react in a matter of days when COVID-19 forced them to shift to online and app-based shopping. The company also quickly adapted their stores, using them as distribution centers and rolling out curbside pickup at roughly 80 percent of US-based stores to successfully meet demand spikes[68]

— **Amazon:** The company launched AI-based social distancing tracking in their warehouses and used analytics to deprioritize non-essential items from warehouses. These steps enabled them to meet sustained demand increases in the United States and Europe in 2020[69]

Broader application of digital levers

While these digital levers came to the fore during the COVID-19 pandemic, they can also be used more broadly to create resilience to other crises. Below, we give some examples of natural disasters, wars, and humanitarian crises where digitization served as a catalyst for positive change.

● Digitization of enterprises and government

— Russian invasion of Ukraine (2022)

- Google expanded its "Project Shield" to protect Ukrainian users and government sites from DDoS (distributed denial-of-service) events. This has allowed websites to remain online and continue to offer their services[0]

— War in Afghanistan (1999−2021)

- The Afghanistan Digital CASA 1 Project supported regionally integrated digital infrastructure, making Internet access more affordable, improving the Afgan government's capacity to deliver digital government services, by supporting a regionally integrated digital infrastructure[71]

● Extensive communication and information networks

— Russian invasion of Ukraine (2022)

- Telecom operators in Europe, such as Telekom Austria, Proximus and Vivacom, subsidized data roaming, network service, and prepaid SIM cards to provide affordable or free connections for Ukrainian refugees[72]

- Code for Romania created a mechanism offering digital solutions for refugees, including Dopomoha (a digital information and support platform for Ukrainians seeking support in Romania, with a helpline in Ukrainian) and Roof (a platform for registering for accommodation)[73]

- Google created Air Raid Alerts, a system sending alerts to Android phones in Ukraine, helping government warnings reach more of the population[4]

● Strong data analytics

— Haiti earthquake (2010)

- Haiti leveraged Earth observation satellite imaging to conduct a damage assessment within hours of the crisis and fast-track support for citizens in earthquake-damaged areas[75]

— Hurricane Harvey (2017)

- United States government agencies used satellite data and analytics to identify vulnerable population hotspots (for example, schools, medical units, elderly communities)[76]

- NASS (the National Agricultural Statistics Service) created near real-time flood mapping to estimate the extent of damage to cropland[77]

● Digital fluency across populations

— Syrian refugee crisis (2011)

- EdTech companies and startups supported students and teachers during the refugee crisis. For example, "Coursera for Refugees" provided free education programs to 11,000 students, and the International Rescue Committee's "Connect to Learn" program provided cloud-based servers with education resources to teachers in refugee camps[78]

Perspective on the Ukrainian digital economy

Disclaimer: The intent of this section is to inform the discussions on how the digital economy can contribute to the recovery of Ukraine. The situation surrounding Ukraine is dynamic and rapidly evolving. This document reflects the information and analysis as of July 2022. It is not intended as a prediction of future events.

While creating scenarios on the development of the Ukrainian digital economy is currently too difficult given the uncertainty surrounding the resolution of the crisis, analysis indicates that Ukraine can take steps for digital enablement, within the broader spectrum of restoration needs to come. Within the more narrow focus of this report on the digital economy, as the recovery of Ukraine begins, certain steps may be taken

to reset Ukraine's digital economy on a growth trajectory. The list below is not intended to be exhaustive, but rather a set of levers with impact potential.

Restore ICT infrastructure

Internet outages have taken place often as the communication infrastructure has been affected by airstrikes. While it has been reported that fiber-optic networks have remained relatively "stable", the country has been relying on Starlink's satellite connection, in regions with active war actions. As a result, restoring stable ICT infrasturcture will be one of the country's priorities,[79] as ICT infrastructure is essential for securing communication, coordination, information sharing, payment processes etc., in Ukraine, but also with the international community. Moving forward, depending on the availability of resources, Ukraine could be making a leap in ICT infrastructure, ensuring state-of-the-art coverage (5G) and infrastructure (100 Mbps broadband speed), and establishing wide communication and information networks.

Restore the supply chain and logistics network to enable fulfillment in the country

The war in Ukraine has made the fulfillment of essential items difficult for the people of Ukraine. The strained infrastructure has affected the global supply chains as well as air, ground, and sea transport have been halted with international partners. As a result, restoring the supply chain and logistics network will be a key enabler for the revived economic activity of Ukraine after the war. Moreover, repairing key infrastructure and reopening the logistics routes will offload some of the global supply chains from the current strains.

However, until the physical infrastructure (e.g. shops, warehouses, distribution centers, etc.) is rebuilt, the people of Ukraine will require the essentials, such as food, water, hygiene products, and medical supplies through various networks. Decentralizing the supply chains for these product categories as well as digitizing the process will be key to enabling micro-supply chains to form and fulfill the demand through smaller courier networks. By using a network of shared warehouses and storage centers as well as a shared digital infrastructure for centralizing consumer orders, many smaller players or individuals can contribute to the distribution of the goods required given the fragmented physical infrastructure (e.g. damaged roads), creating workplaces and economic benefits for the wider society.

Another example related to the damaged infrastructure where the digital economy may relieve some of the pressure is within mobility. Until airports, railways, and roads get repaired, peer-to-peer or even public-to-private models of mobility may be a good alternative to ensure intercity movement. For any of these models to work, there needs to be a digital infrastructure available to connect supply and demand.

Support the exports of retail goods (especially produced by SMEs such as craft apparel) through digital channels and institute supporting financial policies

The World Bank is predicting that Ukraine's economy will contract by up to 45 percent in 2022[80], leaving many Ukrainians and Ukrainian businesses in need of financial relief. Export activities may prove key as export revenues can be one of the more effective mechanisms for the Ukrainian government to restore its foreign currency reserves. Therefore, providing Ukrainian businesses with e-services that could help them enter international markets (e.g. the integration of Ukrainian SMEs in international payment systems, support with access to international marketplaces) can be the key to unlocking economic growth. While the local market is rebounding, SMEs and individuals can look for financing and revenue sources outside the borders of Ukraine. As such, digital tools, and infrastructure as well as a supportive regulatory environment for businesses, such as e-business registrations, tax brackets, or preferential loans, can give Ukrainian SMEs and individuals opportunities to enter new markets, and restore and grow their sales to meet their financing needs.

Increase the availability of digital public services

Public administration will inevitably face high level pressure, as the public services, education, healthcare, transportation, and all the other sectors will need to rebuild. One key enabler in managing the increasing volume of requests will be the introduction of digital services and artificial intelligence-based chatbots to handle the general information related to different public services and country recovery progress. Digitizing essential public services, such as the release of birth certificates, identity cards, passports, driver's licenses, etc. can alleviate the burden on public administration officials.

Moreover, as schools and hospitals will also take time to reopen, online education as well as telemedicine will be essential in providing alternatives for Ukrainians. For these services to be successful and widely used, the population will require access to devices and the Internet as well as policy changes regarding the availability and use of e-prescriptions, for example.

Leverage international funding sources and subsidies for financing

Other than providing a platform for individuals and companies in Ukraine to access international funding sources, the digital economy can also ensure that the already allocated funding to Ukraine can reach the economy faster. As a result, they can create a digital process in which financing can be available directly to microbusinesses and entrepreneurs that actively contribute to the country's rebuilding process.

Last, but not least, Ukrainian refugees may wish to send money home, but cash transactions may take some time to rebound, as ATMs and bank branches may have been affected by the war. Therefore, digital transactions and processes need to be in place to ensure the inflow of cash into the economy.

Outlook for the digital economy

The digital economy can both drive overall economic growth and help countries become more economically resilient. To understand the mid-term potential for Digital Challengers, we refer to two potential growth scenarios: a "Business-as-usual" scenario, which assumes a continuation

of historical growth rates, and an "Aspirational" scenario, which assumes that Digital Challengers catch up with the digital growth rates of leading countries in the Digital Frontrunners cluster and other global benchmark countries.

Based on our analysis, in the Business-as-usual scenario the digital economy would deliver €62 billion of additional growth by 2030, and the digital economy itself would grow to a value of €186 billion. In the Aspirational scenario, the digital economy would deliver €206 billion of additional growth and itself grow to a value of €330 billion. This would mean that the digital economy represented 10.4 percent of GDP in 2030 in the Aspirational scenario, compared to the current 7.7 percent. Digital Challengers would catch up with Digital Frontrunners in terms of the digital economy as a share of GDP, but still lag behind global benchmarks, such as Singapore's 11.2 percent.

The scenarios represent a significant yet ambitious growth opportunity. They also serve as a reminder that the sooner countries and their businesses invest in measures to improve the digital economy, the more likely they are to capture this potential.

The digital economy could deliver €62–206 billion of additional growth by 2030

Growth scenarios for digital economy
of Digital Challengers, 2021–30,
€ billion
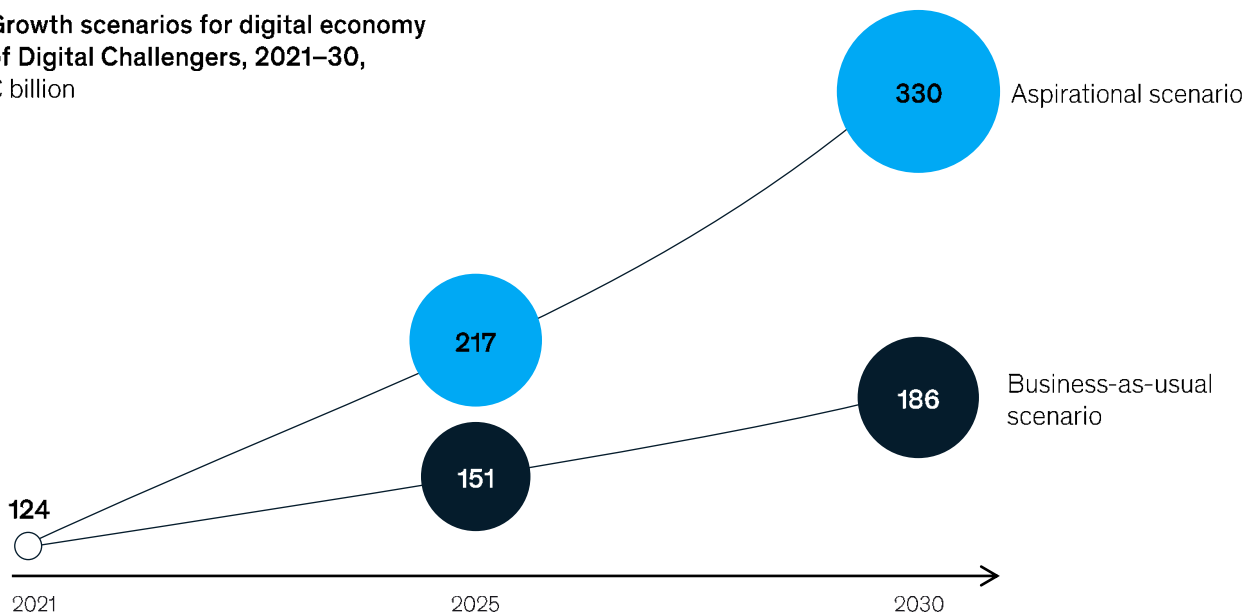
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

Country deep dives

The general trends outlined above also hold true for individual countries. Below, we present a "deep dive" on five of the countries in the Digital Challengers cluster: Poland, the Czech Republic, Romania, Lithuania, Latvia. We also look at one of the most advanced Digital Frontrunners—Estonia. Our discussion focuses on historical and future growth trends in the digital economies of each of the countries in question.

According to our estimates, within the digital economy, digital commerce experienced the strongest growth between 2017 and 2021, with annual growth rates ranging from 9 percent to 22 percent in 2017–19, and from 14 percent to 28 percent in 2019–21. Driving this growth to a large extent were the countries' increasing digital maturity and the lockdowns imposed during the pandemic. The ICT sector also saw an acceleration, albeit on a smaller scale, recording annual growth rates of 1–7 percent in 2017–19 and 2–8 percent in 2019–21.

Poland, Czech Republic and Romania have the largest digital economies in the Digital Challengers cluster

Digital economy of Digital Challengers, 2017–21,
€ billion

Legend:
- Offline spend on digital
- ICT
- Digital commerce
- ○ Growth (CAGR), %
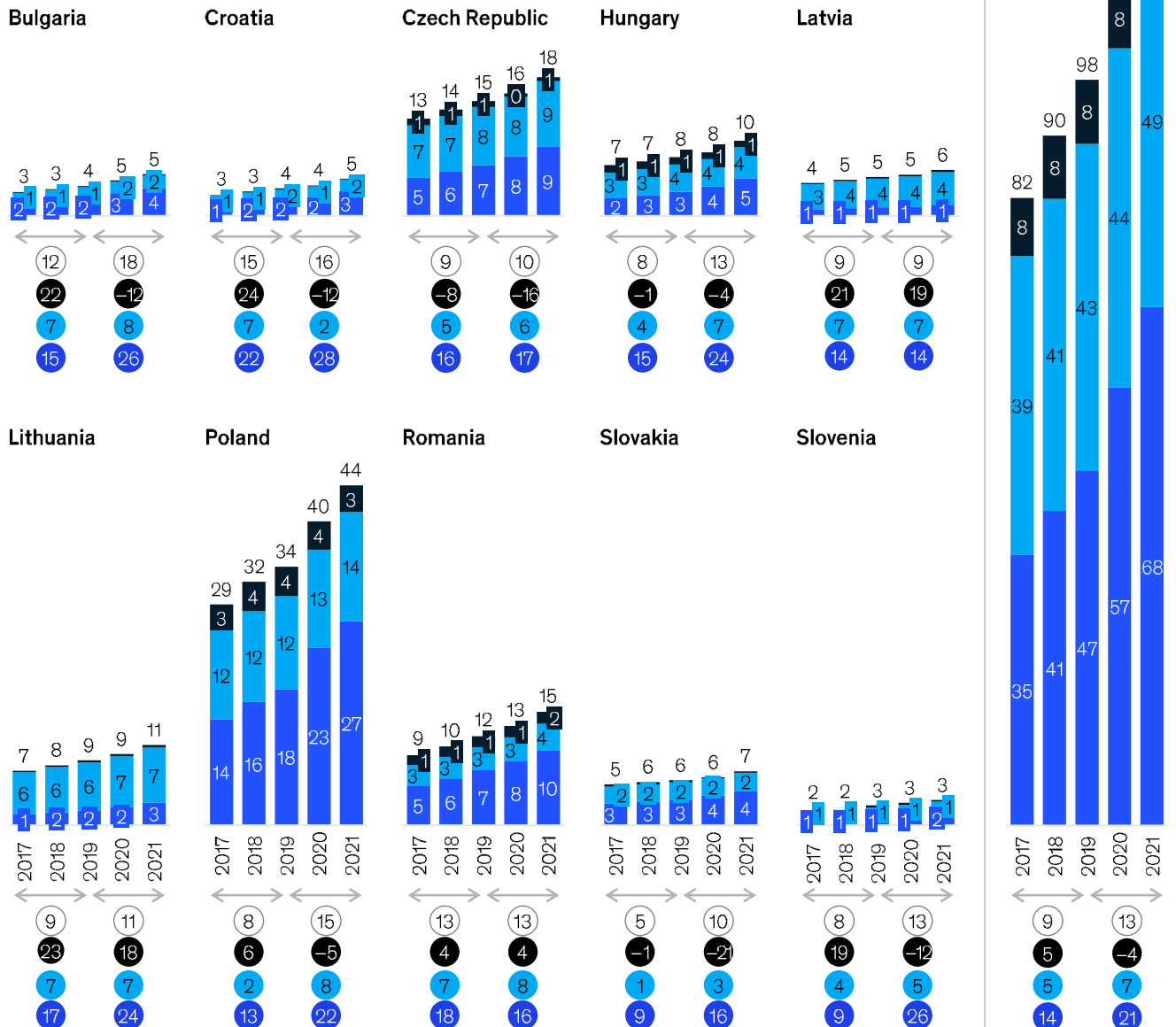
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

Growth of Poland's digital economy was driven mainly by digital commerce

Digital economy in Poland, 2017–30,
€ billion

	Growth (CAGR), %	
	2017–19	2019–21

- ■ Offline spend on digital
- ■ ICT
- ■ Digital commerce

	2017–19	2019–21
	8%	15%
	6%	−5%
	2%	8%
	13%	22%

Bar chart data:

2017: 28.9 (Offline 3.4, ICT 11.6, Digital commerce 13.9)
2019: 33.8 (Offline 3.9, ICT 12.1, Digital commerce 17.8)
2021: 44.4 (Offline 3.5, ICT 14.3, Digital commerce 26.7)
2025: 80.5 (Offline 3.7, ICT 40.8, Digital commerce 35.9)
2030: 122.6 (Offline 3.8, ICT 74.0, Digital commerce 44.8)

Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

7%
Digital economy as % of GDP, 2021

€1,170
Digital economy per capita, 2021

Poland

Poland has the largest digital economy of the Digital Challenger countries in absolute terms, worth €44 billion in 2021, according to our estimates. Growth of the digital economy accelerated in 2019–21 (15 percent annual growth) compared to 2017–19 (8 percent annual growth).

Driving this expansion was digital commerce, which saw annual growth rates of 22 percent in 2019–21, effectively making up 60 percent of the digital economy in 2021, according to our analysis. The digital commerce market in Poland is characterized by the strong presence of Allegro, a marketplace that aggregates offerings from over 135,000 merchants.[81] Growth of digital commerce was further facilitated by relatively mature online offerings from both local and international players (Amazon, Shopee) and complementary solutions (such as Allegro Pay and Zalando's second-hand offering). Our analysis also shows that the ICT sector saw an acceleration in growth in 2019–21, with an annual growth rate of 8 percent, compared to 2 percent annually in 2017–19. Compared to the other countries in the cluster, Poland recorded higher than average ICT growth in 2019–21, which is in line with the less severe economic slowdown seen in Poland due to COVID-19—annual real GDP growth was 4.5 percent in Poland in 2019–21, compared to 2.9 percent on average for the Digital Challengers cluster.

To achieve further growth, Poland may consider developing its ICT component. This sector could account for 76 percent of growth by 2030 in the Aspirational scenario. The foundations of the digital economy, such as having a developed infrastructure (high-speed Internet, mobile broadband, computing) with a broad reach, and a well-trained talent pool, are critical for the further growth of ICT in Poland.

The Czech Republic

The Czech Republic's digital economy grew 10 percent annually in 2019–21, reaching a value of €18 billion in 2021, according to our estimates. Growth of the digital economy in 2019–21 accelerated relatively slowly compared to 2017–19, at 9 percent annually—which is also below the average growth seen in the cluster. This is in line with the impact of COVID-19 on the economy: The Czech Republic suffered one of strongest economic slowdowns among the Digital Challengers, with real GDP growth at −1.3 percent in 2019–21, compared to 2.9 percent annually in the cluster as a whole.

Our analysis shows that the Czech Republic's digital economy has two strong components of nearly equal sizes: digital commerce, making up 50 percent of the digital economy, and ICT, making up 47 percent (2021). Digital commerce saw the strongest acceleration of growth during the pandemic. The Czech Republic, like Poland, is characterized by the strong presence of marketplaces, with Alza and Mall Group among the largest players on the market. Both these marketplaces operate internationally. Our analysis also shows that ICT in the Czech Republic, while recording lower growth in 2019–21 than the average for the cluster, is relatively developed compared to the other countries (Czech ICT/

The digital economy in Czech Republic has two strong components: ICT and digital commerce

Digital economy in Czech Republic, 2017–30, € billion

Legend:
- ■ Offline spend on digital
- ■ ICT
- ■ Digital commerce

	2017	2019	2021	2025	2030
Total	12.7	15.0	18.1	26.7	37.1
Offline spend on digital	0.9	0.7	0.5	0.6	0.6
ICT	6.9	7.6	8.5	14.0	20.9
Digital commerce	5.0	6.7	9.1	12.1	15.6

Growth (CAGR), %

2017–19	2019–21
9%	10%
−8%	−16%
5%	6%
16%	17%
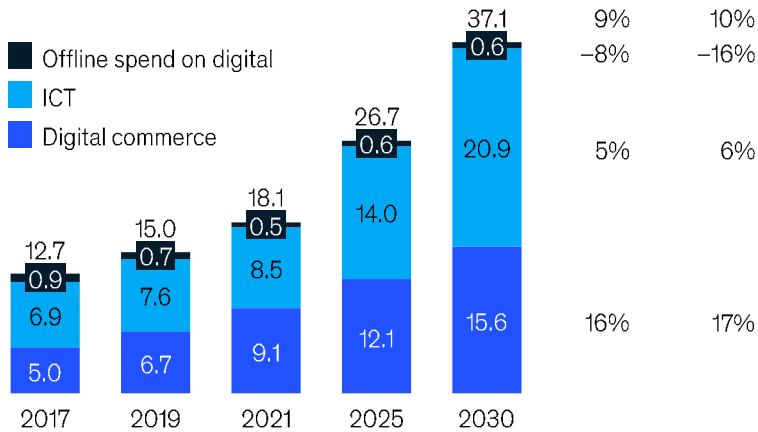
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

8%
Digital economy as % of GDP, 2021

€1,693
Digital economy per capita, 2021

capita in 2021: nearly €800; Digital Challengers average: around €480).

The Czech Republic's ecosystem is attractive for investors, due to the above-average level of digital skills among the population in the region, the above-average share of ICT specialists in the employed population,[82] and the strong multinational ICT players originating from the country—for example, cybersecurity software company Avast and software and electronic hardware company Y Soft. To achieve a value of €37 billion by 2030 (Aspirational scenario),

governments and businesses could increase their focus on further developing the local ICT ecosystem, including network operators, civil society, platform content and application providers, and network providers. This could account for up to 60 percent of growth in the digital economy in the period to 2030.

Romania

In Romania, ICT grew at around 8 percent annually in 2017–21. This was not strong enough to close the ICT gap with other countries in the Digital Challengers cluster, according to

Digital commerce in Romania has almost doubled since 2017

Digital economy in Romania, 2017–30, € billion

Legend:
- ■ Offline spend on digital
- ■ ICT
- ■ Digital commerce

	2017	2019	2021	2025	2030
Total	9.2	11.6	14.8	30.0	52.0
Offline spend on digital	1.3	1.4	1.6	2.1	3.3
ICT	2.6	3.0	3.5	14.9	29.1
Digital commerce	5.2	7.2	9.8	13.0	19.6

Growth (CAGR), %

2017–19	2019–21
13%	13%
4%	4%
7%	8%
18%	17%
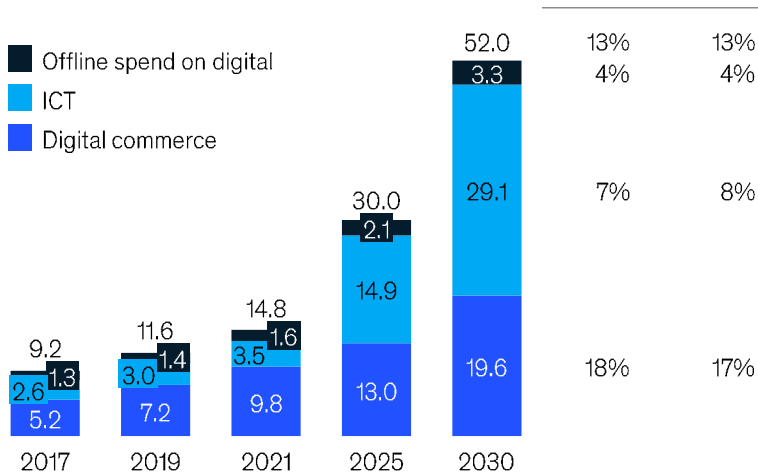
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

6%
Digital economy as % of GDP, 2021

€769
Digital economy per capita, 2021

our estimates. Romania's 2022 *Government Emergency Ordinance on implementing the Government Cloud Platform*, the launch of a national online register, and a law creating a national interoperability platform between public authorities, are signs of a developing ICT infrastructure, which should lead to higher digital literacy among the population.[83],[84] Digital commerce in 2021 is 2.5 times larger in value than in 2017, the widespread growth can be seen considering share of SMEs selling online, for instance, which more than doubled from 7 percent in 2017 to 17 percent in 2021.[85] Offline spending on digital did not contribute significantly to growth in 2017–21.

driving growth of the country's digital economy. Additionally, offline spending on digital and digital commerce will continue to grow, as digital fluency and digital use are closing the gap with the Digital Challengers average.

Lithuania

Lithuania has a strong ICT-led digital economy: ICT drove nearly half of the growth of digital economy in 2017–21, according to our estimates. Among Digital Challengers, the country has the third-largest ICT sector in terms of size and the second-largest ICT sector as a share of the digital economy. Digital commerce growth accelerated from an already above-average 17 percent annual growth rate in 2017–19 to 24 percent annually in 2019–21—one of the fastest growth rates for digital commerce among Digital Challengers. Lithuania's digital commerce benefitted from the increased number of businesses and consumers using online channels during the COVID-19 pandemic, along with strong infrastructure. Offline spending on digital approximately doubled between 2017 and 2021. In the next decade, we expect the ICT sector may contribute around 80 percent of future growth in the Aspirational scenario, as the country's infrastructure advantage and talent pool continue to expand.

Latvia

Latvia has a large share of ICT in the digital economy, supported by government and a strong private ecosystem. According to our analysis, the country's ICT expanded at a constant annual growth rate of 7 percent in both 2017–19 and 2019–21, in line with the overall stable annual growth rate seen in the digital economy in 2017–21. Digital commerce grew at a similar rate to the average Digital Challengers growth rate. Offline spending on digital tripled from 2017 to 2021, remaining the smallest component of the digital economy. In the Aspirational scenario, between 2021 and 2030, ICT will be the main growth engine for the country, contributing 76 percent of growth, compared to 56 percent in 2017–21.

Estonia

Estonia is a member of the Digital Frontrunners cluster. However, it has certain similarities with Latvia and Lithuania, the other two Baltic states.

Growth of Lithuania's digital economy was driven by digital commerce

Digital economy in Lithuania, 2017–30, € billion

- Offline spend on digital
- ICT
- Digital commerce

Year	Total	Offline spend on digital	ICT	Digital commerce
2017	7.1	0.2	5.5	1.4
2019	8.5	0.3	6.3	1.9
2021	10.5	0.4	7.2	3.0
2025	13.4	0.3	9.4	3.7
2030	17.7	0.2	13.2	4.3

Growth (CAGR), %

	2017–19	2019–21
Offline spend on digital	9%	11%
ICT	23%	18%
	7%	7%
Digital commerce	17%	24%

Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

18%
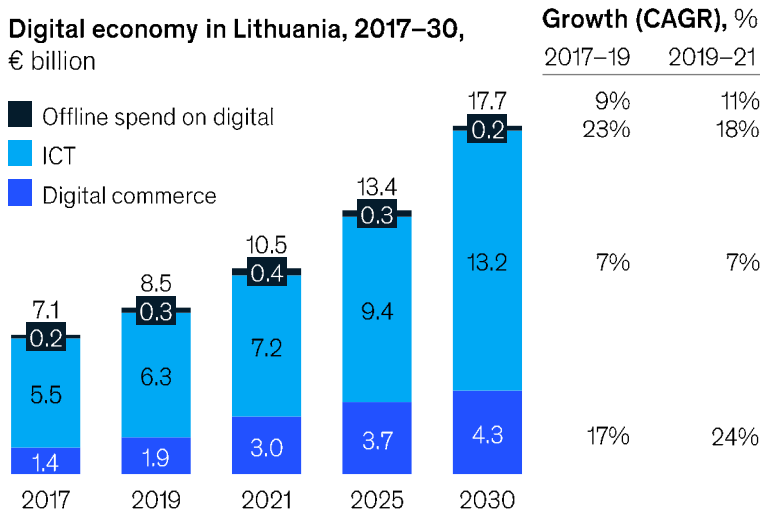
Digital economy as % of GDP, 2021

€3,759

Digital economy per capita, 2021

Growth of Latvia's digital economy was driven by digital commerce
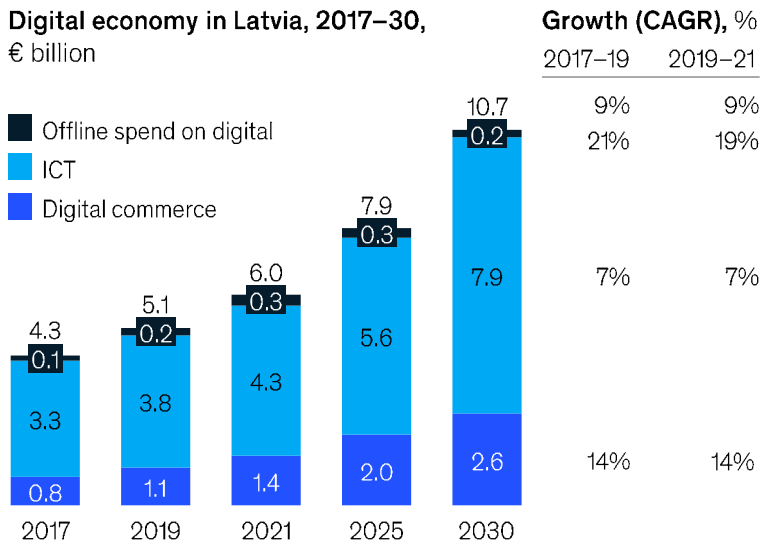
Digital economy in Latvia, 2017–30,
€ billion

Growth (CAGR), %	
2017–19	2019–21
9%	9%
21%	19%
7%	7%
14%	14%

■ Offline spend on digital
■ ICT
■ Digital commerce

Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

18%

Digital economy as % of GDP, 2021

€3,166

Digital economy per capita, 2021

We analyze the country here as it provides further insights into the region.

Estonia is one of the most digitally advanced Digital Frontrunners, with 99 percent of the population using the Internet regularly and the government leading a host of public and private digitization initiatives.[86] ICT growth slowed in 2019–21, according to our estimates. Digital commerce drove 50 percent of growth in the digital economy in 2019–21, the number of

e-shops rising from around 5,000 to 7,700 to meet demand between 2020 and 2022, for example.[87] Offline spending on digital did not contribute significantly to the size of the digital economy in 2017–21. Over the next decade, Estonia is expected to maintain its ICT advantage over Digital Challengers due to government policy prioritization and the country's head-start in computer education, with €3.3 billion projected growth of ICT.

Growth of Estonia's digital economy was driven by ICT

Digital economy in Estonia, 2017–30,
€ billion

Growth (CAGR), %	
2017–19	2019–21
16%	10%
26%	19%
17%	7%
12%	23%

■ Offline spend on digital
■ ICT
■ Digital commerce

Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

18%

Digital economy as % of GDP, 2021

€4,207

Digital economy per capita, 2021

Key enablers for growth of the digital economy

In our earlier *Digital Challengers* reports we identified a number of core enablers for future growth of the digital economy. These enablers remain relevant today. However, in the meantime, the COVID-19 pandemic has accelerated digitization across all sectors and reshaped the digital realm. For this reason, we focus on a smaller set of enablers in the discussion below—areas where stakeholder groups can engage in order to benefit from further digital advancement. These enablers are as follows: ensuring cybersecurity and a supportive regul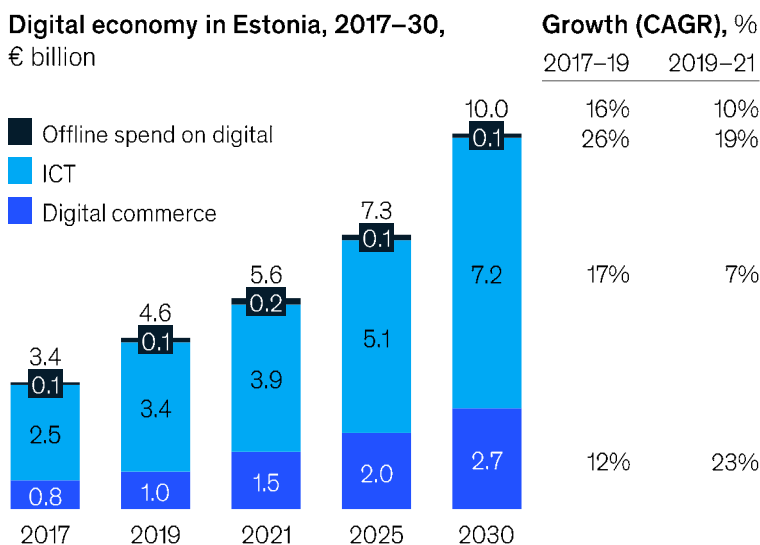atory environment, implementing e-government solutions in the public sector, promoting the adoption of digital tools and solutions by businesses, and encouraging the adoption of digital skills in the general population.

Ensuring cybersecurity and a supportive regulatory environment

Cyberattacks have been on the rise in recent years.[88] The importance of security in the cybersphere has become increasingly evident in current crises. More, and better targeted cybersecurity regulations provide a basis for enabling the secure development of digital solutions, and building trust in them. Some cybersecurity regulations are at EU level, but they can be further strengthened at a country and industry level.

The Global Cybersecurity Index identifies five dimensions for measuring countries' commitment to cybersecurity. Digital Challengers, despite their gradual progress with regard to these dimensions, still have some areas where they need to catch up with Digital Frontrunners and the Big 5.[89] One area that they could focus on is the organizational dimension, which includes governance and coordination mechanisms addressing cybersecurity within countries. This dimension plays a core role in effective, coordinated responses to rapidly evolving environments, as it entails clarity of responsibility and accountability in cybersecurity governance.

Implementing e-government solutions in the public sector

E-governance can significantly improve efficiency, increase participation, and reduce costs in the delivery of public services. Its benefits became especially visible after the outbreak of the

Digital Challengers lag behind Digital Frontrunners and Big 5 on cybersecurity

Cybersecurity dimensions across clusters, 2020
Score

— Digital Challengers
— Digital Frontrunners
— Big 5

Legal Laws and regulations on cybercrime and cybersecurity

Technical Implementation of technical capabilities through national and sector-specific agencies

Organization Implementation of national strategies and organizations responsible for cybersecurity

Capacity development Awareness campaigns, training, education, and incentives for cybersecurity development

Cooperative Partnership between agencies, firms, and countries

Total score per cluster (average)

85.8 Digital Challengers — 95.1 Digital Frontrunners — 97.8 Big 5

Source: *Global Cybersecurity Index 2020*, ITU Publications

COVID-19 pandemic—digital public services can be accessed 24/7 from a preferred place and can serve multiple citizens at once, reducing backlogs in the wake of crises and enabling critical services, such as medical prescriptions and unemployment benefits.[90] Digital Challengers should consider further investing in the provision and promotion of digital public services as a way to improve solutions for both individuals and businesses; according to averaged survey results for the Czech Republic, Hungary, Poland and Romania, government is one of the sectors showing the lowest level of digital interactions in the CEE region.[91]

We can measure the availability of digital public services for businesses on a scale of 0 to 100, based on the share of public services for starting and running a business that can be completed online. Digital Challengers score 77 on this measure, outperformed by both Digital Frontrunners at 94 and the Big 5 at 90 (2021). All three clusters score lower on the availability of digital public services for individuals than for businesses: For individuals, the scores are Digital

Challengers—65, Digital Frontrunners—88, and the Big 5—74. The share of individuals that use digital public services is 59 percent for Digital Challengers, compared to 81 percent for Digital Frontrunners and 63 percent for the Big 5.[92] Penetration of e-government users can thus be increased in Digital Challenger countries, but this will require the further development of easily accessible solutions and their promotion among both the public and businesses.

Promoting the adoption of digital tools and solutions by businesses

Enterprises in the Digital Frontrunner countries are leaders in the adoption of digital solutions and tools. The biggest gaps between enterprises in Digital Challengers and in Digital Frontrunners are in the adoption of solutions using AI (140 percent more enterprises in Digital Frontrunners use at least one AI-based technology), cloud computing (90 percent more enterprises in Digital Frontrunners buy and use cloud computing services), and customer relationship management or CRM (90 percent more enterprises in Digital Frontrunners use CRM).[93]

Digital Challengers lag behind on availability and use of public-sector digital services[1]

Quantitative analysis of key drivers

Users of e-government services
Use of public services in last 12 months, % of individuals aged 16–74, 2021
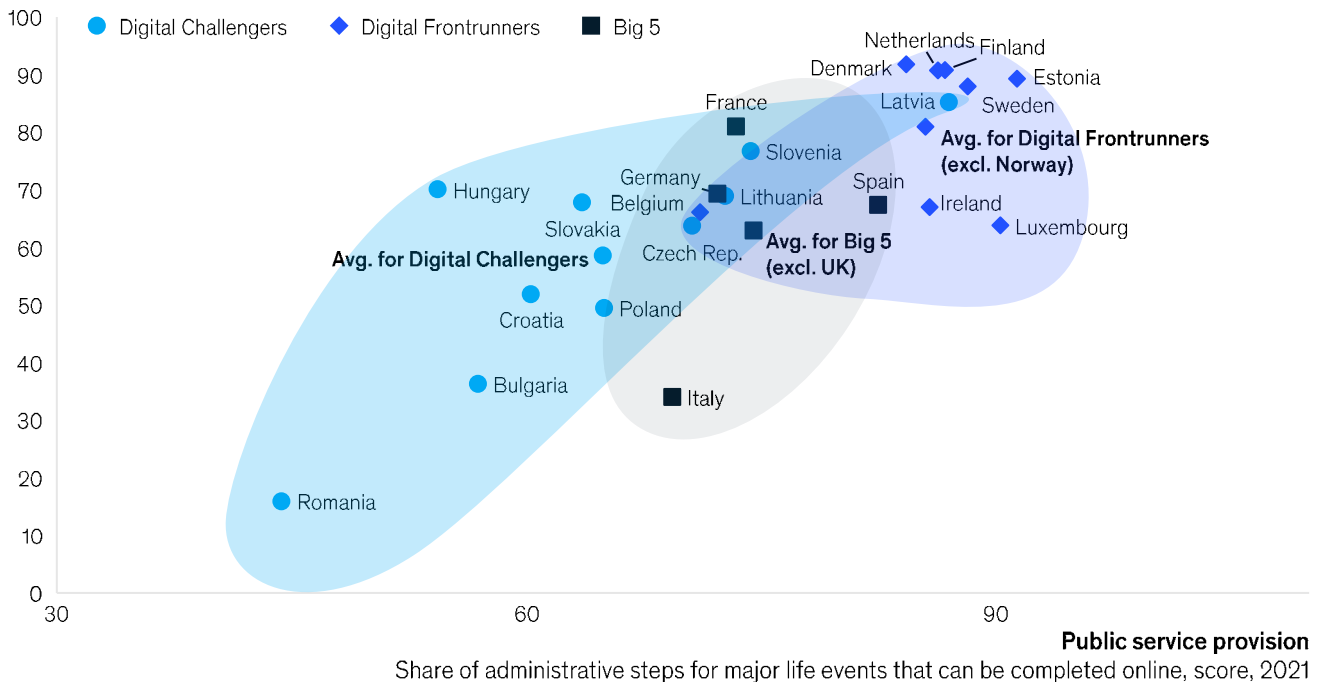
¹ UK and Norway excluded as source only covers EU countries
Source: Digital Economy and Society Index, Eurostat, 2021

The largest gap between enterprises in Digital Challengers and Digital Frontrunners are in the use of AI technology

Share of enterprises, 2021, …

Legend: ■ Digital Challengers ■ Digital Frontrunners ■ Big 5[1]

… selling online
Enterprises with e-commerce sales worth at least 1% of revenues, %

	Digital Challengers	Digital Frontrunners	Big 5
Small	18	24	19
Medium	23	34	23
Large	39	49	36
Total	19	26	20

+37% (Total)
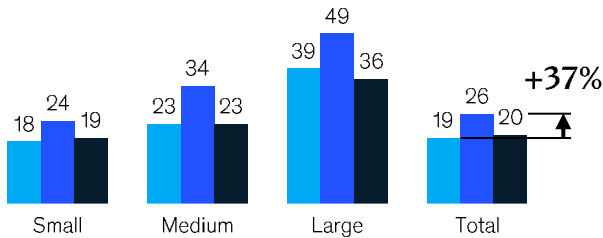
… using Cloud computing
Enterprises buying cloud computing services used over the internet, %

	Digital Challengers	Digital Frontrunners	Big 5
Small	27	56	41
Medium	42	73	58
Large	63	86	74
Total	31	59	44

+90% (Total)
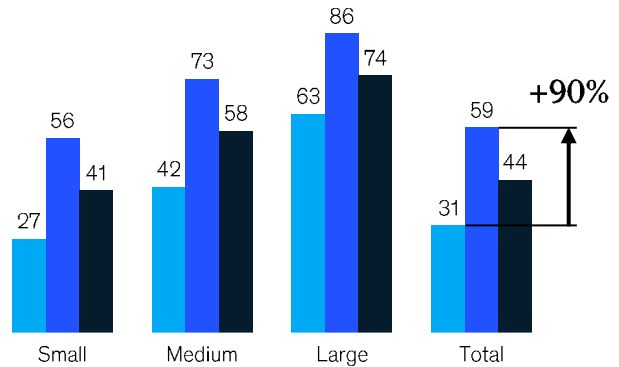
… using AI
Enterprises using at least one AI technology, %

	Digital Challengers	Digital Frontrunners	Big 5
Small	4	10	8
Medium	8	19	17
Large	19	41	37
Total	5	12	9

+140% (Total)
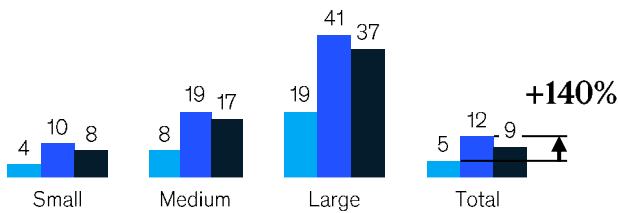
… using CRM
Enterprises using software solutions such as customer relationship management, %

	Digital Challengers	Digital Frontrunners	Big 5
Small	18	36	32
Medium	34	55	51
Large	53	71	65
Total	21	40	36

+90% (Total)
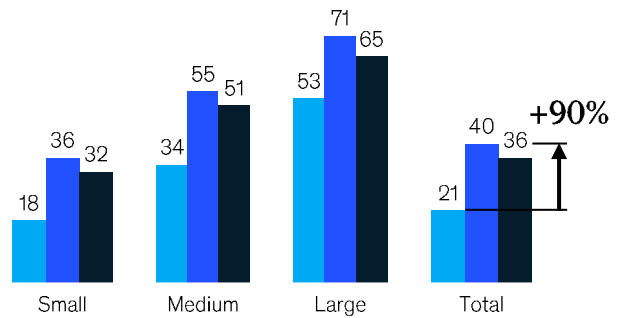
[1] 2021 data for UK extrapolated from 2019/20 figures using growth of Big 5 economies; data for use of AI based on website of UK Government
Source: Eurostat 2021; UK government website; McKinsey analysis

Digital fluency is lower for Digital Challengers than Digital Frontrunners—Gap also increases with age

Individuals with basic or above-basic overall digital skills,[1] 2021,
share of population aged 16–74, %

By age group

Legend: ■ Digital Challengers ■ Digital Frontrunners ■ Big 5[2]

	Digital Challengers	Digital Frontrunners	Big 5	Gap
16–24	70	79	73	+14%
25–34	65	82	71	+26%
35–44	61	77	68	+28%
45–54	48	70	61	+44%
55–74	24	51	41	+113%
Total	48	69	59	+43%
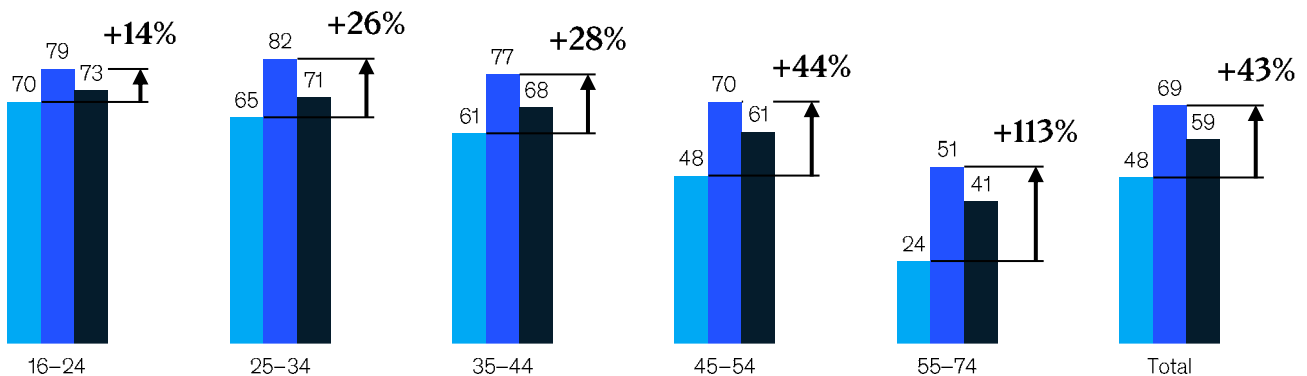
[1] Category defined as if all 5 areas are at least basic level ("basic" or "above-basic"); categories of activities include information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving
[2] Data for UK and Ireland for age group 16–24 extrapolated from 2019 base and change for Big 5 in 2019–21
Source: Eurostat

One of the prerequisites for developing and implementing digital solutions in enterprises is technical talent. Taking Poland as an example—the Digital Challenger country with the largest digital economy—the difficulty of finding ICT talent is already high on the agenda of business managers. According to data from a third-party survey from 2019 conducted as part of the McKinsey *Cloud 2030* report, 44 percent of Polish businesses say that filling vacancies for ICT specialists poses challenges. The top two difficulties in finding candidates quoted were "excessive financial expectations" (mentioned by 79 percent of respondents) and a "lack of practical on-the-job experience" (77 percent). The perception among enterprises is that advanced capabilities are the least-developed competency in companies.[94]

The way customer data is gathered, used, and regulated has changed tremendously over the past decade. Cookies were invented in 1994 to improve the user experience on the Internet, but have since become an essential part of digital marketing. The European Union introduced its GDPR regulation in 2018 to limit the use of customer data, and private companies have now also begun to act. For example, Google has announced the phasing out of support for third-party cookies in Chrome by by late 2024.[95] At the same time, it has launched its Privacy Sandbox initiative with the purpose of replicating third-party cookies. This solution supports publishers and continues to enable targeted advertisements, while alleviating consumer concerns—making the web more secure and more private for users.[96] Targeted advertising is a key enabler for targeting the right users with the right offer, improving online user experience, and fully capitalizing on omnichannel. Finding an optimal solution through engagement with the regulators, advertisers and publishers will therefore be key to the future of digital advertising.

Encouraging the adoption of digital skills in the general population

Widespread digital fluency is a key enabler for the spread of digital solutions, and hence growth across all components of the digital economy. Digital Challengers currently have the lowest level of adoption of digital skills, at just 48 percent of population (Digital Frontrunners: 69 percent; Big 5: 55 percent).[97] The older the age group, the lower the level of skills. Moreover, the gap in skills between Digital Challengers and the other two clusters is more significant in older age groups. This highlights the importance of support for lifelong learning and employee training.

Bratislava, Slovakia©SilvanBachmann/Getty Images

Makarska, Croatia©Feng Wei Photography/Getty Images

2

Digital commerce and its role in the economy of Digital Challengers

In this chapter we focus our discussion on digital commerce in the Digital Challenger countries. We present:

— A review of the evolution of digital commerce penetration in Digital Challengers, analyzing the main drivers of growth both before and during the COVID-19 pandemic

— An analysis of the growth of different segments (goods and services) and categories (groceries, apparel, media products, and so on) across Digital Challengers

— Identification of future growth paths for digital commerce in Digital Challengers

In this report we define "digital commerce" as the value of online spending by consumers and small businesses on goods and services. "Goods" include apparel, groceries, home goods and electronics, media products, and personal care; "services" include activities, hotels and accommodation, restaurants, and transportation services. We consider both domestic transactions and international transactions—that is, purchases made on foreign domains.

Digital commerce landscape

Digital commerce was the main driver of growth in the digital economy in Digital Challengers in 2017–19, with a 14 percent annual growth rate. COVID-19 further accelerated this growth rate to 21 percent annually in 2019–21. Digital commerce accounted for 55 percent of the digital economy in 2021 (up from 43 percent in 2017), or approximately €68 billion in value.[98]

Digital commerce's €68 billion in value is not distributed evenly among the countries in the Digital Challenger cluster. The size of an individual country appears to play a significant role in the size of its digital commerce market: larger countries, such as Poland, Romania, and the Czech Republic, have larger digital commerce markets. But country size does not necessarily predict the size of other

components in the overall digital economy, such as ICT and offline spending on digital: For these two components, the small countries Latvia and Lithuania account for a bigger share of the total digital economy of the Digital Challenger cluster than their larger peers.

Digital commerce is the growth engine of the digital economy in eight out of the ten countries in the cluster, accounting for more than 50 percent of the digital economy in each case. Latvia and Lithuania are the only countries where digital commerce represents less than a third of the digital economy. The largest digital commerce markets in the Digital Challengers cluster are Poland, Romania, and the Czech Republic. Together, these three countries account for 67 percent (€46 billion) of the cluster's total digital commerce market.[99]

Digital commerce is the main driver of the digital economy in Digital Challengers

Size of digital commerce and digital economy in Digital Challengers, 2017–21, € billion

Digital commerce
Digital economy

% Share of digital commerce in digital economy

+18% p.a.

Year	Digital economy	Digital commerce	Share
2017	82.2	35.5	43%
2018	90.4	41.2	46%
2019	97.7	46.5	48%
2020	109.5	57.3	52%
2021	124.4	67.9	55%

Growth (CAGR), %

	2017–19	2019–21
Digital economy	9%	13%
Digital commerce	14%	21%
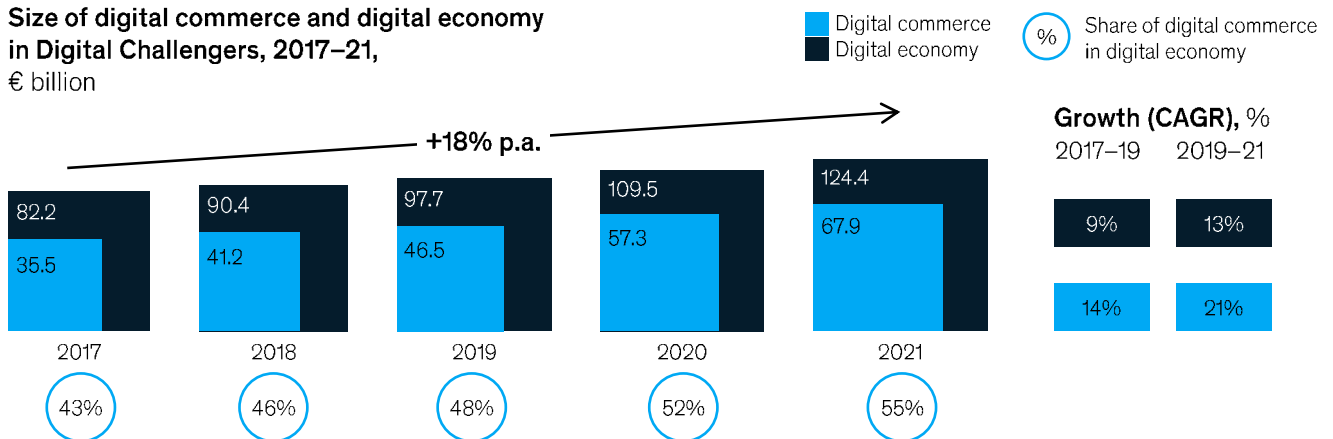
Digital commerce is biggest in Poland, Czech Republic, and Romania—These 3 countries accounted for EUR 46 billion in 2021

Digital economy by segment and country, 2021, € billion

Digital commerce
ICT & offline spend

Share of digital commerce in digital economy

Country	Digital commerce	ICT & offline spend	Share of digital commerce in digital economy
Poland	27	18	60%
Czech Republic	9	9	50%
Romania	10	5	66%
Lithuania	3	8	28%
Hungary	5	5	50%
Slovakia	4	3	63%
Latvia	1	5	24%
Bulgaria	4	2	67%
Croatia	3	2	65%
Slovenia	2	1	55%
Total	68	56	55%
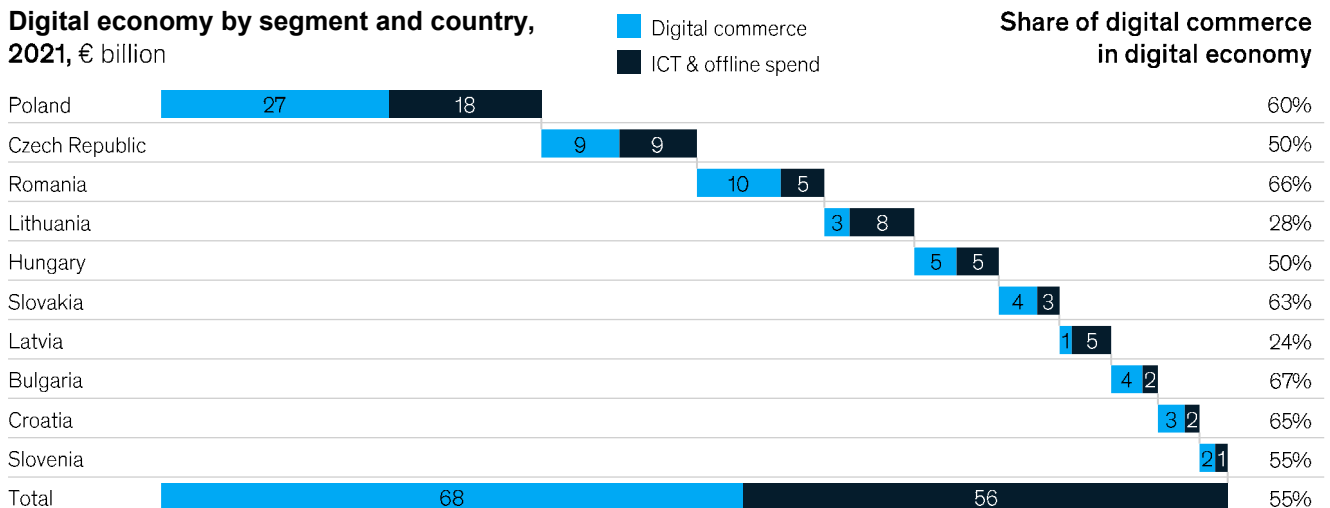
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

Growth of digital commerce in Digital Challengers before COVID-19

COVID-19 contributed to an acceleration of the growth rate of digital commerce. This was largely due to the impact of lockdowns across the region, which prevented in-store shopping. According to our analysis, however, even before 2020, digital commerce was on a strong growth trajectory (14 percent annual growth rate in 2017–19), outperforming offline commerce (3 percent annual growth rate during the same period) in Digital Challengers. It also outperformed the growth rates seen in the Big 5 and Digital Frontrunners (7 percent annually during the same period).[100]

One reason for the faster growth rate of digital commerce in Digital Challengers compared to other country clusters was Digital Challengers' lower starting point in terms of penetration. In 2017, digital commerce represented only 9 percent of total commerce in Digital Challengers, compared to 13 percent in the Big 5 and 14 percent in Digital Frontrunners.

Another reason for the development of digital commerce in Digital Challengers has been relatively favorable macroeconomic conditions. Even before the pandemic, GDP growth was between 3 and 5 percent, and average

Digital commerce was on a strong growth trajectory in Digital Challengers even before the COVID-19 pandemic

Digital commerce 2017–19,
€ billion

Digital commerce — Growth (CAGR), 2017–19, %
Offline commerce

% Share of digital in total retail commerce

Big 5

	2017	18	2019	
Offline	2,679	2,626	2,624	-1%
Digital	407	437	470	7%
Share	13%	14%	15%	

Digital Challengers

	2017	18	2019	
Offline	353	364	373	3%
Digital	35	41	47	14%
Share	9%	10%	11%	

Digital Frontrunners

	2017	18	2019	
Offline	562	556	552	-1%
Digital	94	101	107	7%
Share	14%	15%	16%	
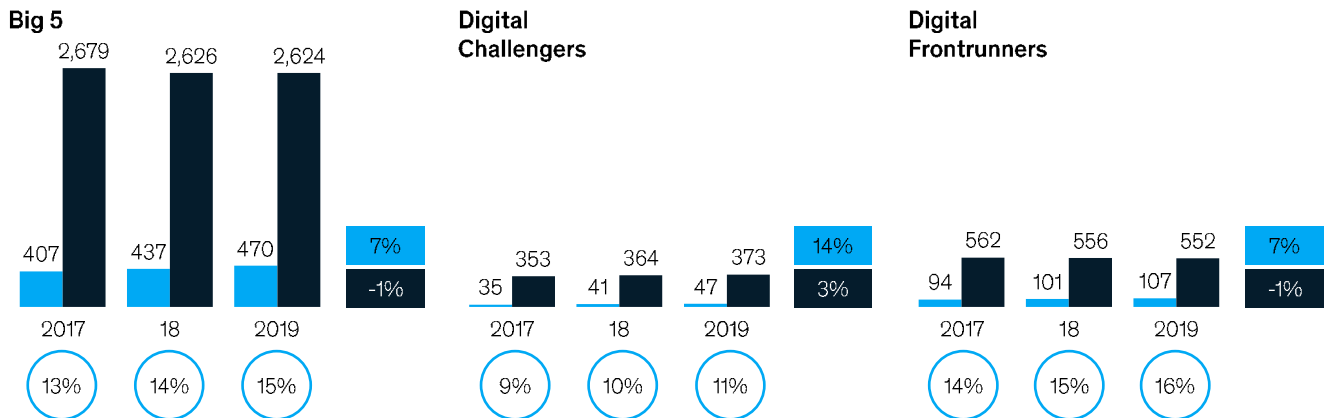
Growth of digital commerce accelerated during the pandemic, with 21% annual growth in 2019–21

Total retail commerce, 2017–21,
€ billion

■ Offline commerce
■ Digital commerce

	2017	18	19	20	2021
Total	388	405	419	393	418
Offline	353	364	373	336	350
Digital	35	41	47	57	68

Year-on-year growth rate, %

Digital		16%	13%	23%	18%
Offline		3%	2%	-10%	4%

Share of digital in total retail commerce

	9%	10%	11%	15%	16%
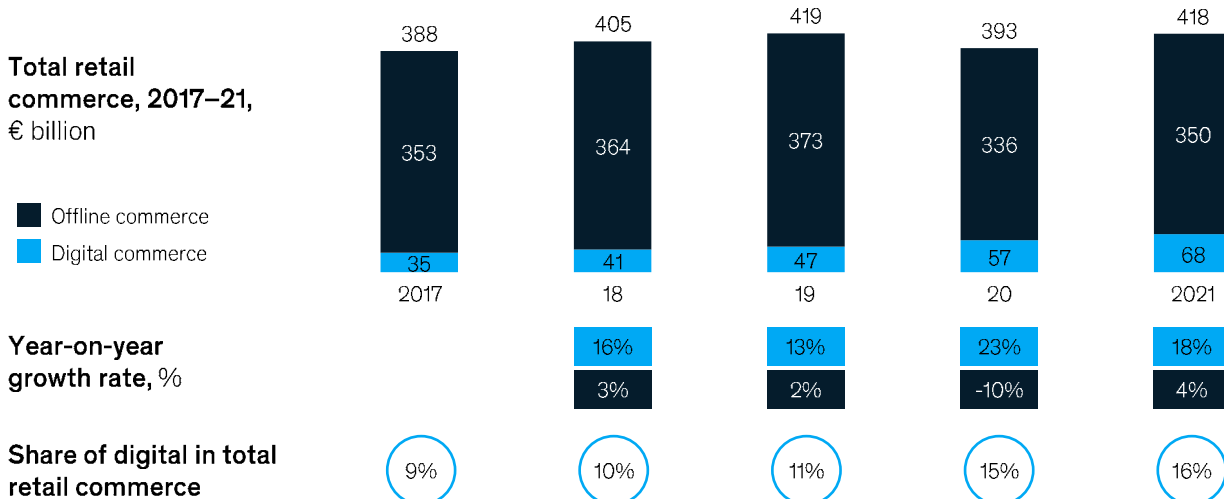
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

disposable incomes grew by an average of €1,500 in 2017–19 (gross annual disposable income of households per capita).[101] These factors led to growth in the overall retail market.

Significantly, before COVID-19, growth in digital commerce in Digital Challengers generated higher consumer spending rather than cannibalizing offline channels; in other words, growth in digital commerce translated into growth in the total commerce market in 2017–19. For example, digital commerce in Poland grew 13 percent annually, while the overall commerce market

grew 4 percent.[102] A similar trend was found in all countries in the cluster.

Finally, digitization is also an important growth driver for digital commerce in Digital Challengers. Countries in the cluster saw growth in the number of households with Internet access in 2017–19. Moreover, the emergence of digital services in the region, such as video streaming and on-demand deliveries, combined with the development of local digital commerce and marketplace players, played a significant role in enhancing the growth of digital commerce.

Before the pandemic, digital commerce contributed to higher consumer spending rather than cannibalizing offline channels

Pre-pandemic spending on goods and services

Growth of total commerce, 2017–19 CAGR, %

Growth of digital commerce, 2017–19 CAGR, %
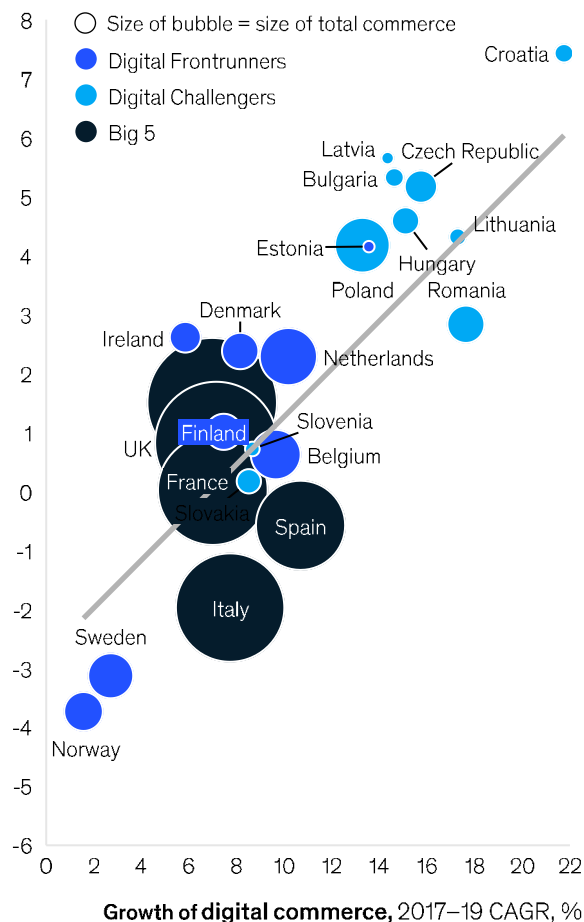
Average penetration of internet in Digital Challengers grew from 76% in 2016 to 89% in 2021

Household internet penetration in Digital Challengers
Percentage of households with internet access

■ 2016   ■ 2021

	2016	2021	Percentage increase
Slovenia	78	93	19%
Poland	80	92	15%
Hungary	79	91	15%
Latvia	77	91	18%
Slovakia	81	90	11%
Czech Rep.	82	89	9%
Romania	72	89	24%
Lithuania	72	87	21%
Croatia	77	86	12%
Bulgaria	64	84	31%
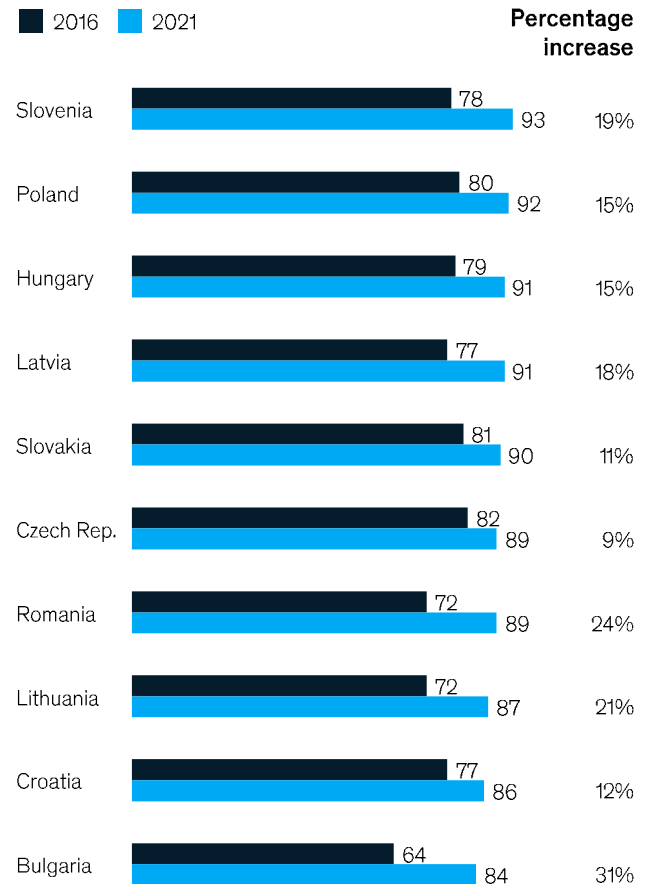
Source: Euromonitor; Eurostat; McKinsey Global Payments Map; McKinsey analysis

Between 2017 and 2019, the share of households in the cluster with Internet access grew from an average of 76 percent to 89 percent.[103] That means that an additional 5.2 million households had the ability to connect to the internet using computers or other devices, thereby increasing the size of the addressable market for digital commerce players. The biggest changes in Internet penetration were in Bulgaria (up 31 percent), Romania (up 24 percent), and Lithuania (up 21 percent).[104] Moreover, the share of adults using the Internet daily rose from 80 percent in 2020 to 65 percent in 2015.[105] Use of applications for mobile digital commerce, which provide a fast and convenient way to buy goods and services on the go, also grew—especially among millennials.[106] Excellent broadband network coverage[107] and 4G service[108] make mobile channels very appealing to use, and most e-shops have developed mobile applications as part of their offering.

According to Ookla,[109] internet speeds (broadband and mobile) and connection reliability in Romania and Bulgaria are ranked among the fastest in the world. Moreover, the broadband infrastructure has been expanded to remote or sparsely-populated areas in these countries, narrowing the gap between urban and rural connectivity rates. The remaining difference relates to the incomes of rural households, which are below the average household incomes for the countries. By implication, the lack of 100 percent internet broadband penetration in the some of the Digital Challenger countries may not be attributable to a lack of infrastructure, but rather to financial reasons.[110]

The share of unbanked[111] population also fell in all countries in the Digital Challenger cluster, although it remained higher than in countries such as Sweden (with a 99 percent share of banked population since 2011) and the United Kingdom (97 percent banked). Having a bank account and by implication a payment card is a first step toward the ability to purchase from digital channels. However, consumer trust in using those cards over the internet is more important for the growth of digital commerce. Currently, one in five consumers cite payment processes as a main reason for their distrust of digital channels, according to the 2022 McKinsey Digital Consumer Sentiment survey.[112] In the Digital Challenger cluster, consumer trust has been slower to develop, with more than half of consumers still being wary of not receiving goods bought online[113] and thus preferring to pay "cash on delivery" rather than by card at the moment of purchase.[114]

For more than a decade, Digital Challengers have been enjoying growing availability and an ever wider offering from local online stores. For example, the Czech Republic has an estimated 45,000 e-shops, the highest number of e-shops per capita in Europe.[115] International retailers have also launched local online stores, with companies such as Praktiker, IKEA, and others, expanding their online presence. The digital commerce growth trend was also boosted by continuous growth of a few leading online retailers, such as eMAG (in Romania since 2001, Bulgaria since 2012, and Hungary since 2013), Allegro (in Poland since 1999), and Alza (in the Czech Republic since 1994 and Hungary since 2014). What these leading retailers have in common, other than similarities in their offering and performance, is their third-party business-to-consumer model. These retailers have been central to the growth in value of the digital commerce market in the Digital Challengers cluster—by generating consumer demand, improving convenience, and incentivizing the development of automated parcel infrastructure in the region.

Thus, companies in Digital Challenger countries were increasing the penetration of digital commerce and advancing steadily toward an omnichannel model. But it was the COVID-19 restrictions imposed on stores, service outlets, restaurants, places of entertainment, and leisure centers, that accelerated the penetration of digital commerce and really changed consumer behavior—as we discuss below.

Digital commerce in Digital Challengers during COVID-19

The COVID-19 restrictions that led to the temporary closure of malls and non-essential high-street retail outlets forced consumers to search for alternative ways of shopping. It also forced retailers to develop new ways of selling their products. This led to the development of various solutions such as "click & collect", as well as new partnerships between retailers and existing on-demand platforms, such as Glovo. While these moves were paramount to the resilience of the retail industry throughout the pandemic, they also tapped into existing customer expectations. The pandemic increased the speed at which retailers and consumers had to adopt new technologies and omnichannel distribution models—although a large share of consumers still prefer physical channels, particularly for groceries and apparel.[116]

COVID-19 accelerated the development of online channels in Digital Challengers by 2–5 years

Why did you start using these services digitally?
Main reasons for switching to digital

45% because of the COVID-19 pandemic and related issues

43% due to greater convenience and availability of digital channels
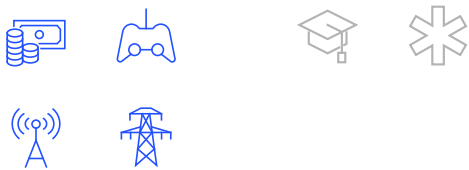
Why are you not using the following services digitally?
Main reasons for not switching to digital

48% prefer to go to the store

24% prefer talking to a human

5% find digital difficult to use

Industries:

Banking Entertainment Healthcare Public sector Telco carriers
Education Groceries Insurance Retail Travel Utilities

Industries more impacted by this reason
Industries less impacted by this reason

Source: McKinsey & Company 2021 Global Digital Sentiment Survey: survey results

The network of automated parcels in Digital Challengers was growing steadily in the period 2017–19—however, this growth accelerated significantly in 2019–21. To name just a few examples, by May 2022, InPost—a leading out-of-home digital commerce enablement platform in Europe—had a network of over 22,000[117] automatic parcel machines (APMs) in operation across all its markets. Alzabox[118] also offered 3,100 boxes in its network of parcel lockers in the Czech Republic, and eMAG's Sameday[119] network comprised 2,500[120] easybox parcel lockers across Romania, Hungary, and Slovakia. Automated parcel machines (APMs) gained share in Digital Challengers during the period due to their cost efficiency (with last-mile delivery 25 percent cheaper than door-to-door deliveries), improved customer experience with couriers (no failed deliveries), environmental friendliness (reduced emissions due to the volume of parcels delivered in one trip), and increased convenience and flexibility for customers.[121] Automated parcels were thus one of main enablers of growth in digital commerce in Digital Challengers.

Digital commerce penetration varies between different countries and clusters, from 30 percent in the United Kingdom to 13 percent in Hungary and Italy (2021). The highest level of any Digital Challenger country, at 19 percent (Bulgaria), is equal to the lowest level of any Digital Frontrunner country (Estonia). The average penetration rate in the Digital Challenger cluster is 16 percent (2021), which is ahead of Italy (13 percent), Spain (15 percent), and France (16 percent), but behind the United Kingdom (30 percent), Germany (24 percent), and the Digital Frontrunner average (23 percent).[122]

Average penetration of digital commerce in Digital Challengers is 16%—behind Digital Frontrunners and Big 5

Total retail commerce, 2021,
Contribution to total spending on goods and services, %, € billion

■ Offline commerce ■ Digital commerce

			Lowest penetration	Highest penetration
Digital Challengers	84% 16% 418		Hungary 13%	Bulgaria 19%
Digital Frontrunners	77% 23% 612		Estonia 19%	Netherlands 27%
Big 5	79% 21% 2,871		Italy 13%	United Kingdom 30%

Bulgaria, Czech Republic and Lithuania have the highest penetration of digital commerce

Share of digital and offline commerce by country, 2021,
%, € billion

	Poland	Romania	Czech Republic	Hungary	Slovakia	Croatia	Bulgaria	Lithuania	Slovenia	Latvia
Total	155.6	68.9	51.5	36.5	28.9	20.1	19.3	16.6	11.8	9.1
Offline commerce	83%	86%	82%	87%	85%	84%	81%	82%	85%	84%
Digital commerce	17%	14%	18%	13%	15%	16%	19%	18%	15%	16%

Legend: ■ Digital commerce ■ Offline commerce

23% Avg. for Digital Frontrunners

16% Avg. for Digital Challengers
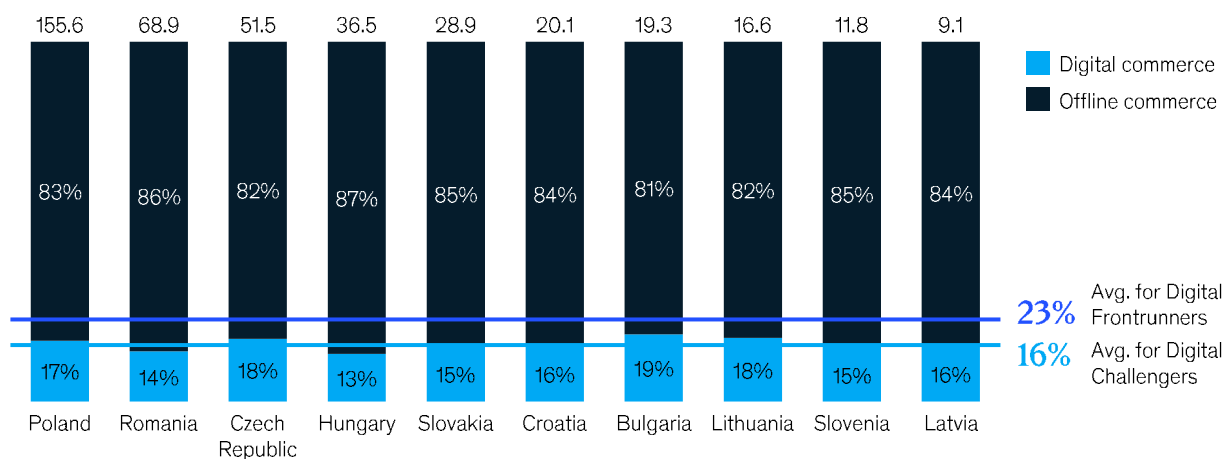
Source: Euromonitor; McKinsey Global Payments Map; McKinsey analysis

Be that as it may, our analysis shows that growth rate of digital commerce increased by around 50 percent during the COVID-19 pandemic, from a 14 percent annual growth rate in 2017–19 to 21 percent annually in 2019–21. Bulgaria, the Czech Republic, and Lithuania now have the highest penetration rate for digital commerce among the Digital Challengers (Bulgaria: 19 percent; Czech Republic: 18 percent; Lithuania: 18 percent).

Since the pandemic, digital adoption has fallen from its peak rates. In 2021, countries such as the Czech Republic, Poland, Hungary, and Romania reached digital adoption levels similar to Finland, Belgium, or the Netherlands, and higher than those of Germany or Austria.[123] This was due to a temporary spike in the number of industries accessed digitally compared to pre-pandemic levels. In 2022, this level dropped as part of a post-pandemic normalization effect. In countries where digitization fell in 2022 compared to 2021, there is an evident need to invest in the longer-term digitization of industries and the digital literacy of the population. McKinsey analysis further reveals that "digital adoption during the pandemic correlates strongly with a country's per capita GDP: of the six countries with the highest adoption rates, five (Denmark, Finland, Sweden, Switzerland, and the United Kingdom) had per capita GDP above €45,000. At the other end of the spectrum, countries where per capita GDP was less than €30,000 (the Czech Republic, Hungary, Poland, and Romania) had a much lower level of adoption."[124]

Slow adopters are catching up

Evolution of digital adoption by country

Change in digital adoption 2021 to 2022, percentage points

GDP per capita[1]
- >60k
- 40–60k
- 20–40k
- <20k

Dispersion in digital adoption

Standard deviation across countries

2021	5.7 pp
2022	4.8 pp

Digital adoption 2021, %
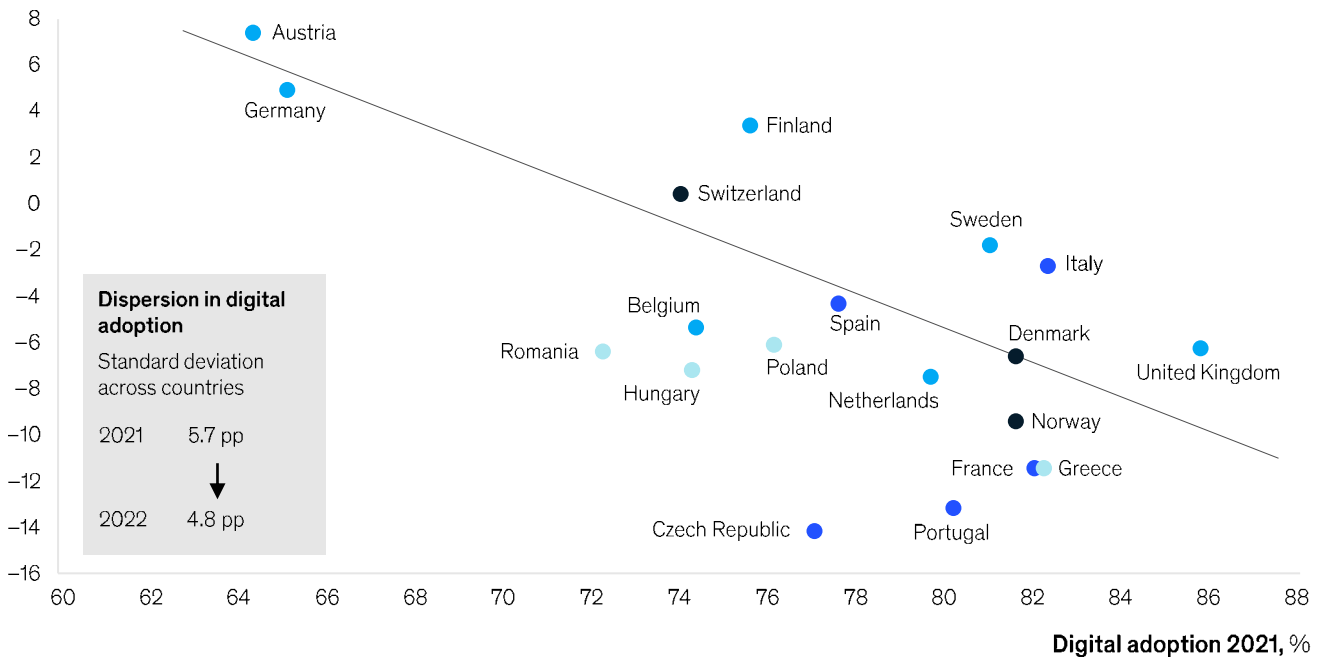
[1] Current US dollars, 2020 (World Bank)
Source: World Bank

The "new normal:" high level of digital adoption after the unprecedented growth linked to the pandemic

Digital adoption 3 years into the pandemic

- 2019
- 2020
- 2021
- 2022

Number of industries accessed digitally or remotely[1]

"New normal" effect

Pandemic shift

Active digital users,[2] %

Digital adoption ranking, 2022
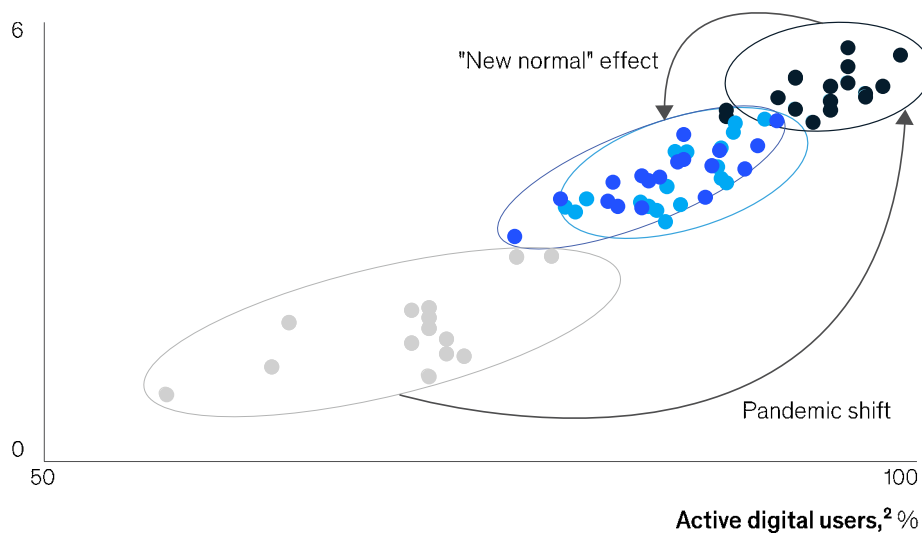
1. Italy
2. United Kingdom
3. Sweden
4. Finland
5. Denmark
6. Switzerland
7. Spain
8. Norway
9. Netherlands
10. Austria
11. Greece
12. France
13. Germany
14. Poland
15. Belgium
16. Hungary
17. Portugal
18. Romania
19. Czech Republic

[1] Average number of industries accessed in the past 6 months in a fully digital or digitally assisted way per user surveyed.
[2] Percentage of users surveyed who have interacted with industries in digital or remote channels in the past 6 months.
[3] Note: Each dot represents the behavior of a selection of European markets in 2019, 2020, 2021, and 2022; results for 2019 and 2020 adjusted for comparability.
Source: McKinsey Global Digital Sentiment Survey Insights

Interview with Marcin Nowacki, Vice President Global Delivery Hero

Marcin is Vice President Global Delivery Hero. His role is to deliver digital products and technology to enable Delivery Hero's growth. Having helped Delivery Hero through the COVID-19 pandemic, his first piece of advice to other businesses operating in digital channels is to "focus on ecosystems, on connecting supply chains and exploring adjacent value offerings." For Delivery Hero, this was a key enabler during the COVID-19 pandemic, as "restaurants accepted online deliveries only as an alternative at the beginning of the pandemic. Later on, as they started building their offering around digital, deliveries became a viable revenue stream." What made Delivery Hero successful was "a deep understanding of our growth granularity, through our efforts to better understand local consumer patterns and business relationships" and the company's early "investments in the full digitization of processes."

Marcin's second piece of advice is to find a balance between scalability and personalization. "There will always be an element of localization, with brands catering to local tastes and consumer needs, requiring a different check-out experience or different payment providers. But by focusing on providing global solutions across different tech stacks, companies can achieve scale and gross profitability." However, he believes that to maximize that growth—even in the period immediately after the pandemic, when digital players have started refocusing on profitability—it is important to remember that the consumer need for convenience will remain, and will drive sustainable growth in the future, provided digital players continue to be customer-centric.

Last, but not least, the speed at which disruption takes place makes long-term planning difficult. "The five-year planning horizon is no longer useful, as the pace of change is too fast. What digital companies can do is work in an agile way, make small investments in exploring new avenues, test ideas, reiterate, and wait to see which one will be the next big thing."

Digital commerce across sectors

The balance between goods and services in digital sales is relatively stable, at 60 percent goods to 40 percent services. However, just three categories make up 68 percent of total digital sales, namely home goods and electronics (35 percent), transportation services (22 percent), and apparel (14 percent).[125]

According to our estimates, the share of goods in digital commerce grew by 24 percent annually between 2017 and 2021 in Digital Challengers. The strongest growth between 2017 and 2021 was in apparel, home goods and electronics, and media products; groceries and personal care grew more slowly. In the 2019–21 period, the strongest growth was seen in apparel, which more than doubled its growth rate, as well as home goods and electronics, and groceries. The slowest growth and smallest share of digital commerce was found for groceries, which is dominated by bricks-and-mortar stores. We expect growth here to slow down even further after 2021. Apparel was the fastest-growing segment, driven by COVID-19 lockdowns and the entry of many pure-digital players in the region.

Our analysis shows that both apparel and groceries saw above-market growth rates in digital commerce, amplified in 2020, then returning to below pre-COVID growth rates in 2021. Offline remains the preferred channel for these categories. Home goods and electronics spiked in 2020, due to growth in demand generated by working from home, but returned to pre-COVID levels in 2021, showing that the category has a strong foundation in the region. Media products and personal care both saw close to fivefold growth during COVID-19, but declined sharply in 2021, with media products even experiencing a year-on-year decline.

Digital commerce is driven by home goods & electronics, transportation services, and apparel, accounting for 68% of total sales

Digital commerce sales by segment and category (domestic and international purchases), 2021,
€[1], % of total value

Home goods & electronics, €24.1bn, 35%

Apparel, €9.4bn, 14%

Media products, €3.0bn, 4%

Groceries, €2.5bn, 4%

Personal care, €1.9bn, 3%

Goods (60%)

Transportation services, €14.8bn, 22%

Hotels & accommodation, €7.0bn, 10%

Restaurants €4.4bn, 7%

Activities, €0.8bn, 1%

Services (40%)
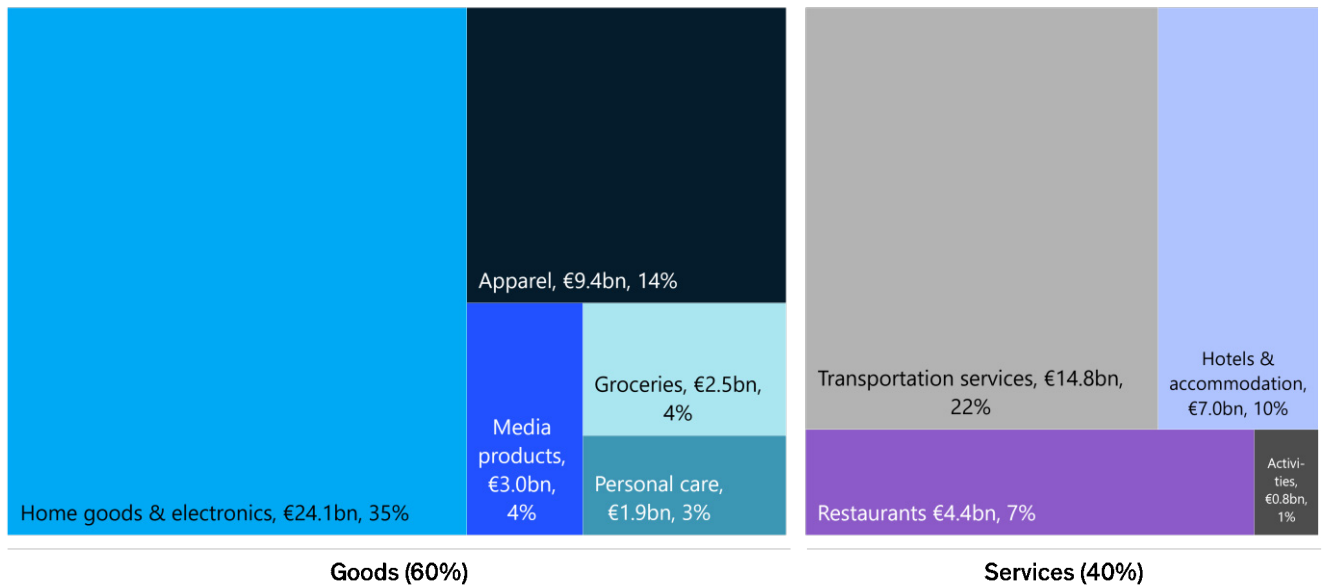
[1] Constant 2016 values
Source: Euromonitor; McKinsey Global Payments Map; McKinsey analysis

Drivers and dynamics of digital commerce vary across sub-segments

Digital Challengers: Digital commerce category split, goods only, 2017–21,
€ billion, %

Growth (CAGR)

	2017–19	2019–21
Total	19%	28%
Personal care	12%	27%
Groceries	13%	18%
Media products	20%	26%
Apparel	26%	61%
Home goods & electronics	21%	33%

Legend:
- Personal care
- Groceries
- Media products
- Apparel
- Home goods & electronics

+24% p.a.

2017: 18 — 61%, 21%, 10%, 4%, 5%
2018: 21 — 61%, 21%, 9%, 4%, 5%
2019: 25 — 61%, 21%, 9%, 4%, 5%
2020: 35 — 56%, 24%, 9%, 6%, 5%
2021: 41 — 59%, 23%, 7%, 6%, 5%
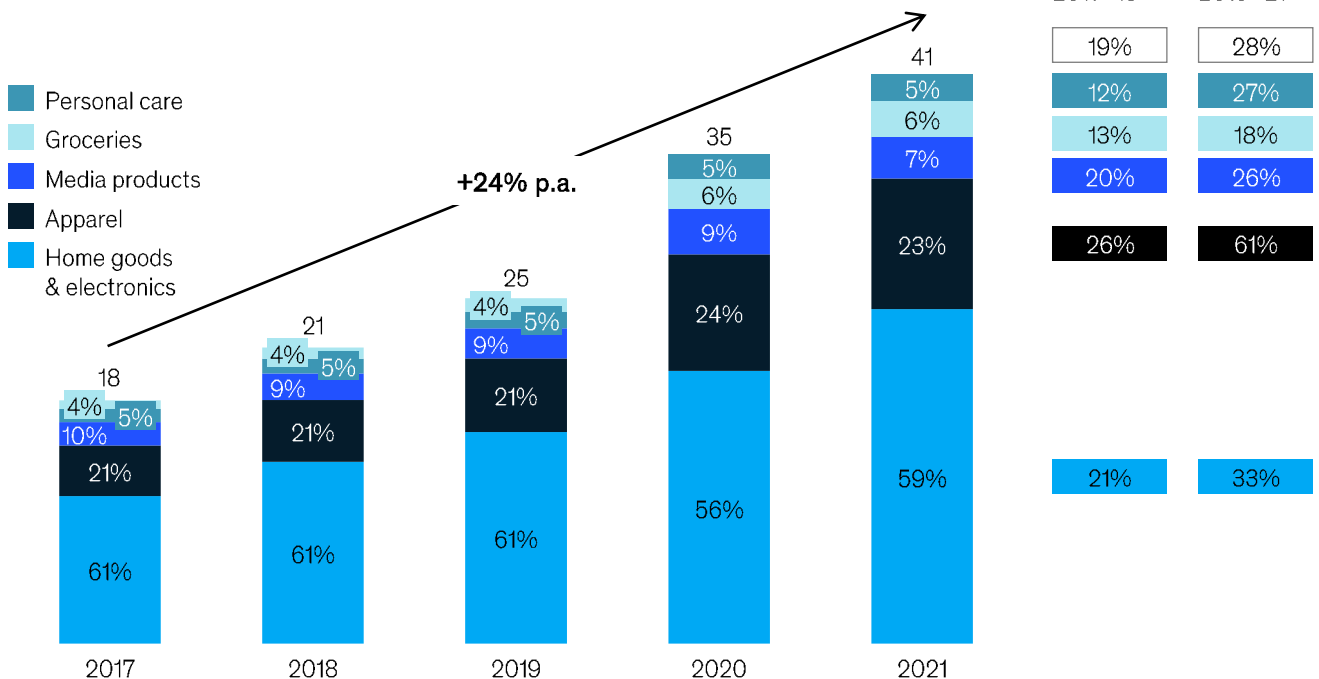
Source: Euromonitor; McKinsey Global Payments Map; McKinsey analysis

All categories are growing, although some were more sensitive to COVID-19 than others

Growth of digital commerce in Digital Challengers, goods only, 2018–21

Category	YoY Change, %		Growth (CAGR), 2017–21
Total goods	2018	17	24%
	2019	19	
	2020	40	
	2021	17	
Apparel	2018	22	27%
	2019	19	
	2020	58	
	2021	12	
Groceries	2018	28	42%
	2019	23	
	2020	116	
	2021	21	
Home goods & electronics	2018	23	23%
	2019	16	
	2020	29	
	2021	23	
Media products	2018	14	16%
	2019	12	
	2020	53	
	2021	−9	
Personal care	2018	13	19%
	2019	11	
	2020	49	
	2021	7	
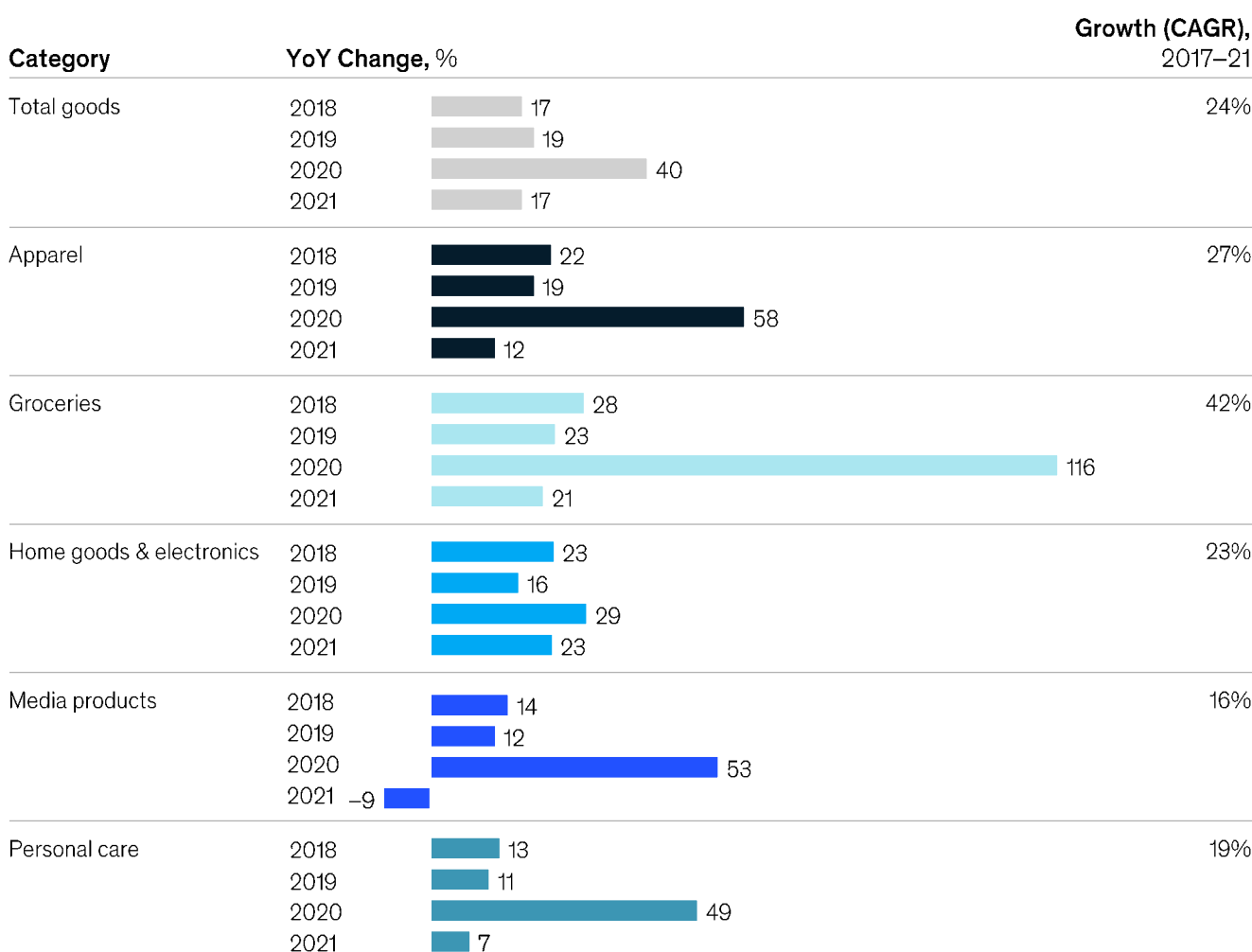
Our analysis further shows that services purchased via online channels grew by 11 percent annually between 2017 and 2021, with growth slowing down during COVID-19 in just one category: hotels and accommodation. Restaurants saw the strongest growth, driven by lockdowns and in-home dining, as well as the earlier introduction of many on-demand delivery apps, which capitalized on the trend. The largest segment was, and remains, transportation services; the reason for this is the growth in popularity of low-cost carriers and transportation-sharing services with purely digital sales models.

Restaurants saw the strongest growth between 2017 and 2021, with a spike in 2020, when the digital market almost doubled due to COVID-19 restrictions. In 2021 the market remained flat, at 2020 levels. Growth in restaurants was offset by the decline in hotels and accommodation, and transportation services, in 2020, leading to a zero-percent growth rate for digital sales of services overall. Hotels and accommodation, and transportation services, declined during COVID-19. By contrast, in 2021 they grew around 30 percent each, surpassing pre-pandemic levels in total value, as consumers were once again able to travel. Online activities were up during COVID-19 driven by lockdowns, however their growth rate has now returned to lower than pre-pandemic levels with a large share of users returning to offline channels (for example, movie theaters and gyms).

Digital services grew more slowly than goods, with transportation services accounting for more than 50% of the market

Digital Challengers: Digital commerce by category, services only, 2017–21,
€ billion, %

Growth (CAGR)

2017–19   2019–21

Legend:
- ■ Activities
- ■ Restaurants
- ■ Hotels & accommodation
- ■ Transportation services

+11% p.a.

Year	Total	Activities	Restaurants	Hotels & accommodation	Transportation services
2017	18	2%	10%	24%	64%
2018	20	2%	11%	25%	62%
2019	22	2%	12%	26%	60%
2020	22	3%	20%	24%	53%
2021	27	3%	16%	26%	55%

Growth (CAGR):

Category	2017–19	2019–21
Total	10%	12%
Activities	6%	7%
Restaurants	19%	32%
Hotels & accommodation	14%	12%
Transportation services	17%	20%
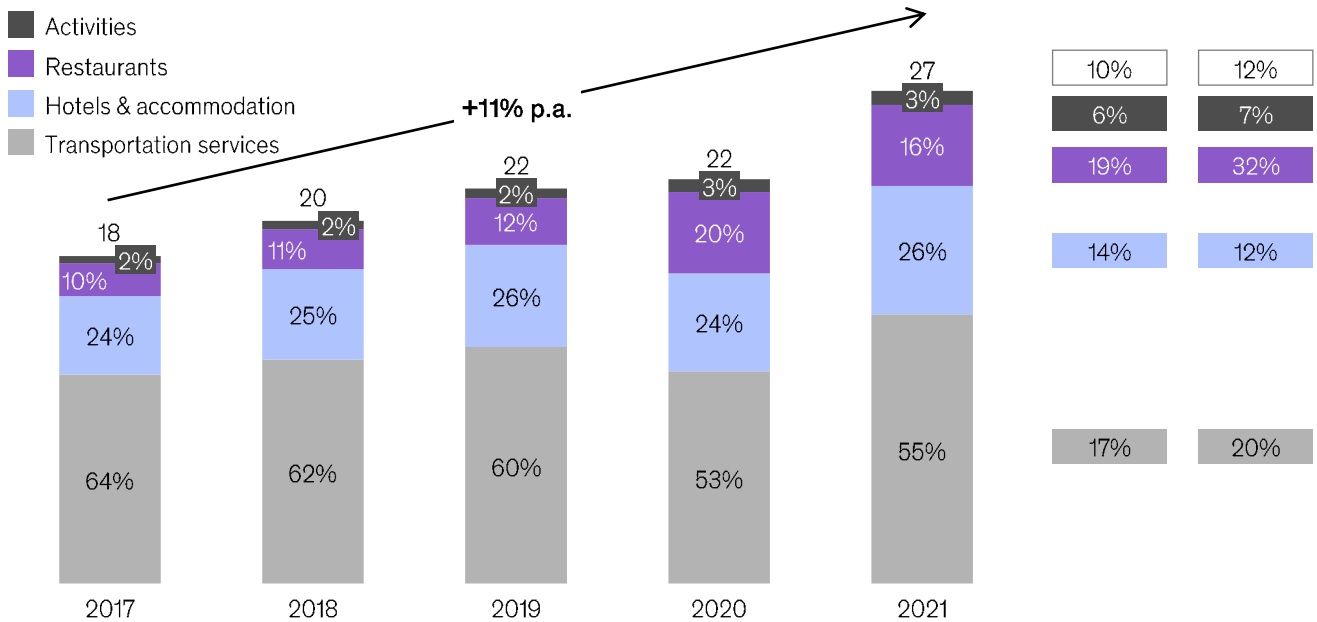
Source: Euromonitor; McKinsey Global Payments Map; McKinsey analysis

Digital services were more sensitive to COVID-19 than goods, with growth of activities and restaurants varying the most

Digital Challengers: Digital commerce by category, services only, 2018–21

Category	YoY Change, %		Growth (CAGR), 2017–21
Total Services	2018	11	11%
	2019	10	
	2020	0	
	2021	23	
Activities	2018	17	19%
	2019	17	
	2020	32	
	2021	9	
Restaurants	2018	22	25%
	2019	17	
	2020	73	
	2021	0	
Hotels & accommodation	2018	15	13%
	2019	13	
	2020	−4	
	2021	31	
Transport services	2018	7	6%
	2019	5	
	2020	−10	
	2021	27	

Source: Euromonitor; McKinsey Global Payments Map; McKinsey analysis

Home goods & electronics is the largest category in digital commerce, with 36% penetration in 2021

Home goods & electronics in Digital Challengers, 2017–21, %

+20% p.a.

+26% p.a.

Year	2017	18	19	20	2021
Poland	44	45	43	42	44
Czech Republic	19	18	18	17	16
Romania	12	14	16	16	16
Slovakia	9	9	8	9	8
Hungary	5	5	5	5	6
Lithuania	4	4	4	—	4
Bulgaria	2	2	2	2	2
Slovenia	1	1	1	2	1
Latvia	2	1	1	1	1
Croatia	1	1	1	2	1

Share of digital in retail commerce: 2017 = 30%, 18 = 32%, 19 = 33%, 20 = 34%, 2021 = 36%

Growth (CAGR)

	2017–19	2019–21
Croatia	18%	34%
Latvia	27%	32%
Slovenia	12%	28%
Bulgaria	33%	58%
Lithuania	14%	27%
Hungary	15%	32%
Slovakia	13%	22%
Romania	36%	26%
Czech Republic	16%	19%
Poland	18%	26%

Source: Euromonitor; McKinsey Global Payments Map; McKinsey analysis

Growth rate of apparel doubled during the pandemic, reaching 14% penetration levels

Apparel in Digital Challengers, 2017–21, %

+20% p.a.

+33% p.a.

Year	2017	18	19	20	2021
Poland	47	49	48	51	49
Romania	14	14	16	14	14
Lithuania	10	10	10	9	10
Czech Republic	8	8	8	8	7
Slovakia	6	6	6	6	6
Hungary	5	5	4	4	4
Slovenia	3	3	3	3	3
Latvia	2	2	4	3	3
Bulgaria	1	1	1	2	2
Croatia	3	3	2	1	1

Share of digital in retail commerce: 2017 = 10%, 18 = 11%, 19 = 11%, 20 = 15%, 2021 = 14%

Growth (CAGR)

	2017–19	2019–21
Croatia	21%	41%
Bulgaria	18%	42%
Latvia	20%	29%
Slovenia	6%	33%
Hungary	17%	33%
Slovakia	17%	32%
Czech Republic	19%	24%
Lithuania	17%	37%
Romania	26%	28%
Poland	22%	35%

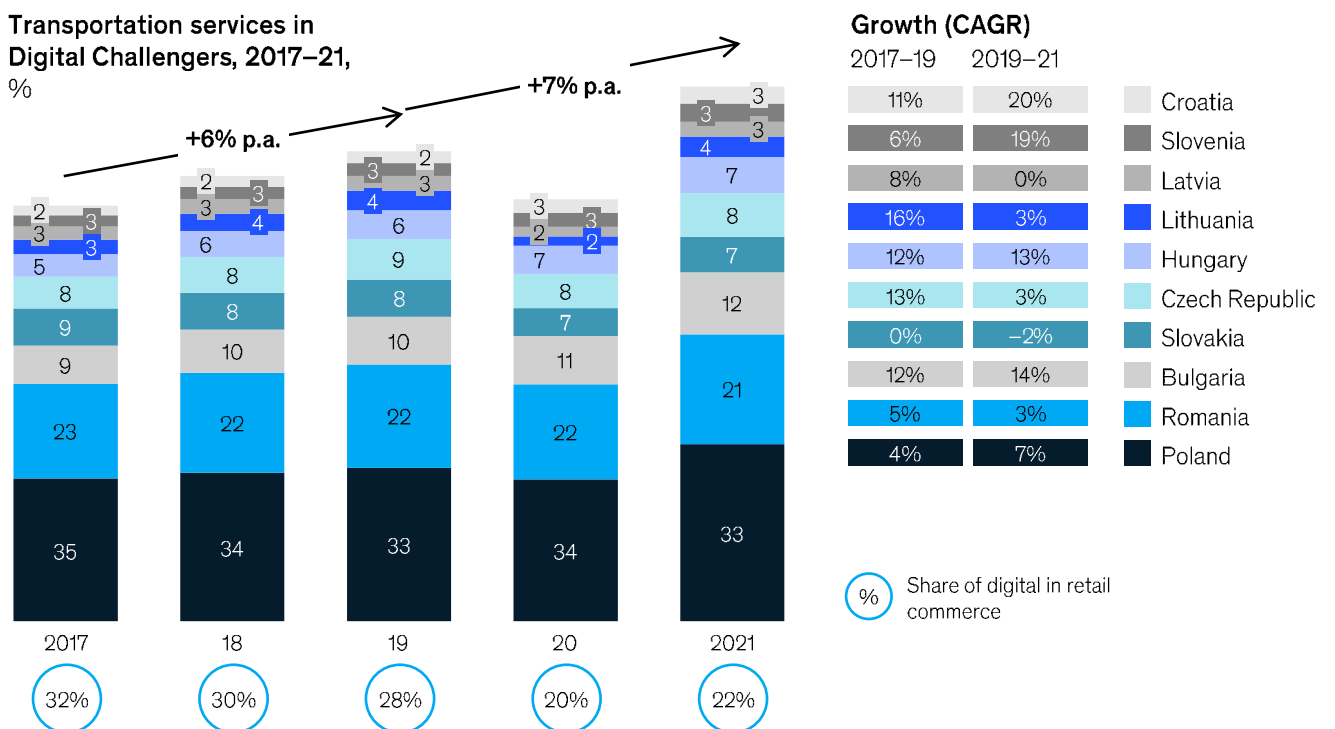Source: Euromonitor; McKinsey's Global Payments Map; McKinsey analysis

Home goods and electronics are the largest product category sold online. This is one of the easiest categories for online shopping for consumers, as seeing the product offline before buying it is not an essential enabler. Although some consumers appreciate guidance from store staff on products when making a choice, online reviews have grown in importance in recent years. Moreover, consumers in Digital Challenger countries are price sensitive, and buying home goods and electronics online facilitates price comparisons, allowing consumers to shop around for the best deal.

At the beginning of the pandemic, consumers had to adapt to distance work and learning, which increased digital purchases of computers and other technical goods, as well as home furnishings and furniture. Our estimates show that this led to a growth rate of 20 percent annually for the home goods and consumer electronics category in 2017–19, and 26 percent in 2019–21. Some 44 percent of home goods and electronics sales in Digital Challengers were accounted for by Poland, followed by the Czech Republic (16 percent) and Romania (16 percent).[126] The category has also gained traction in countries such as Bulgaria, Croatia, Latvia, Lithuania, and Slovenia in 2019–21.

Consumers in Digital Challenger countries are increasingly shopping online for apparel, as more and more retailers launched local websites and international pure-play online apparel retailers entered the market, often with superior propositions in terms of pricing, promotion, deliveries, and returns. Our analysis shows that, while Poland accounted for half of the total apparel sold online in Digital Challengers, the category was—and remains—strong in Romania (with annual growth rates above the cluster's average in 2017–19) and also grew significantly in 2019–21 in Bulgaria (with a 42 percent growth rate) and Croatia (41 percent).[127] Lithuania accounts for a disproportionately large share of the cluster's digital sales of apparel—higher than the Czech Republic, for example. This could be due to the popularity of Scandinavian apparel brands in the country, as apparel is the segment with the most frequent sales for Lithuanians.[128] Another reason could be the growth of Lithuania's tech unicorn, Vinted, a website where users can buy and sell second-hand clothes. Vinted recently changed its business model, among other things removing its mandatory sales fee, which may have triggered growth of the apparel segment. Other companies than Vinted, such as thredUp, Wallapop and Tradesy, are also tapping into a growth trend of second-hand apparel.

Transportation services is the third-largest category—Steady growth to 22% penetration

Transportation services in Digital Challengers, 2017–21, %

Growth (CAGR)

2017–19	2019–21	
11%	20%	Croatia
6%	19%	Slovenia
8%	0%	Latvia
16%	3%	Lithuania
12%	13%	Hungary
13%	3%	Czech Republic
0%	−2%	Slovakia
12%	14%	Bulgaria
5%	3%	Romania
4%	7%	Poland

% Share of digital in retail commerce

Source: Euromonitor; McKinsey's Global Payments Map; McKinsey analysis

Online sales of airplane, train, and bus tickets, and of on-demand transportation services, also developed in the Digital Challengers cluster during the period with the introduction of more competitive transportation pricing offers (the cluster remains highly price-sensitive). The emergence of low-cost carriers with purely digital sales models, OTAs (online travel agencies such as Booking.com, Expedia, and so on) and the growth of the gig economy—ridesharing and transportation rental platforms such as Taxify (now Bolt), Uber, and Free Now—helped boost online purchases in transportation services in the cluster. One-third of the cluster's digital sales of transportation services are in Poland, followed by Romania, which accounts for one-fifth.[129] The other Digital Challenger countries lag behind these two frontrunners, although despite the category's slowdown during 2020, Croatia, Lithuania and Bulgaria saw accelerated growth overall between 2019 and 2021.

Our estimates show that digital gaming (spending on computer, console, and mobile games, both online and offline, and related equipment) grew by 12 percent annually between 2017–21, reaching a value of €1.4 billion for the total cluster. The gaming segment offers stable growth potential. While sales on all platforms (PC, console, and mobile) grew continuously, growth was mainly driven by the increase in mobile game spend, whose share of total spend on digital gaming grew from 21 percent in 2017 to 34 percent in 2021. Approximately 80 percent of this spend was driven by in-game purchases. Similarly, in-game purchases on other platforms also increased at a 14–17 percent annual growth rate between 2019 and 2021, outperforming the average for the sub-segment.

In parallel, spending on in-game purchases stagnated on non-mobile platforms, signaling a shift in business models, with blockbuster games leapfrogged by lower-priced or even

Digital gaming grew with a CAGR of 12% in 2017–21, driven by mobile games

Spending on digital gaming in Digital Challengers, 2017–21,
€ billion, %
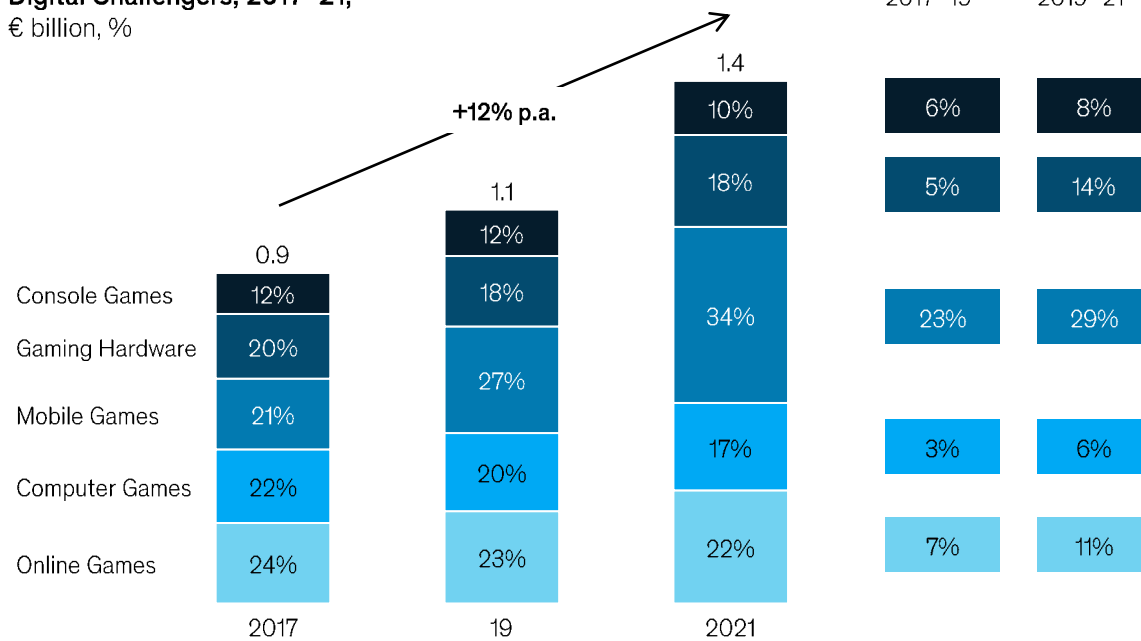
Source: Euromonitor; McKinsey analysis

free to download games with microtransactions. Given the talent in this sector—especially in the Baltics and Poland—and its strong growth rate, gaming could potentially boost the growth of the digital economy through both domestic sales and exports.

Online groceries have the lowest level of penetration across Digital Challenger countries. However, our analysis shows that the segment grew by 26 percent annually in 2017–19, doubling in size in 2020. COVID-19 restrictions changed consumer behavior and grocery retail chains were quick to adapt, offering online ordering, home delivery, and creating partnerships with on-demand delivery apps. New digital commerce startups also emerged during COVID-19, such as Żabka's AI-powered Nano stores, a network of fully-automated physical stores with no cashiers.[130] In 2021, although growth slowed compared to 2018 or 2019, the category continued to grow, with the share of consumers preferring
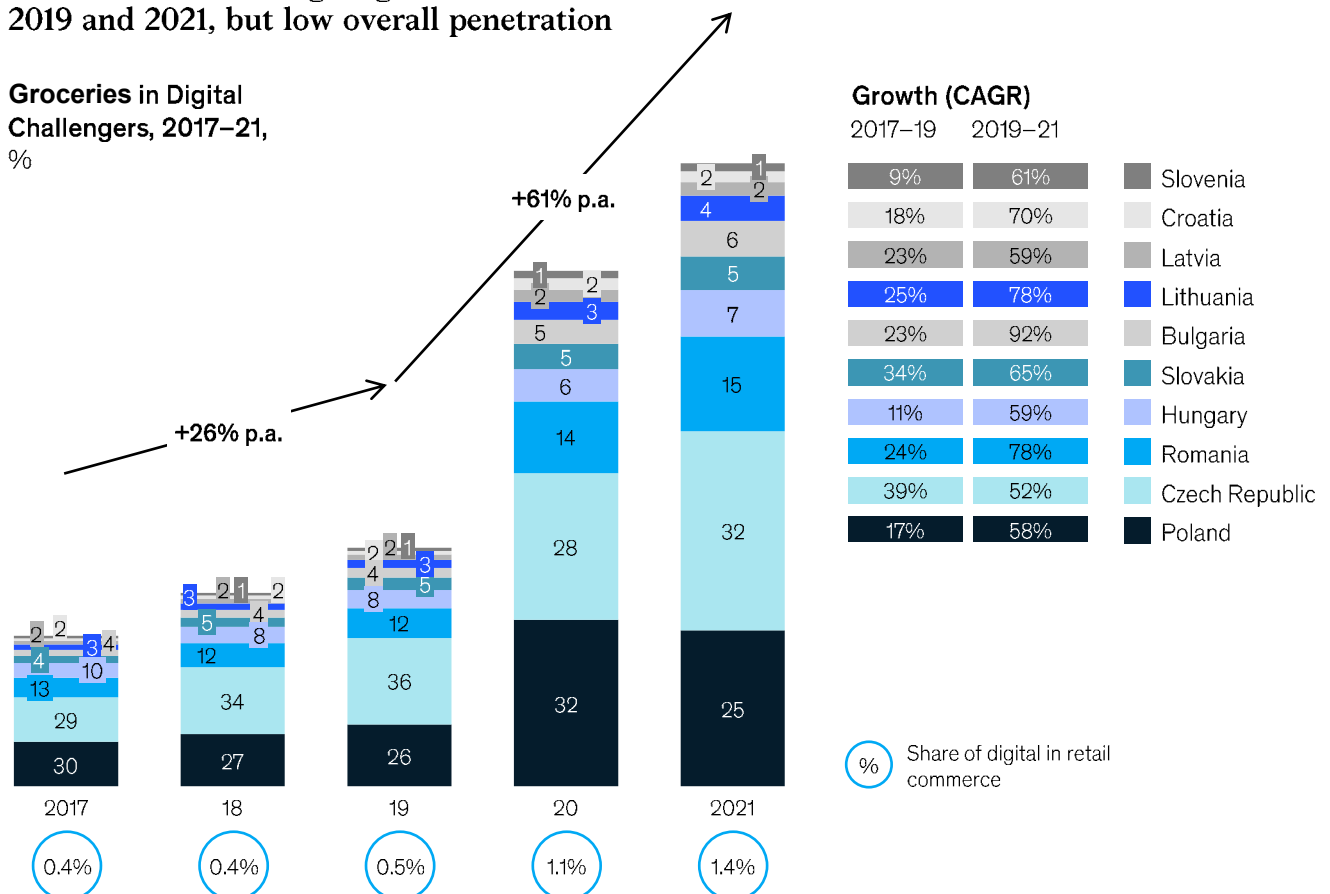
the digital channel for grocery shopping gradually increasing.

While the different countries in the Digital Challenger cluster have many trends and growth drivers in common when it comes to digital commerce, notable differences between countries also exist. This partly explains the differences in the categories mix for digital commerce. While home goods and electronics is the largest category across all countries in the cluster, differences appear between other categories; for example, in the Czech Republic, groceries account for a larger share of digital commerce than in other countries, and media products—the third-largest goods category in all but three countries—are behind groceries in Romania and the Czech Republic.

In terms of services, transportation is the largest category across the board—with the exception of Croatia, where hotels and accommodation are the largest service category in digital commerce.

Groceries had the largest growth rate between 2019 and 2021, but low overall penetration

Groceries in Digital Challengers, 2017–21, %

Growth (CAGR)		
2017–19	2019–21	
9%	61%	Slovenia
18%	70%	Croatia
23%	59%	Latvia
25%	78%	Lithuania
23%	92%	Bulgaria
34%	65%	Slovakia
11%	59%	Hungary
24%	78%	Romania
39%	52%	Czech Republic
17%	58%	Poland

% Share of digital in retail commerce

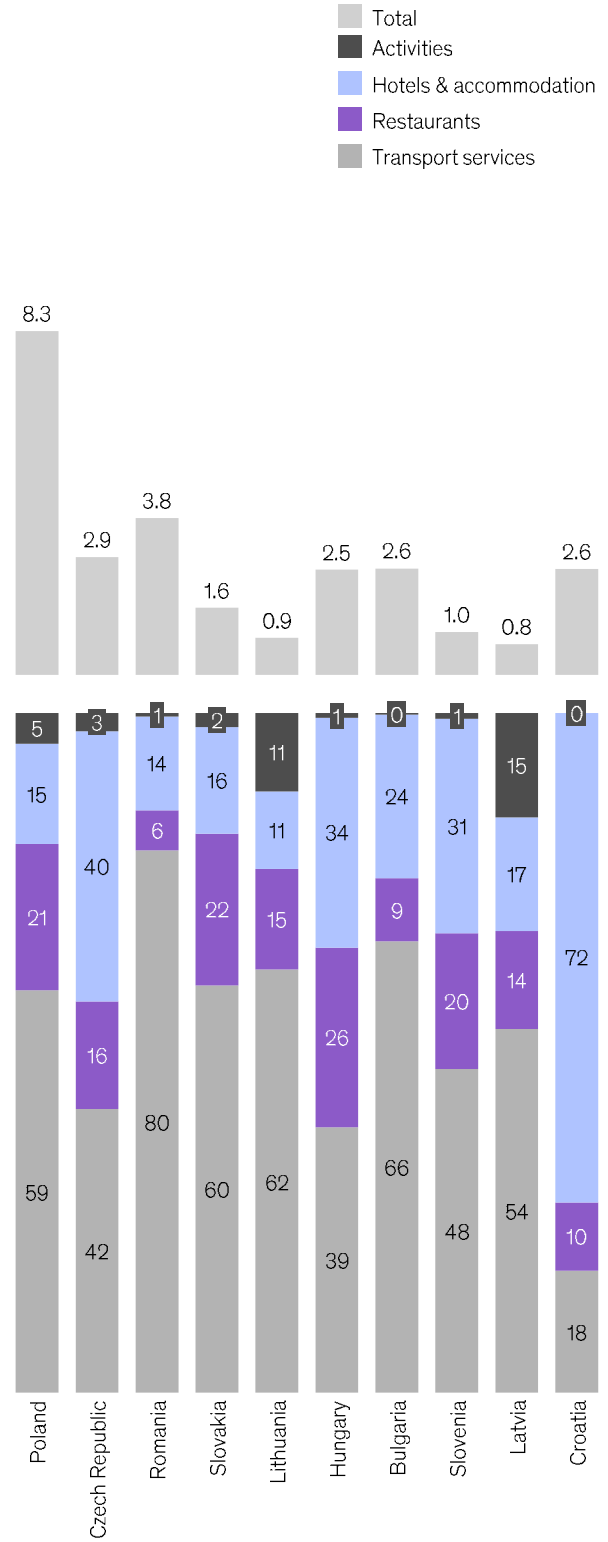Source: Euromonitor, McKinsey's Global Payments model, McKinsey analysis

Home goods & electronics is the largest segment across Digital Challengers, followed by apparel

Digital Challengers: Digital commerce by category, goods only, 2021,
€ billion, %

Legend:
- Total
- Groceries
- Personal care
- Media products
- Apparel
- Home goods & electronics

	Poland	Czech Republic	Romania	Slovakia	Lithuania	Hungary	Bulgaria	Slovenia	Latvia	Croatia
Total	16.4	5.3	5.0	2.5	1.8	1.8	0.8	0.7	0.6	0.5
Groceries	4	11	6	4	4	7	12	5	8	10
Personal care	6		3	2	3	6		3		8
Media products	13	5	4	7	2		9	5	4	9
		9				12	3		1	
Apparel	26	12	23	19	41	21	21	35	35	24
Home goods & electronics	51	62	64	68	50	53	56	52	52	50

Services are not as digitally mature as goods in Digital Challengers—Activities have the lowest digital penetration

Digital Challengers: Digital commerce by category, services only, 2021,
€ billion, %

Legend:
- Total
- Activities
- Hotels & accommodation
- Restaurants
- Transport services

	Poland	Czech Republic	Romania	Slovakia	Lithuania	Hungary	Bulgaria	Slovenia	Latvia	Croatia
Total	8.3	2.9	3.8	1.6	0.9	2.5	2.6	1.0	0.8	2.6
Activities	5	3	1	2	11	1	0	1	15	0
Hotels & accommodation	15	40	14	16	11	34	24	31	17	72
Restaurants	21	16	6	22	15	26	9	20	14	10
Transport services	59	42	80	60	62	39	66	48	54	18

Source: Euromonitor; McKinsey Global Payments Map; McKinsey analysis
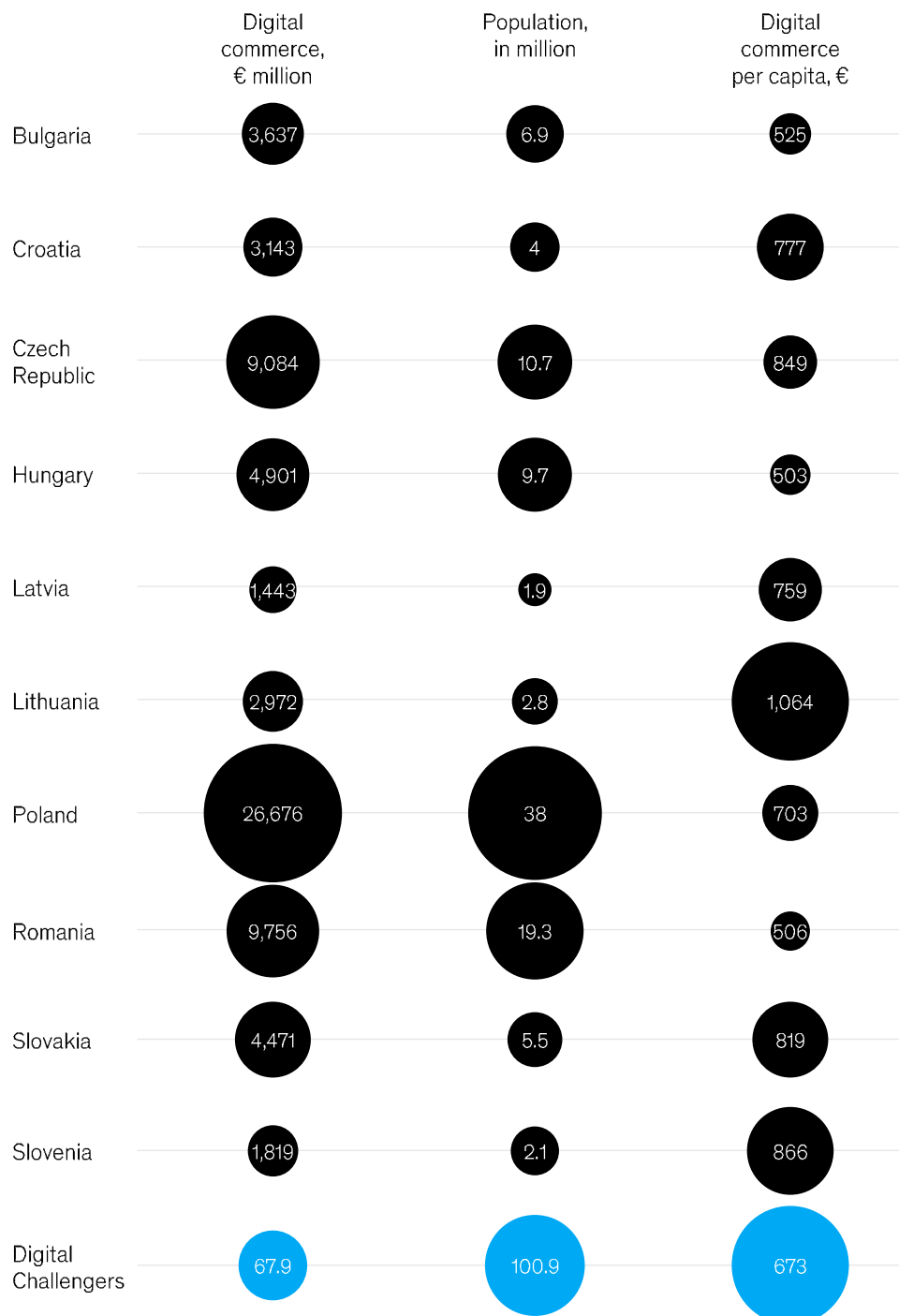
Digital commerce across countries

Our analysis shows that the digital commerce market in Digital Challengers in 2021 was worth a total of €68 billion. Poland, the Czech Republic, and Romania account for 68 percent of the market, the equivalent of €46 billion. Per capita, the cluster has an average digital commerce spend of €673, the top country in this respect being Lithuania (€1,064), which is 23 percent higher than the number-two country, Slovenia (€866), and more than double that of the bottom two countries, Hungary (€503) and Romania (€506).

Digital commerce per capita is above the cluster average in all countries except Bulgaria, Hungary, and Romania

Digital commerce in Digital Challengers

	Digital commerce, € million	Population, in million	Digital commerce per capita, €
Bulgaria	3,637	6.9	525
Croatia	3,143	4	777
Czech Republic	9,084	10.7	849
Hungary	4,901	9.7	503
Latvia	1,443	1.9	759
Lithuania	2,972	2.8	1,064
Poland	26,676	38	703
Romania	9,756	19.3	506
Slovakia	4,471	5.5	819
Slovenia	1,819	2.1	866
Digital Challengers	67.9	100.9	673

Source: Euromonitor; McKinsey Global Payments Map; McKinsey analysis

Poland

According to our estimates, Poland has the largest digital commerce market in the cluster, worth €27 billion in 2021. The penetration of digital commerce—that is to say, the share of digital commerce in total commerce—was 17 percent in 2021. The value of the market and penetration were double that of 2017 (€14 billion, 10 percent). Digital commerce saw record growth in 2019–21, while offline commerce declined.[131]

According to McKinsey's Global sentiment survey, "fully digital" was the channel used most frequently across industries in 2021, except for groceries, where the "physical" channel was preferred by almost 70 percent of consumers. The highest rate of digital adoption—that is to say, the share of users that accessed at least one online service in the industry in question—is seen in entertainment. Groceries and travel have the highest rates of new digital users aged 25–34. The 55+ age group has the lowest share of digital interactions across industries; the highest rate of digital adoption for this age group was in banking, which also has the highest rates of new digital users aged 45–54. New users of digital across industries are mostly balanced by gender and area, in line with the country's demographics, however female users have a higher share of digital interactions in apparel (66 percent of users are female), and overall, urban users account for three-quarters of digital interactions across industries.[132]

During the strictest pandemic lockdowns, non-essential specialist stores were obliged to close. Consumers remained cautious when they reopened, which drove up online demand in categories such as apparel, home good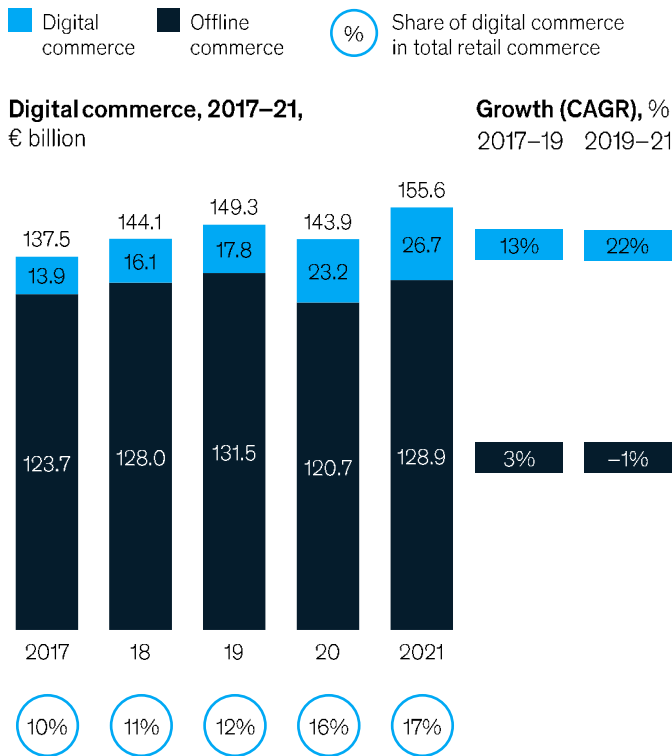s and electronics, and groceries. Retailers in Poland streamlined their shipping processes over the last two years to make delivery as efficient as possible, driven by the surge in online sales and increasing customer needs. For example, the Allegro Smart! program played a major role in popularizing digital commerce, offering consumers with a subscription free delivery or click & collect services.[133] These services became increasingly popular and were offered by both grocery retailers and specialist apparel retailers such as LPP (via its Reserved stores). Allegro also innovated in the area of payments, with its Allegro Pay solution allowing customers to defer payment by 30 days.[134] Improvements in payment processes were facilitated by BLIK, a service launched by an alliance of six banks in Poland, which allows safe, instant payments with one-click approval via a banking app.[135]

Poland saw significant growth in the number of new digital retailers over the past five years. New brands entered the country and often chose digital commerce as their main channel, while physical store openings remained part of their strategy if their market performance was strong.[136] This trend is the opposite of that pursued by traditional retail players, which start out as bricks-and-mortar store and then potentially migrate towards digital commerce and omnichannel distribution. This trend accelerated in 2021, which will lead to further growth of digital commerce in Poland in the coming years.
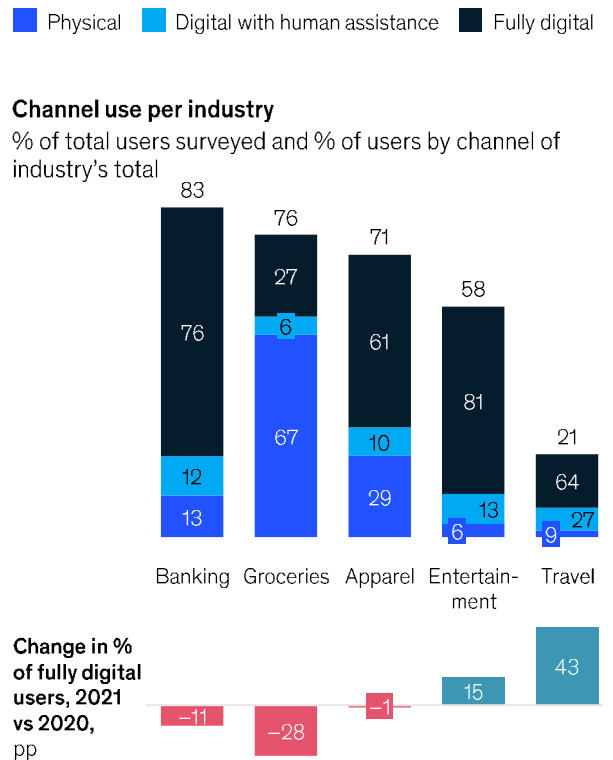
The surge of new market entrants in Poland led to a large group of smaller players gaining market share; as a group, these players accounted for the second-highest market share of digital commerce in Poland.[137] Their success was also partly due to Allegro and Alibaba, which feature third-party merchants on their marketplaces.
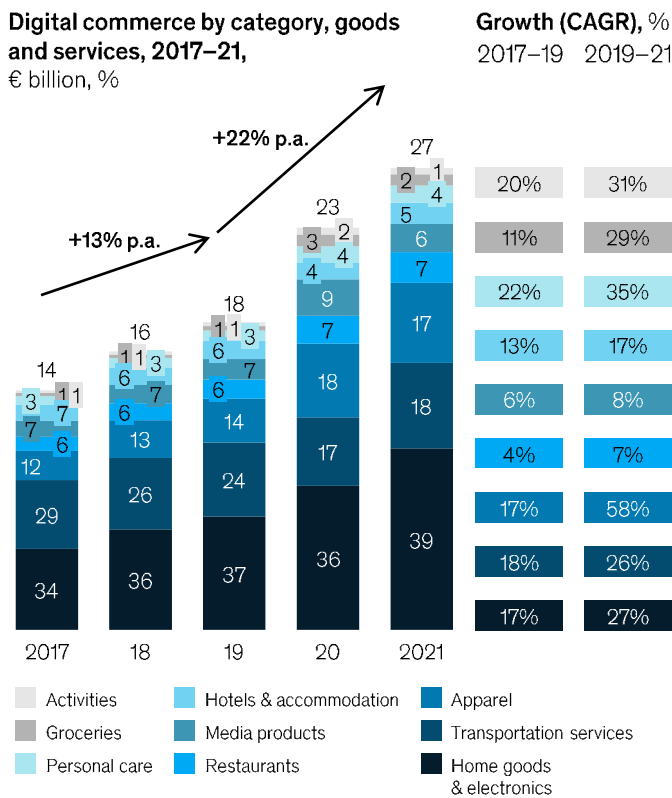
Digital commerce in Poland

Poland has 17% penetration of digital commerce, above the Digital Challengers average
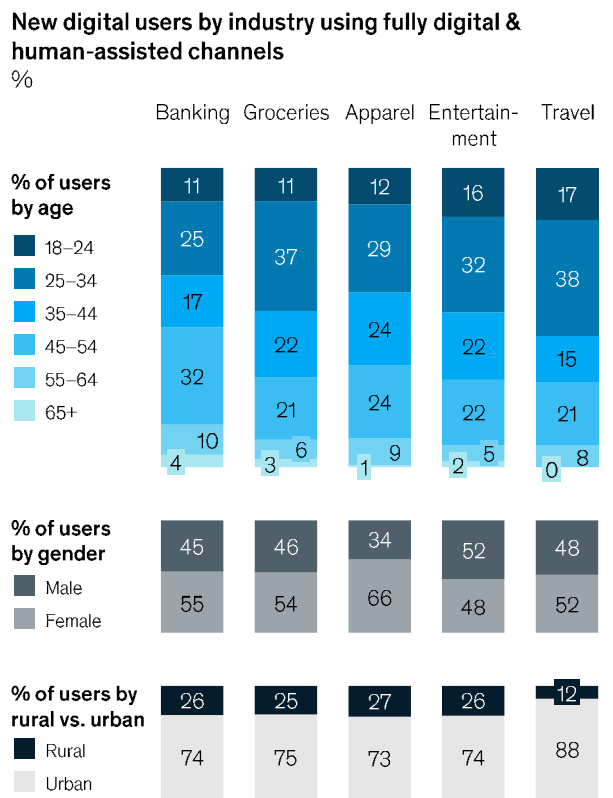
- **Digital commerce** (light blue)
- **Offline commerce** (black)
- **%** Share of digital commerce in total retail commerce

Digital commerce, 2017–21, € billion

	2017	18	19	20	2021
Total	137.5	144.1	149.3	143.9	155.6
Digital commerce	13.9	16.1	17.8	23.2	26.7
Offline commerce	123.7	128.0	131.5	120.7	128.9
Share	10%	11%	12%	16%	17%

Growth (CAGR), %

	2017–19	2019–21
Digital commerce	13%	22%
Offline commerce	3%	−1%

Fully digital is the most used channel across industries, except for groceries

- **Physical** (blue)
- **Digital with human assistance** (light blue)
- **Fully digital** (black)

Channel use per industry
% of total users surveyed and % of users by channel of industry's total

	Banking	Groceries	Apparel	Entertainment	Travel
Total	83	76	71	58	21
Fully digital	76	27	61	81	64
Digital with human assistance	12	6	10	13	27
Physical	13	67	29	6	9

Change in % of fully digital users, 2021 vs 2020, pp

Banking	Groceries	Apparel	Entertainment	Travel
−11	−28	−1	15	43

Home goods & electronics, apparel, and transportation services are the largest categories in digital commerce in Poland

Digital commerce by category, goods and services, 2017–21, € billion, %

+13% p.a.
+22% p.a.

	2017	18	19	20	2021
Total	14	16	18	23	27
Activities	1	1	1	2	1
Groceries	1	1	1	3	2
Personal care					4
Hotels & accommodation	3	3	3	4	5
Media products	7	7	6	4	6
Restaurants	6	6	7	7	7
Apparel	12	13	14	17	17
Transportation services	29	26	24	18	18
Home goods & electronics	34	36	37	36	39

Growth (CAGR), %

	2017–19	2019–21
Activities	20%	31%
Groceries	11%	29%
Personal care	22%	35%
Hotels & accommodation	13%	17%
Media products	6%	8%
Restaurants	4%	7%
Apparel	17%	58%
Transportation services	18%	26%
Home goods & electronics	17%	27%

Legend:
- Activities
- Hotels & accommodation
- Apparel
- Groceries
- Media products
- Transportation services
- Personal care
- Restaurants
- Home goods & electronics

Groceries and travel have the highest rates of new digital users aged 25–34

New digital users by industry using fully digital & human-assisted channels %

% of users by age

Age	Banking	Groceries	Apparel	Entertainment	Travel
18–24	11	11	12	16	17
25–34	25	37	29	32	38
35–44	17	22	24	22	15
45–54	32	21	24	22	21
55–64	10	6	9	5	8
65+	4	3	1	2	0

% of users by gender

	Banking	Groceries	Apparel	Entertainment	Travel
Male	45	46	34	52	48
Female	55	54	66	48	52

% of users by rural vs. urban

	Banking	Groceries	Apparel	Entertainment	Travel
Rural	26	25	27	26	12
Urban	74	75	73	74	88

Romania

Romania has the second-largest digital commerce market in the cluster in terms of value. Digital commerce grew 17 percent annually in 2017–21.[138] However, the country lags behind others in the cluster in terms of the size of digital commerce compared to its population, and also in terms of the overall penetration of digital commerce, at 14 percent (Poland: 19 percent; Czech Republic: 18 percent; Lithuania: 18 percent). The share of people aged 16–74 shopping online in 2021 was 44 percent, some 0.7 times lower than the EU average of 74 percent.[139] COVID-19 had a strong impact on the growth of digital commerce. It also led to a significant shift from pay-on-delivery to online card payments. Thus, in June 2021 the volume of card transactions increased by over 60 percent compared to June 2019.[140] However, the share of online payments is highly skewed geographically, with around 45 percent of such payments traceable to the capital, Bucharest.[141]

Fully digital was the most-used channel across industries in 2021, except for groceries, where the physical channel was preferred by almost 60 percent of consumers. As such, groceries are the only sector that saw digital usage fall compared to 2020. Groceries also have the highest rate of new digital users aged 35–44. The highest rate of digital adoption overall is in entertainment, followed by travel. Of all the industries considered, travel has the largest share of users accessing services via digital channels but with human assistance. The 55+ age group has the lowest share of digital interactions across industries; the highest rate of digital interactions for this age group is in groceries. Compared to other countries, Romania enjoys a much more balanced distribution of digital users across age groups and industries. New digital users across industries are also balanced by gender and area, in line with the country's demographics; however, female users have a higher share of digital interactions in apparel (+10 percent), and overall, urban users account for three-quarters of digital interactions across industries.[142]

Our analysis shows that digital commerce experienced strong growth in Romania over the past five years, with average annual growth of 17 percent. The market was worth €10 billion in 2021, double its value in 2017. During COVID-19, all categories of goods, and also transportation services, saw strong growth of online sales. The fastest evolution was in groceries, which grew from €123 million in value (a 2 percent share of digital commerce) in 2019 to €389 million in value in 2021 (4 percent), according to our estimates. Supermarkets and food stores remained open during the pandemic lockdowns, so this growth is likely due to the development of new services, such as the delivery apps Bringo (in which Carrefour became majority shareholder in 2017), Glovo (launched 2018), and Tazz (which delivers groceries from multiple large supermarket chains and products from eMag within 60 minutes). These players enhanced the convenience of online grocery shopping in Romania, especially in the context of social distancing. In 2021, eMAG, the largest marketplace player in Romania, also launched Freshful, the first online Romanian hypermarket.

The second and third fastest-growing industries in digital commerce in Romania were apparel (up from €831 million in 2019 to €1.3 billion in 2021) and personal care (up from €113 million in 2019 to €183 million in 2021).[143] The largest online shops in Romania are eMAG, H&M, and Fashion Days (owned by eMAG since 2016). Factors leading Romanian customers to choose online shops over physical stores include price, delivery methods, delivery time, and ease of return.[144]
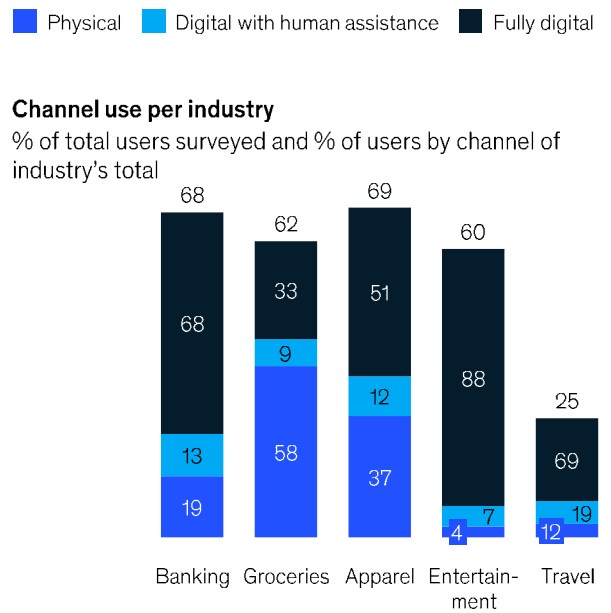
Romania stands out in the cluster as the country with the largest share of exports in digital commerce (24 percent, based on our analysis). It is also one of the only two countries in the cluster with a positive trade balance. This achievement to a significant extent due to eMag, a Romanian marketplace that is also present in Bulgaria and Hungary; in both countries it is a market leader in terms of web traffic (based on data from SimilarWeb).
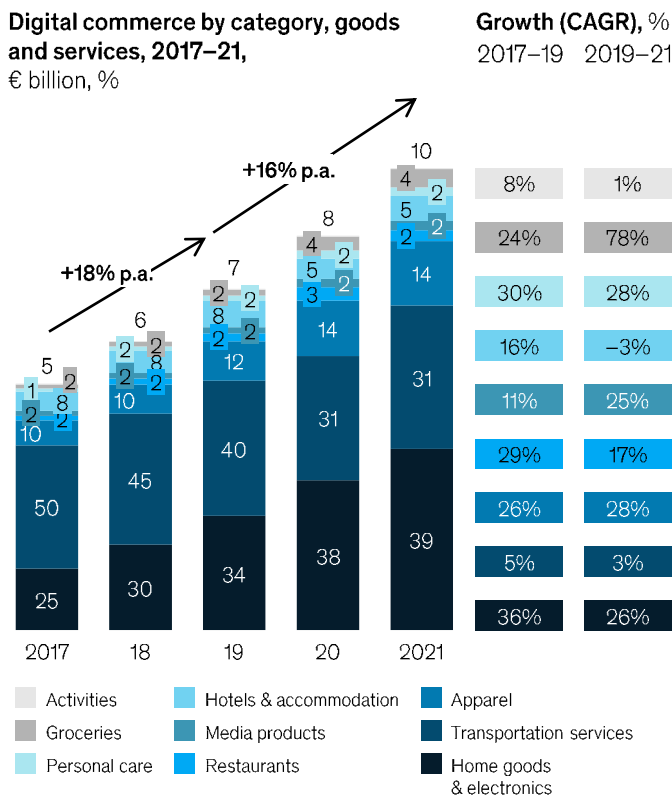
Digital commerce in Romania

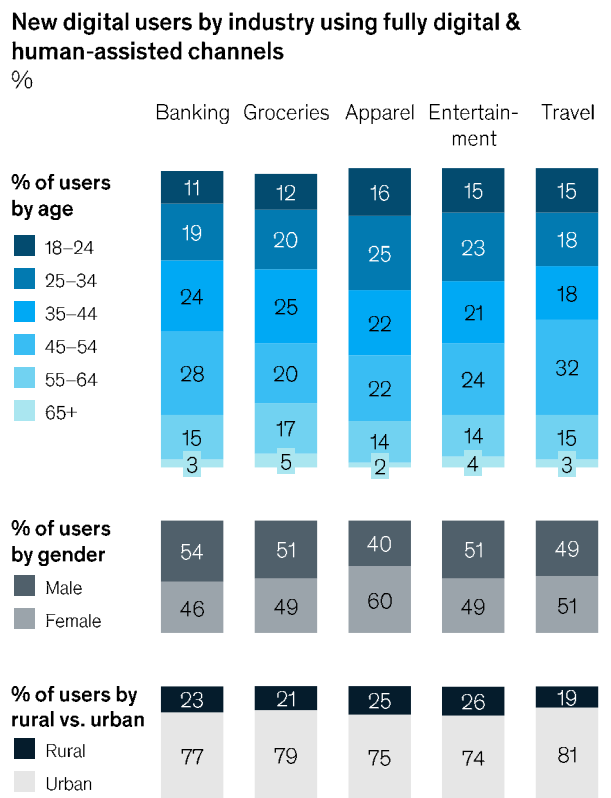## Romania has the second-largest digital commerce market, but lags behind in penetration

- Digital commerce
- Offline commerce
- % Share of digital commerce in total retail commerce

Digital commerce, 2017–21, € billion

Growth (CAGR), % 2017–19 2019–21

Year	Digital	Offline	Total
2017	5.2	62.0	67.2
18	6.1	63.1	69.2
19	7.2	63.8	71.0
20	8.3	57.4	65.7
2021	9.8	59.1	68.9

Growth digital: 18% (2017–19), 16% (2019–21)
Growth offline: 1% (2017–19), −4% (2019–21)

Share of digital commerce: 2017: 8%, 18: 9%, 19: 10%, 20: 13%, 2021: 14%
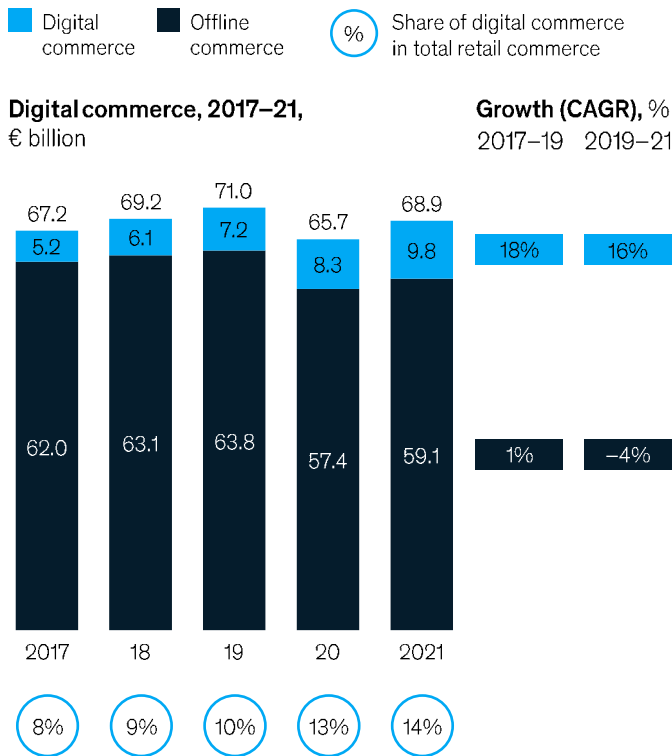
Fully digital is the most-used channel across industries except for in groceries

- Physical
- Digital with human assistance
- Fully digital

Channel use per industry
% of total users surveyed and % of users by channel of industry's total

Industry	Fully digital	Digital w/ human assistance	Physical	Total
Banking	68	13	19	68
Groceries	33	9	58	62
Apparel	51	12	37	69
Entertainment	88	7	4	60
Travel	69	19	12	25

Growth of digital commerce was slower in 2019–21 than in 2017–19

Digital commerce by category, goods and services, 2017–21, € billion, %

+18% p.a. (2017–19)
+16% p.a. (2019–21)

Year	Total
2017	5
18	6
19	7
20	8
2021	10

2021 stack: 4, 5, 2, 2, 14, 31, 39

Growth (CAGR), % 2017–19 2019–21

Category	2017–19	2019–21
	8%	1%
	24%	78%
	30%	28%
	16%	−3%
	11%	25%
	29%	17%
	26%	28%
	5%	3%
	36%	26%

Legend:
- Activities
- Groceries
- Personal care
- Hotels & accommodation
- Media products
- Restaurants
- Apparel
- Transportation services
- Home goods & electronics

Most new digital users are aged 45–54, except for in groceries and apparel

New digital users by industry using fully digital & human-assisted channels %

	Banking	Groceries	Apparel	Entertainment	Travel

% of users by age

Age	Banking	Groceries	Apparel	Entertainment	Travel
18–24	11	12	16	15	15
25–34	19	20	25	23	18
35–44	24	25	22	21	18
45–54	28	20	22	24	32
55–64	15	17	14	14	15
65+	3	5	2	4	3

% of users by gender

Gender	Banking	Groceries	Apparel	Entertainment	Travel
Male	54	51	40	51	49
Female	46	49	60	49	51

% of users by rural vs. urban

	Banking	Groceries	Apparel	Entertainment	Travel
Rural	23	21	25	26	19
Urban	77	79	75	74	81

Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey & Company 2021 Global Digital Sentiment Survey insights: survey results for Poland; McKinsey analysis

Czech Republic

Digital commerce in the Czech Republic grew 16 percent annually in the period, from €5 billion in 2017 to €9 billion in 2021.[145] The Czech Republic is half the size of Romania in terms of its population, and less than one-quarter the size of Poland, but its digital commerce market is almost as big as Romania's and one-third the size of Poland's. Moreover, penetration of digital commerce is 18 percent,[146] just one percentage point less than Poland and four percentage points more than Romania. The reason lies in the higher gross household disposable income per capita (€2,400 more annually than in Poland),[147] which leads to higher digital commerce spending per capita. Another factor is the different distribution of goods and services categories, with hotels and accommodation in the top-three categories in the Czech Republic.

Fully digital was the channel used most frequently across industries in 2021, except for groceries, where the physical channel was preferred by 65 percent of consumers.[148] The highest rate of digital adoption is in entertainment. Travel sees the highest number of digital users across industries. Digital use is skewed towards women overall, but balanced in terms of geographical area, with urban and rural users accounting for an almost equal share of digital interactions across industries.[149]

The largest industries for digital commerce in the Czech Republic are home goods and electronics, transportation services, and hotels and accommodation. However, the fastest-growing industry for digital commerce in the Czech Republic was groceries, up from €354 million in 2019 to €817 million in 2021.[150]

The top three players in the market are Alza, Mall Group, and Rohlík. The number of new e-shops increases by thousands each year. Three major companies experiencing rapid growth in 2017–21 were online grocery stores Rohlík.cz and Košík.cz (part of Mall Group), and the rebranded online perfumery Notino.cz. One trend worth noting was that the Czech Republic saw the launch of several monthly subscription services, ranging from curated food and drinks or books to plants, following a model found in more digitally mature countries, such as the United Kingdom and Germany. While this trend is still in its infancy in the Czech Republic, this is a rapidly developing market driven by digital commerce players.

The Czech Republic has the second-largest share of digital commerce exports within the Digital Challengers cluster—21 percent, according to our analysis. It also enjoys a positive trade balance. This is driven by the top-three players Alza, Mall Group, and Rohlík, all of which are present in multiple countries.

Digital commerce in Czech Republic

Czech Republic has the largest digital commerce market per capita

Legend: ■ Digital commerce ■ Offline commerce ○% Share of digital commerce in total retail commerce

Digital commerce, 2017–21, € billion

Year	Total	Digital commerce	Offline commerce	Share
2017	48.4	5.0	43.4	10%
18	51.2	5.8	45.4	11%
19	53.5	6.7	46.9	12%
20	49.6	7.8	41.8	16%
2021	51.5	9.1	42.4	18%

Growth (CAGR), %

	2017–19	2019–21
Digital commerce	16%	17%
Offline commerce	4%	−5%

Fully digital is the most-used channel across industries except for groceries

Legend: ■ Physical ■ Digital with human assistance ■ Fully digital

Channel use per industry
% of total users surveyed and % of users by channel of industry's total

	Banking	Groceries	Apparel	Entertainment	Travel
Total	69	58	51	56	18
Fully digital	69	21	61	88	62
Digital with human assistance	18	14	21	8	31
Physical	13	65	18	3	8

Change in % of fully digital users, 2021 vs 2020, pp

Banking	Groceries	Apparel	Entertainment	Travel
−11	−33	2	39	27

Home goods & electronics, transportation services, and hotels & accommodation are the biggest categories in digital commerce in Czech Republic

Digital commerce by category, goods and services, 2017–21, € billion, %

+16% p.a.   +17% p.a.

Bar totals: 2017 = 5, 18 = 6, 19 = 7, 20 = 8, 2021 = 9

Home goods & electronics: 41, 41, 42, 42, 43
Transportation services: 18, 17, 17, 12, 13

Growth (CAGR), %

	2017–19	2019–21
	10%	12%
	9%	19%
	11%	8%
	16%	19%
	19%	24%
	13%	3%
	39%	52%
	16%	19%
	16%	14%

Legend: ■ Activities ■ Hotels & accommodation ■ Apparel ■ Groceries ■ Media products ■ Transportation services ■ Personal care ■ Restaurants ■ Home goods & electronics

Apparel has the most new digital users aged 45–54
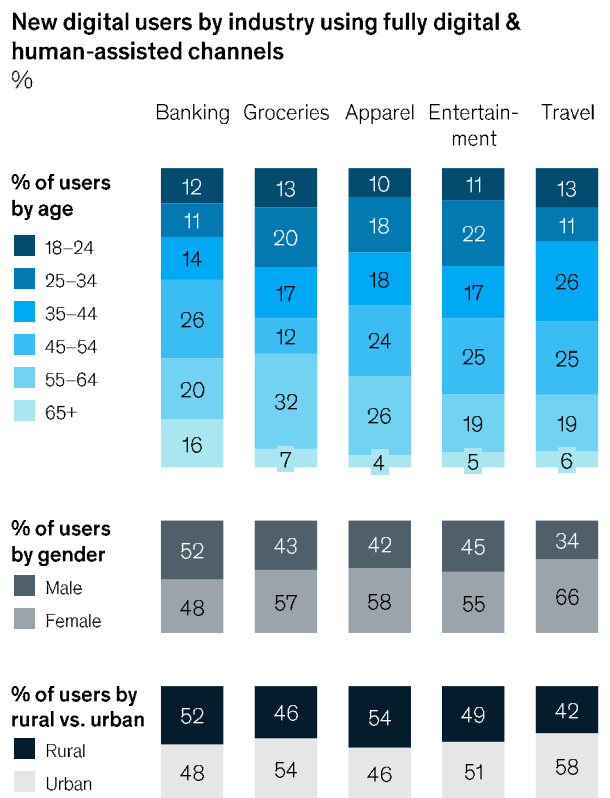
New digital users by industry using fully digital & human-assisted channels %

% of users by age
Legend: ■ 18–24 ■ 25–34 ■ 35–44 ■ 45–54 ■ 55–64 ■ 65+

Age	Banking	Groceries	Apparel	Entertainment	Travel
18–24	12	13	10	11	13
25–34	11	20	18	22	11
35–44	14	17	18	17	26
45–54	26	12	24	25	25
55–64	20	32	26	19	19
65+	16	7	4	5	6

% of users by gender

	Banking	Groceries	Apparel	Entertainment	Travel
Male	52	43	42	45	34
Female	48	57	58	55	66

% of users by rural vs. urban

	Banking	Groceries	Apparel	Entertainment	Travel
Rural	52	46	54	49	42
Urban	48	54	46	51	58

Latvia

Digital commerce in Latvia grew by 14 percent annually, almost doubling from €0.8 billion in 2017 to €1.4 billion in 2021.[151] As of summer 2021, 90.8 percent of the country's total adult population uses the internet every day.[152]

Our analysis shows that the largest categories for digital commerce in Latvia are transportation services (28 percent share of digital commerce), home goods and electronics (24 percent), and apparel (17 percent). While increasing the number of transactions is key to growing digital commerce, in Latvia the digital channel itself is also becoming more sophisticated, with more and more retailers having a nuanced service offering. "Live commerce" (selling through livestreaming, including online auctions), for example, is becoming increasingly widespread in Latvia, with smaller retailers using this approach to fully demonstrate their portfolios.[153] Latvian consumer highlight the qualities of digital channel, such as fact that products and services are easier

to compare; during the first wave of COVID-19, Latvian consumers also reported better prices online than in traditional stores.[154]

During the peak of the COVID-19 pandemic, groceries were among the most purchased goods online, the digital market for them growing from €22 million in 2019 to €55 million in 2021.[155] Demand for airline tickets and tickets for other transportation, shifted towards games, smart devices of various types, and computers.[156]

The third fastest-growing category in digital commerce in Latvia were restaurants, expanding from €61 million in 2019 to €109 million in 2021.[157] Food delivery apps started developing in Latvia prior to pandemic—for example, the Wolt platform launched in Latvia in 2017, followed by Bolt Food deliveries. In 2020–21, food deliveries then expanded rapidly due to the pandemic.[158]

The boom in digital commerce in Latvia is driven by the shift among older consumers.[159] Pre-pandemic, millennials were the key driver of value

Digital commerce in Latvia

Digital commerce in Latvia grew by 14% annually to reach €1.4 billion in 2021
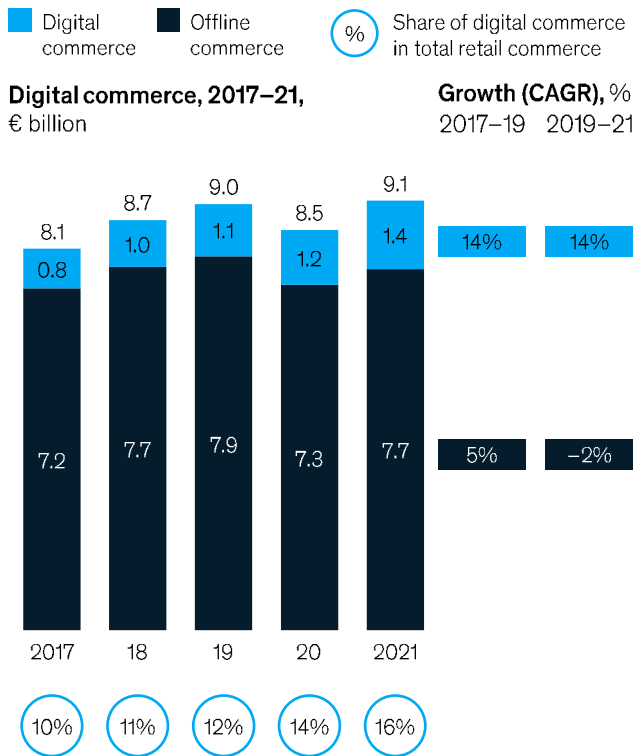
■ Digital commerce ■ Offline commerce (%) Share of digital commerce in total retail commerce

Digital commerce, 2017–21, € billion

Growth (CAGR), %
2017–19 2019–21

Transportation services are the largest category in digital commerce in Latvia

Digital commerce by category, goods and services, 2017–21, € billion, %

Growth (CAGR), %
2017–19 2019–21

■ Activities
■ Groceries
■ Personal care
■ Hotels & accommodation
■ Media products
■ Restaurants
■ Apparel
■ Transportation services
■ Home goods & electronics
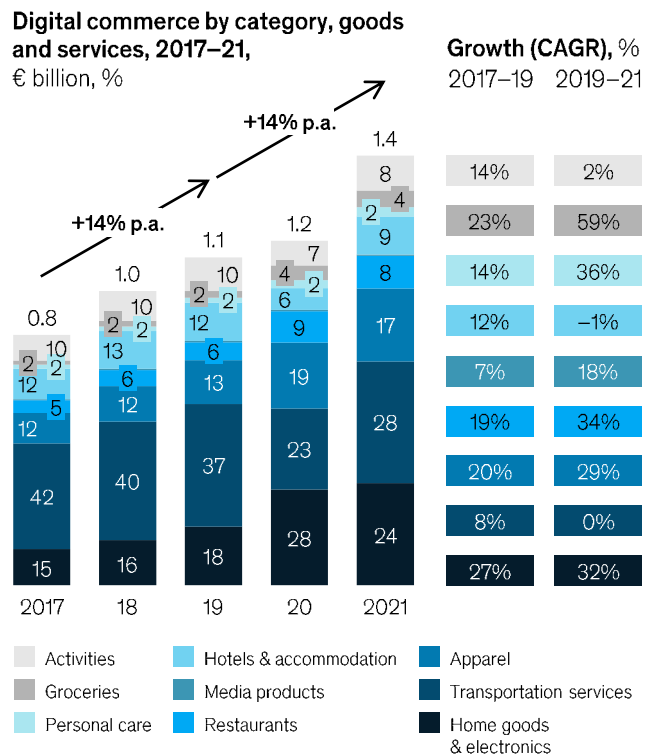
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

sales, but the crisis has forced older, even elderly, consumers to adopt and use these technologies. Prior to the pandemic, better prices than in traditional stores were particularly motivating for local consumers when shopping online.

Latvian consumers also actively shopped for clothing from foreign online stores more than their cluster peers, which indicates that consumers want not only better priced products, but also styles not readily available in their home market. Over the last two years, Latvia saw a number of pure-play online apparel retailers entering the market with aggressive promotions, consumer-friendly returns policies, and free delivery. Examples include AboutYou and Glami, which entered the Latvian market in 2020, and Zalando, in 2021.

Lithuania

Lithuania saw the strongest growth in digital commerce of any country in the cluster, at 24 percent a year. The market expanded form from

€1.9 billion in 2019 to €3 billion in 2021—more than double its size in 2017 (€1.4 billion).[160]

Lithuania stands out from other countries in the cluster in terms of its large share of banked population,[161] which influences purchasing behaviors. In other countries the preferred method of payment was initially cash-on-delivery, which later gave way to card payments; in Lithuania the preferred method is mobile payments and, in second place, payment cards. This implies a higher level of technical and digital literacy in Lithuania compared to its peers. Moreover, Lithuania has a well-developed network of highways and railroads, which puts it in a strong strategic position for connecting Scandinavia and Central Europe.[162]

According to our estimates, the largest digital commerce categories in Lithuania are media products (32 percent), home goods and electronics (30 percent), and transportation services (19 percent). At the peak of the COVID-19

Digital commerce in Lithuania

Lithuania has seen the fastest acceleration of digital commerce—a 24% growth rate

Digital commerce Offline commerce % Share of digital commerce in total retail commerce

Digital commerce, 2017–21, € billion

Growth (CAGR), % 2017–19 2019–21

Year	Digital	Offline	Total
2017	1.4	13.5	14.9
18	1.7	14.0	15.7
19	1.9	14.2	16.2
20	2.3	13.2	15.5
2021	3.0	13.6	16.6

Growth (CAGR), %: Digital 17% (2017–19), 24% (2019–21); Offline 3% (2017–19), −2% (2019–21)

Share of digital commerce: 2017 9%, 18 11%, 19 12%, 20 15%, 2021 18%
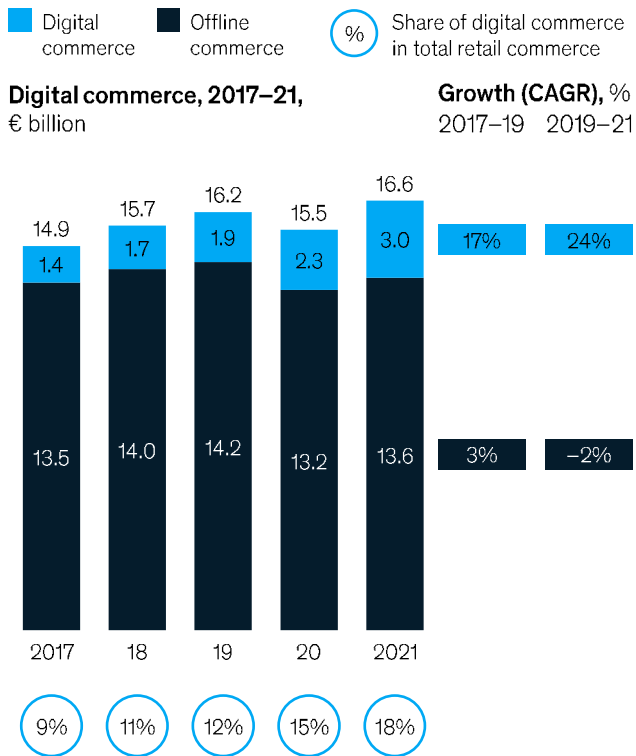
Groceries, restaurants, and media products saw the highest growth rates in digital channels

Digital commerce by category, goods and services, 2017–21, € billion, %

+17% p.a.   +24% p.a.

Category (2021)	Growth (CAGR) % 2017–19	2019–21
Activities	27%	19%
Groceries	25%	78%
Personal care	24%	30%
Hotels & accommodation	33%	9%
Restaurants	23%	34%
Media products	26%	36%
Apparel	17%	37%
Transportation services	16%	3%
Home goods & electronics	14%	27%

2017: 1.4 total (3, 3, 2, 4, 1, 27, 28, 30)
18: 1.7 total (2, 3, 2, 3, 1, 27, 28, 30)
19: 1.9 total (2, 5, 4, 4, 1, 27, 28, 29)
20: 2.3 total (3, 3, 3, 6, 2, 1, 31, 11, 38)
2021: 3.0 total (3, 4, 4, 2, 1, 5, 32, 19, 30)

Legend: Activities, Groceries, Personal care, Hotels & accommodation, Media products, Restaurants, Apparel, Transportation services, Home goods & electronics

pandemic, groceries were among the most purchased goods online, the digital commerce market for this industry growing in value from €33 million in 2019 to €104 million in 2021 (a 78 percent annual growth rate).

Live commerce is a new trend in Lithuania, first becoming popular in 2020 and further boosting the value of digital sales in 2021. Smaller retailers in particular use live streaming to showcase their portfolios, while answering consumers' questions about products.[163]

Competition in Lithuania is set to increase as more and more international players enter the country. Many well-known international online retailers entered the country at the end of 2021,[164] including Zalando, Boozt, and Aboutyou.

Estonia
Estonia is a member of the Digital Frontrunners cluster. However, it shows certain similarities with Latvia and Lithuania, the other two Baltic states.

We include the country in our analysis here as it provides further insights into the region.

Digital commerce in Estonia doubled in value between 2017 and 2021, from €0.8 billion to €1.5 billion.[165] Between 2019 and 2021, growth was especially fast, as confirmed by the volumes of parcels distributed to parcel machines: In 2021, more than 12 million parcels were delivered to parcel machines, a 33 percent increase on 2020.[166]

The strongest growth in digital commerce in Estonia over the last three years was in groceries, whose value in 2021 (€94 million) was 2.7 times higher than in 2019 (€34 million).[167] In 2020, drive-in grocery shopping also grew in popularity, with Barbora (part of the Maxima grocery chain) expanding its drive-in collection points and the Prisma grocery chain launching a drive-in service. Coop Estonia, Selver, and Prisma were among the first in the world to deploy the robotic grocery pickup solution Cleveron 501 to deliver online

Digital commerce in Estonia

Estonia saw a 50% growth of digital commerce from 2019 to 2021
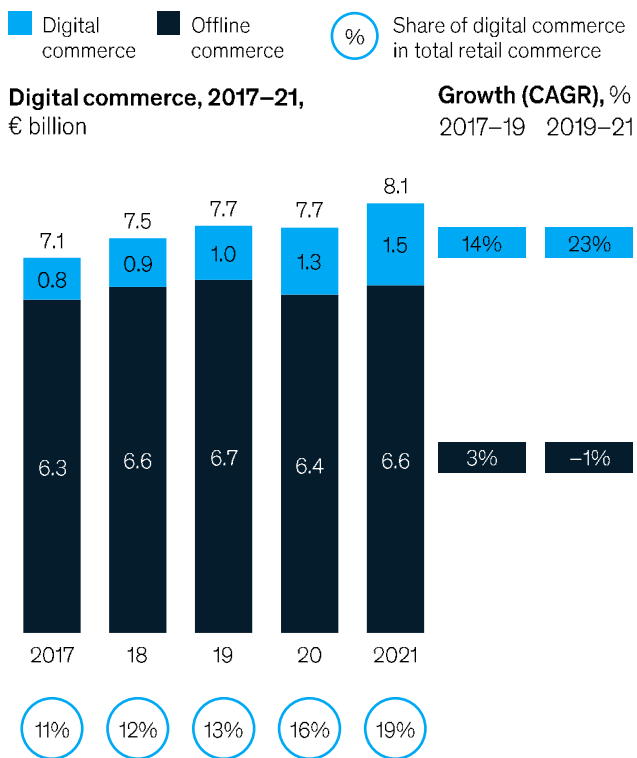
Groceries, personal care, and apparel saw the highest growth rates in digital channels
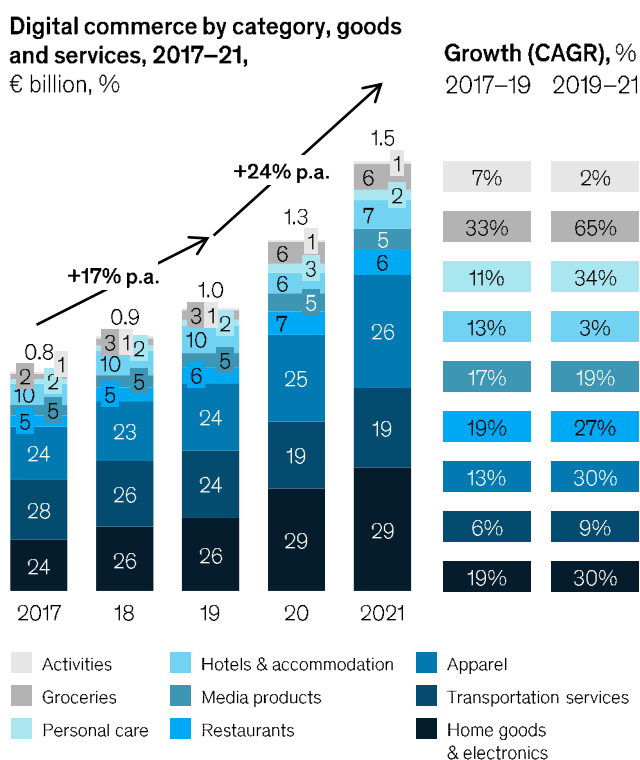
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

orders.[168] The standalone units are installed in parking lots in Tallinn, near supermarkets, and provide a quick, convenient drive-through service. Numerous Estonian grocery players launched digital channels during the COVID-19 pandemic, and the convenience of this channel led to a share of Estonian customers sticking with digital as method for buying groceries.

In Estonia, the most popular methods of payment for digital purchases are payment orders, Pay by Link, and bank transfers initiated in the payer's personal internet banking environment. Thus, in the fourth quarter of 2021, 53 percent of all e-purchases in Estonia, accounting for 76 percent of revenues, were made by means of bank link payment orders or open banking payments.[169] Another increasingly popular method of payment is "buy now, pay later." This allows Estonian customers to receive the goods and then pay for them in interest-free instalments over the following months. Another benefit of this method is that customers have a 14-day right of return before making any payments, allowing them to check the quality of the products purchased. This deals with an important concern of Estonian customers: When asked about the main obstacles to shopping online, alongside delivery times and prices they mention the issue of products not meeting their expectations as their top-three concerns.

The most popular online shops in Estonia are the marketplaces Kaup24, Hansapost, and 1a, followed by the international online marketplace AliExpress. Apparel is the top category purchased from international online stores in Estonia, and the third most popular category purchased from local online stores. The growth of digital commerce has also attracted new players to the Estonian market, such as Boozt (launched in 2021), Zalando (2021), and Aboutyou (2020).

Potential of digital commerce to drive growth of the digital economy

COVID-19 has accelerated the development of online channels in Digital Challengers by two to five years: More than 70 percent of adults in Digital Challenger countries with internet access used digital services in 2021.[170] Not only did Digital Challenger countries have the highest rates of new digital users in Europe, but approximately half of them switched to digital because of the COVID-19 pandemic and related issues. The rest switched due to the greater convenience and availability of digital channels, which indicates increasing maturity of digital commerce in the cluster. However, our research shows that digital users in the cluster are more prone to returning to pre-pandemic shopping behaviors than their counterparts in Western Europe, Asia, and the United States.[171] It is therefore important to consider what would enable digital commerce to continue to grow and fuel the cluster's growth trajectory.

First, when examining which factors put countries in the Digital Frontrunner cluster where they are today. In 2017, digital commerce penetration in Digital Frontrunners was just 14 percent, but by 2021 it had grown to 32 percent. Undeniably, COVID-19 had a major impact on the growth of digital commerce. But it was not the only factor. Thus, Digital Frontrunners were early adopters of the internet and have a highly developed digital infrastructure: Denmark, Finland, Sweden, the Netherlands, and Ireland are the top-five countries in the DESI ranking, the European Commission's Digital and Society Index—in other words, they are considered the most mature digital economies in the European Union.[172] Moreover, Digital Frontrunners have strong economies and well-developed infrastructure. This, together with the highly technically and digitally literate population, formed the basis of technology adoption in Digital Frontrunner countries, reflected in a high penetration of smartphones and digital and card payments.

In recent years, Digital Challengers have been catching up with Digital Frontrunners in many of these areas. The two clusters are already on a par in terms of digital commerce's share of services (Digital Frontrunners: 38 percent; Digital Challengers: 37 percent). When it comes to digital commerce's share of goods, Digital Challengers still have room to improve, at 16 percent penetration to Digital Frontrunners' 24 percent. But digital commerce's share of goods grew by an average of 35 percent a year in Digital Challengers between 2017 and 2021, showing that they have the potential to catch up with Digital Frontrunners, who are themselves are becoming saturated in terms of growth. Indeed, we believe that Digital Challengers' level of digital penetration may reach that of Digital Frontrunners within the next five years.

In the Aspirational scenario, digital commerce reaches €121 billion by 2030

Digital commerce in Digital Challengers, 2021–30, € billion
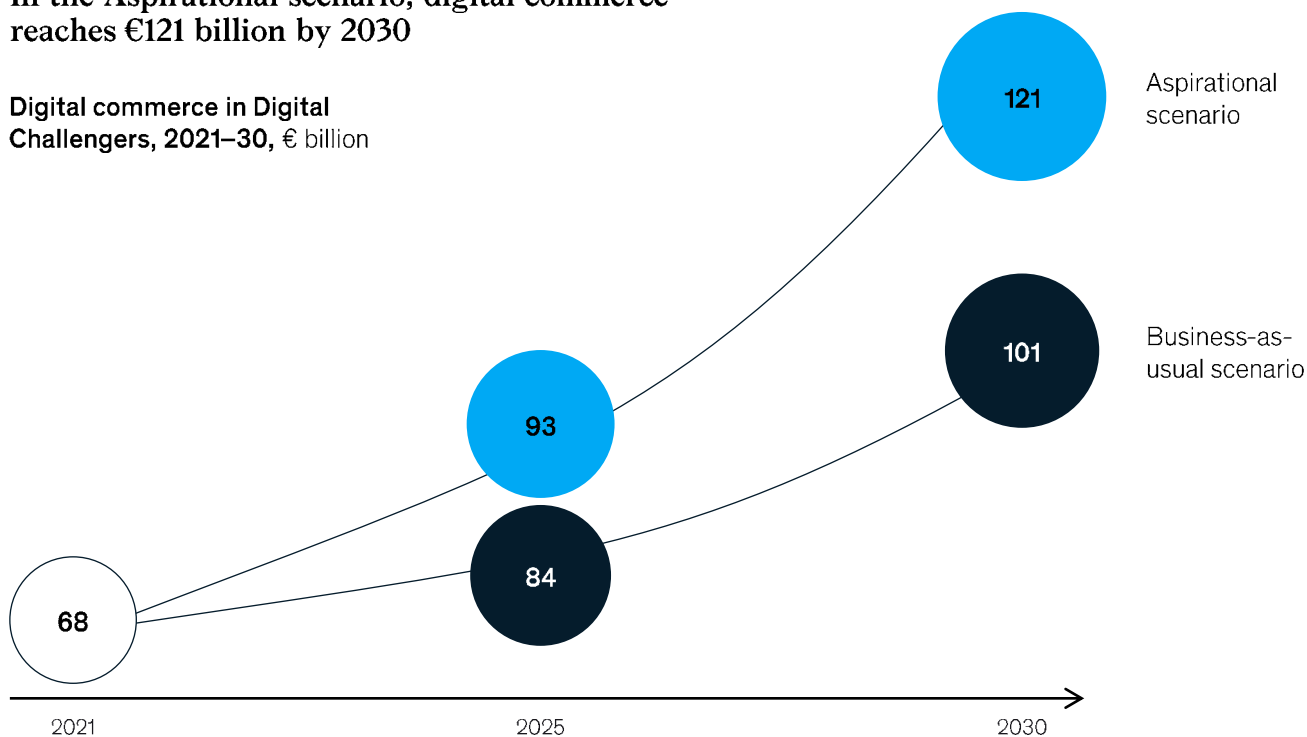
Source: Euromonitor; IDC; McKinsey Global Payments Map; McKinsey analysis

Like all countries in Europe, Digital Challengers are currently facing high inflation. This is further compounded by the risk arising from the cluster's close geographical location to Ukraine, which was invaded by Russia. This may cause consumers to shift to more conservative behavior, slowing down growth of the total retail market. The invasion of Ukraine has raised the cost of living, due to a rise in utility bills and the cost of transportation.[173] As a result, the confidence in own country's economic recovery after crisis is at the lowest since the beginning of the pandemic, with 37 percent of McKinsey's European Sentiment Survey respondents being pessimistic about the economic recovery.[174] Macroeconomic uncertainty and soaring prices depress the overall consumption. Thus, among the poorest households in Europe, discretionary spending had already dropped three percentage points by the end of April 2022 compared to its level prior to the Russian invasion of Ukraine.[175] On the other hand, the region has seen a temporary increase in population[176] due to the large number of Ukrainian refugees, especially in countries such as Poland, Romania, Hungary, and Slovakia.

Taking all these factors into account, in our Business-as-usual scenario the growth of digital commerce will slow down and be in line with overall retail market growth in 2022 and 2023. This implies that the COVID-19-induced growth was above Business-as-usual levels, and countries will return to their previous level over the course of one to two years. However, it is possible that from 2024 onwards, the growth trajectory in Digital Challengers will accelerate, at a rate similar to that of Digital Frontrunners prior to COVID-19. In this case, penetration may reach a certain threshold of saturation by 2027, as seen currently in Digital Frontrunners—in other words, accelerated growth would no longer be sustainable and the growth rate would return to that of the overall retail market. In this event, digital commerce would reach additional €33 billion in terms of value by 2030 compared to value in 2021 in Business-as-usual scenario.

In our Aspirational scenario, we assume that Digital Challengers will continue their accelerated growth, equaling the average growth rates of Digital Frontrunners in 2017–19 by 2025. After that, they would reach the Digital Frontrunners' digital commerce penetration rates by 2030. In other words, Digital Challengers would follow a similar development path to Digital Frontrunners, realizing the potential created by COVID-19 for Digital Frontrunners by 2030. We consider this scenario plausible, given that the labor markets and consumer purchasing power are in a better position than they were five to ten years ago. The Aspirational scenario for digital commerce growth has an upside of €14 billion in 2030 compared to the Business-as-usual scenario.

Of the different industries affected by digital commerce, home goods and electronics could contribute the most, with a potential of €19 billion growth by 2030 in our Aspirational scenario. This is followed by apparel (€9 billion) and transportation services (€7 billion). These top-three industries account for 74 percent of the total value. In terms of growth rates, activities are expected to increase 10 percent a year between 2021 and 2030, groceries 9 percent, apparel 8 percent, and all other categories 4 to 6 percent a year.

Realizing the upside of €14 billion by reaching the trajectory of Aspirational scenario compared to Business-as-usual scenario will have its challenges, of course. Digital Challengers will need to consider the new trends shaping the digital commerce landscape in the coming years and focus on key enablers for unlocking value. It is to these matters that we turn our attention in the following chapter.

Sofia, Bulgaria© Media Trading Ltd/Getty Images

3

Key forces shaping the Digital Challengers' digital commerce landscape

Our third chapter focuses on the trends shaping the digital commerce landscape and the key factors unlocking future growth. We present:

— A discussion of core consumer needs related to digital commerce, which revolve around five areas: availability, convenience, personalization and innovation, trust, and sustainability

— A summary of key responses from the market, with case studies for selected trends

— An evaluation of key factors unlocking the growth of digital commerce in Digital Challengers

— A discussion on the value pool for digital commerce exports

Core needs of consumers in the digital space

The digital commerce market landscape has been changing fast, with businesses of all sizes increasingly selling online. Traditional enterprises are shifting toward the digital space, small and medium-sized enterprises (SMEs) are adding online components to their businesses, and pure online startups—the digital natives—are benefitting from lower entry barriers to digital commerce. All these players are chasing a growing pool of online customers.

As we saw in the previous chapters, the growth of digital commerce accelerated due to COVID-19. Now, over two years after the start of the pandemic, digital players are investing in innovative solutions to strengthen loyalty and increase the degree to which customers stick with online shopping. As competition between digital commerce players intensifies due to the growth of local players and increased cross-border commerce, the power of customers increases—as does companies' focus on them. Online players are investing in wider selections of products in line with customer preferences, faster and more convenient customer journeys, and a more personalized customer experience. Focusing on customers in this way potentially boosts their business and gives them a competitive advantage by providing them with clarity on what is really needed and enabling them to cut down on non-value-adding activities.[177]

Based on our conversations with experts and the results of the McKinsey Global Digital Sentiment Insights survey, we identify five key areas around which core consumer needs revolve: availability, convenience, personalization and innovation, trust, and sustainability.

Availability

Consumer-centricity and satisfaction continue to grow in importance. Online channels respond to this trend, providing better availability of products and services and greater accessibility compared to in-store retail. For example, they remove potential barriers such as limited opening hours and the need to physically travel to the store.

Satisfied online buyers report that the full availability of products and services online is one of the main factors driving their satisfaction with digital channels; this factor was named by 38 percent in Poland, 37 percent of satisfied

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For users happy with their digital experience,[1] the main reason for their satisfaction is the full availability of products and services

Main reason for satisfaction with overall digital experience
Percentage of users by reason for satisfaction, by industry

Reason	Banking	Insurance	Groceries	Apparel	Entertainment	Travel	Telco carriers	Utilities	Education	Healthcare	Public sector	Average
Other	1	2	1	1	1	0	1	2	3	3	4	2
Great after-sales service (e.g., order status, customer support)	5	7	6	5	4	7	6	7	6	6	8	6
Personalized experience (e.g., customized offers)	6	6	2	2	9	7	8	4	15	9	9	6
Complete integrated experience across channels (e.g., buy online pickup at store)	7	5	8	8	6	4	7	6	8	11	9	11
Product delivery and/or service execution on time (or earlier)	7	8	20	10	8	5	6	7	9	10	9	9
Better offers and/or discounts	8	21	21	30	16	32	18	11	12	9	7	17
Multiple payment options that are easy to use	23	15	12	15	11	18	15	24	10	10	10	12
Full product and service availability	44	35	30	29	45	27	39	39	38	41	43	37

Q: *What is the main reason for your satisfaction?*
[1] Users that reported they were "satisfied" or "very satisfied"
Source: McKinsey & Company Global Digital Sentiment Survey: survey results for Czech Republic, Hungary, and Poland (averages, not weighted)

On average, 42% of customers using digital channels for the first time did so due to COVID-19 and 38% due to convenience

Reasons to switch to digital by country
Percentage of new customers

	COVID-19	Convenience over physical channels	Other
Poland	53	31	16
Czech Republic	39	40	22
Romania	43	34	23
Hungary	33	48	18
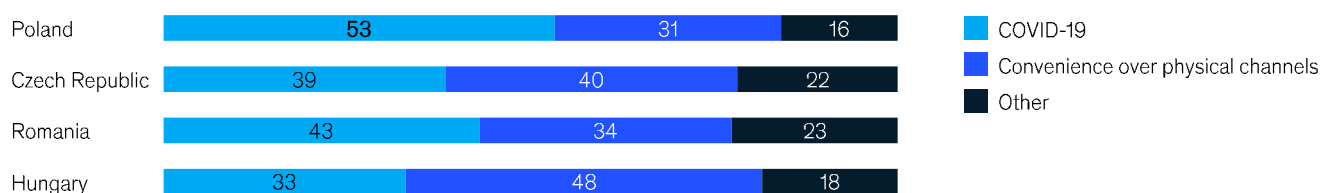
Q: *What was the main reason for your first time using a digital channel?* Options (multiple answers possible): "Due to the COVID-19 crisis it was more convenient than the physical channel;" "There was a greater availability of products/services compared to physical channels;" "There were special offers or promotions;" "It was recommended to me"
Source: McKinsey & Company Global Digital Sentiment Survey: survey results for Czech Republic, Hungary, Poland, and Romania

users in the Czech Republic, and 27 percent in Hungary (figures averaged across industries).[178] The importance of the availability of products and services varies between industries, however: It is especially relevant for banking, entertainment, healthcare, and the public sector. The second most common driver of satisfaction is the existence of attractive offers and discounts. For apparel and travel, the selection of offers and discounts is a key driver of satisfaction.[179] As consumers grow accustomed to a wider product choice and the availability of international products, they increasingly expect to be able to filter the products on offer and choose the best product based on their personal preferences.

Convenience

In 2019–21, the most common reason given by consumers for using online channels for the first time was the shift caused by the COVID-19 pandemic. The second most common reason was greater convenience, cited by 31–48 percent of consumers in the Czech Republic, Hungary, Poland, and Romania.[180]

To capture and retain customers, digital commerce players are increasingly optimizing for customer convenience and focusing on minimizing friction during the customer journey. Larger players have implemented improved solutions in areas such as UX/UI (user experience/user interface), customer service, and fulfillment, raising customer expectations with regard to website speeds, customer service level, and the reliability of deliveries.[181] This puts further pressure on other players in the market to match this customer experience. The good news is that technological solutions addressing these pain points are improving quickly and are increasingly popular. For example, natural-language technologies are becoming more and more sophisticated. Similarly, the customer experience is improving thanks to

improved product categorizations and a wider choice of purchasing options, often the result of digital commerce players partnering with payment providers and fintech players.[182]

Innovation and personalization

Personalization of the customer experience at every step of the journey—from discovery to aftersales service—is an area where brands selling online can differentiate themselves from their competitors. Driven by data insights, personalization enables new levels of engagement and boosts brand loyalty, reflecting consumers' desire for a more segmented approach and customized service. The surge in online commerce since the onset of the pandemic has exposed consumers to the personalization practices of online leaders, generating higher customer expectations and raising the bar for everyone else. Whether the interaction is online, via mobile or in person, consumers increasingly view personalization as a standard for engagement.[183]

According to the McKinsey Global Digital Sentiment Insights survey,[184] innovation by online players is key for retaining COVID-19 digital adopters. Industries with a high level of digital innovation are more likely to retain users who started using digital channels during the pandemic. This suggests that digital innovation may also continue to drive consumer interactions and retention.[185]

Trust

Companies can respond to customers' need of greater privacy and security by focusing more clearly on not only providing a secure experience to customers, but also informing them of the security measures that they have undertaken. This will reassure users that their personal data is being handled securely. According to the McKinsey Global Digital Sentiment Insights survey, 44 percent of users in Europe do not fully trust digital services.

To encourage COVID-19 digital adopters to stay online players need to innovate

● Positive change expected ● Negative change expected

Industries with more new users originally switching because of COVID-19 will suffer the biggest negative change in expected usage

Industries with better expected usage change have higher levels of digital innovation, which could be leveraged to modify usage change behavior

Covid-19 digital adopters, %

Digital innovation, %
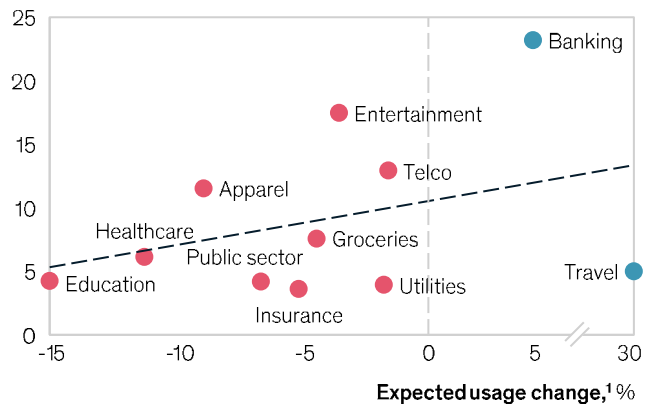
Q1: *How frequently do you plan to use these digital services when the COVID-19 pandemic is over?* Q2: *Why did you start using these services digitally?*
Q3: *What industry do you consider the most digitally innovative?*
Difference between users who are planning to use an industry digitally more often compared to those planning to use it digitally less often, ignoring those planning to use it the same amount
Source: McKinsey & Company Global Digital Sentiment Survey

Banking is the only industry above the top quartile for customer trust in digital channels

Customer trust in digital services
Average degree of trust by industry

● Industries above top quartile
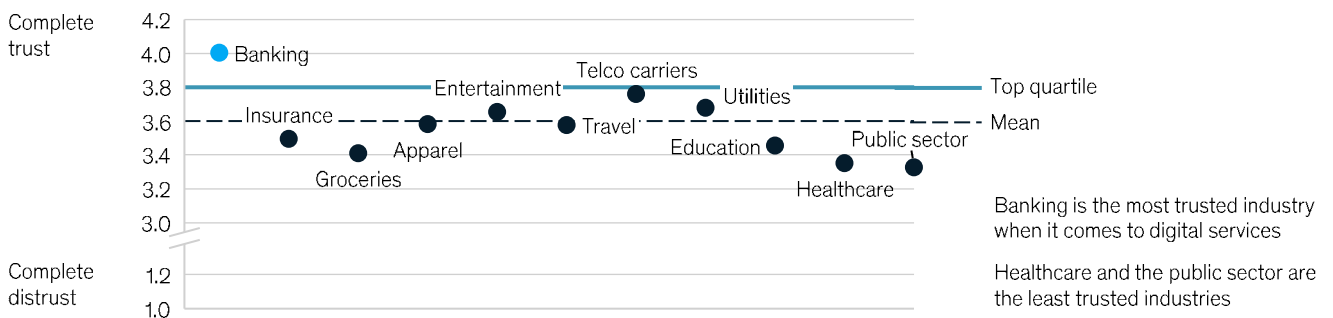
Q: *How far do you trust these digital services (e.g., their handling of personal data, safety of payment process, protection against cyberattacks, response in the event of errors or incidents)?*
Source: McKinsey & Company Global Digital Sentiment Survey: survey results for Czech Republic, Hungary, and Poland (averages, not weighted)

In Digital Challenger countries, this level of trust varies significantly between industries: In the Czech Republic, Hungary, and Poland, on average, banking enjoys highest level of trust regarding digital channels, while the public sector and healthcare show the most room for improvement.[186] Online players are responding by placing an increased focus on data security, cyber-resilience, transparent payment processes, order tracking, and clear processes for compensation in the event of errors. As cyberattacks continue to grow over time, data security is likely to become increasingly important for customers in the digital economy.[187]

Sustainability
A sense of purpose also drives customers' purchase decisions: Increasingly, shoppers "vote with their wallets" on sustainability issues.[188] European consumers are more and more interested in environmental responsibility—especially younger generations[189] (millennials and Gen Z), whose spending power will grow in the future.[190] Companies across the value chain are responding to this increased emphasis on responsible consumption by strengthening their focus on sustainability, be it through sourcing transparency, environmentally-cautious delivery solutions, or recyclable packaging.

Key trends shaping the future of digital commerce

Market players are addressing these consumer needs by means of innovations right across the customer journey

Trends for deep dives

Customer journey

	Pre-purchase			Purchase	Post-purchase	
Overarching	Raising awareness	Product search	Offer evaluation & selection	Payment	Delivery & return	Review & loyalty

Consumer need	Trend						
Availability *"I am looking for special offers and a large assortment"* *"I would like to see prices to suit all pockets and flexible subscriptions"*	Rise of marketplaces (growth and entrance) Increase in cross-border digital commerce		Wide selection and display of offers (incl. best-suited recommendations, prioritized products order) Availability at any time, 24/7 service				
Convenience *"I want to get everything done in one place"* *"I would like faster, more tailored delivery options"*	Growth of digital commerce services, Partnerships for holistic experience		User-friendly UX/UI with up-to-date information	Third-party tools (offer and price comparison engines, discount aggregators)	Alternative payment methods, (e.g. subscription model, delayed payments) Rapid checkout options (auto-purchase)	Fast, seamless delivery (incl. dark stores for instant delivery) Convenient returns	Widely-available reviews by customers Customer service (incl. AI translation)
Innovation and personalization *"I would like to be able to handle my digital orders across different channels"* *"My favorite sites make me feel like an individual when I buy from them"*	Rise of omnichannel and new channels of sales (livestreaming, social commerce)	Customized outreach (targeted/interest-based advertising)	Leveraging customer data to drive customer behavior (e.g. next product to buy algorithm) and personalized experience	Use of AR/VR, consumer data for fitting and size identification	Innovative payment methods (e.g. dynamic pricing)	Personalized packaging	Engaging loyalty/reward programs (incl. gamification) Leveraging purchase and returns history for recom-mendations
Trust *"I have heard stories about scammers taking advantage of online transactions"* *"I am concerned about the security of payments"*	Increased data security and cyber-resilience				Secure (e.g. PSD2) and transparent payment process	Accurate order-tracking Compensation in event of errors	
Sustainability *"I am more likely to support brands with environmentally-friendly packaging"* *"The way products are sourced matters to me"*	Growth of online second-hand players, full-price stores adding second-hand segment	Increased social media focus on environmental cautiousness		Transparency over supply chain (incl. sourcing, materials, production location)	Option to assign part of payment to carbon neutrality	Environ-mentally-cautious delivery solution and packaging	

Rise of marketplaces

Online marketplaces display offers from a broad range of businesses side by side; some also enable customer-to-customer sales, such as Vinted for secondhand items and Etsy for handmade and vintage items. Thanks to their clear value propositions for both consumers and brands, they are currently enjoying sustained growth, capturing "winner-takes-all" advantages. Businesses joining marketplaces can increase their potential customer base, secure operational support and improve ease of doing business. Marketplaces also increasingly provide differentiation for merchants by means of fee-based services (such as additional support with fulfillment, last mile delivery, or returns management) and marketing capabilities and tools (such as positioning in searches or data analytics).[191]

Marketplaces can also create a community of consumers that share their experiences and reviews. This creates a more compelling purchasing experience, which may include features such as integrated customer service or guarantees of compensation in the event of errors. With wider offerings than on many direct-to-consumer channels, marketplaces further provide a convenient channel for digital commerce purchases. They can follow a selection of strategies and provide value to the customer at different steps of their journey. For example, players such as Booksy (in the beauty sector), Tripadvisor (travel), and Yelp (restaurants) provide software aggregating offers and offline services, with functionalities such as price and offer comparisons, booking management, and reviews.

Globally leading marketplaces are entering Europe—and with increasing success. Amazon, for example, is now the largest online store in Germany, generating €14 billion in revenues in 2021.[192] In some cases, these marketplaces strengthen their influence on Digital Challenger countries by establishing a local presence. For example, AliExpress has entered Poland and is now the third best-known marketplace, while Shopee has become the number-one app by traffic.[193,194,195] Other marketplaces provide cross-border sales from neighboring countries. For example, Hungarian and Slovenian citizens can make purchases from Amazon's German website. The importance of local marketplaces in Digital Challengers is also rising. For example, Allegro reported 15 percent revenue growth in Q1 of 2022, while eMag and Alza are each valued at more than €1 billion.

Marketplaces have a clear value proposition for both consumers and merchants

Value proposition for customers

Marketplace growth engine

Value proposition for merchants

Price leadership
Overview of products at various price points

Attractive selection/range
Attractive offering due to breadth, depth, uniqueness

Integrated customer service
Delivery and service across sellers

Loyalty and ecosystem
A connected, holistic ecosystem

Access to customers
Provides reach to a large consumer base

Operations support
Support in fulfilment from an advanced player

Ease of doing business
Lower barriers to entry into online space

Price/cost of "partnership"
Pricing based on service provided (e.g. units sold)

Source: McKinsey analysis

Case studies

Alza

A popular marketplace for everything from electronics to electric vehicles

The Alza marketplace grew to 16 million monthly visits in 2021

— Alza is a digital commerce marketplace with over 15,000 goods available both online and in bricks-and-mortar stores

— It provides delivery within 5 hours in Budapest and same-day delivery in Prague; customers receive the driver's contact info and text updates on their order

— Alza continues to invest in technology due to its scale, e.g. Alza StreetShop vans, Alzaboxes (package pickup), and an electric bike courier network

Expected impact

— Consistent branding—as Alza maintains the same brand and value proposition across 9 countries

— Vast logistics network—Alza offers delivery as-fast or faster delivery than individual store competitors in Austria, Czech Republic, and Hungary

Vinted

International marketplaces

Vinted is boosting the popularity of second-hand and used clothing online

— Online, peer-to-peer marketplace Vinted offers second-hand clothes at scale

— Users can purchase, return, and review clothing in a trustworthy and consistent format

— Users can become sellers by selling items they no longer wear. Sellers enjoy a streamlined experience—uploading a few photos, adding a description, then shipping directly to buyers

— Vinted now serves 15 countries, in part due to cheaper product selection, easy-to-use mobile and online interfaces, and its large numbers of sellers

Expected impact

— 15+ countries—A scalable consumer experience is enabling secondhand shopping globally

— Easy new category expansion—The marketplace format allows Vinted to enter verticals such as "Home" with no product investment

Klarna

Payment methods for the future of digital commerce

Klarna brings buy now, pay later (BNPL) to the mainstream

— Klarna is a short-term financing and checkout solution that offers deferred payments, installments, and loans to over 145 million active customers across 45 countries

— Merchants can create seamless checkout experiences, customize the Klarna interface, and let customers use BNPL

— Consumers use BNPL to avoid credit-card interest, borrow without a credit check, protect their personal data, and make larger purchases

— Klarna engages celebrities to personalize its brand to younger consumers who are more likely to use BNPL

Expected impact

— Improve customer experience through streamlined checkout and payment options, without interest

— Larger pool of buyers as customers view BNPL as a cheaper and safer alternative to credit cards

Sources: Alza website, Similarweb website , Vinted press release, Klarna press release, press search

A wider range of payment options

The COVID-19 pandemic contributed to changes not only in spending preferences, but also in payment behavior, such as a decline in cash usage, increased adoption of instant payments, and a surge in the use of digital wallets.[196] Online stores have integrated payments into checkout processes and the consumer purchasing journey. The checkout has transitioned from high consumer involvement (with customers choosing a card choice, entering their information, and so on) to a "one-click" process using Alipay, PayPal, or Apple Pay, for example. Technology such as facial recognition and non-screen-based interfaces, such as Alexa or Amazon Echo, create further progress toward automatic purchases with very limited consumer involvement. Companies are further investing in mobile payments solutions, with Visa and Mastercard offering "tap-on-phone" solutions for businesses, which allow the use of smartphones to accept payments—especially useful for payments at delivery.[197]

Online stores are integrating "buy now, pay later" (BNPL) solutions to cater to a growing consumer desire for flexible financing options. BNPL allows deferred payments based on installments, even for young consumers without credit cards. Internationally, BNPL is most popular in Europe, where it is expected to account for 12 percent of digital commerce transactions by 2025.[198]

Recurring payment options are also growing in popularity, in line with the spread of online subscription services. They are used to pay for subscriptions to digital services, such as regular payments for media (Netflix, HBO Max, and so on), replenishment services (mainly for commodities), access (such as exclusive access to discounts or new products), and curated selections of items (such as ButcherBox for organic meat). Where successful, subscription businesses provide consumers with value, convenience, and personalized offerings while fostering stability and growth of the customer base.[199]

Fast, seamless deliveries and returns

When it comes to deliveries, core factors for customers are low cost, high speed, reliability, flexibility, and convenience. Speed is a key online purchase driver, with same-day delivery becoming a point of differentiation for online sellers. As consumers grow accustomed to the level of service provided by the biggest players, such as Amazon offering same-day delivery in selected markets, other providers come under pressure to follow suit. Our research shows that the pace of change is likely to increase here. Large online players such as marketplaces have an advantage over other retailers when it comes to fast delivery due to their denser fulfillment networks, subscription payment models for customers, and relationships with merchants. For example, they can use customer payments for memberships such as Allegro SMART or Amazon Prime, and sales commission from merchants, to subsidize delivery costs.

Last-mile delivery is increasingly important in shaping the customer experience. Logistics players across the CEE region are currently extending their offerings to provide more convenience and flexibility. This trend is visible in the growth of automated parcel machines (APMs), for example—units featuring multiple lockers, used as a point of exchange for parcels between the delivery company and individual end customers. Customers can use APMs to pick up or return parcels at a time and place of their choosing. As of May 2022, the Polish market leader, InPost,

had installed more than 22,000 APMs across all its markets, including over 17,000 in Poland.[200] Other online and logistics players are also tapping into the APM market in Poland, with Allegro, AliExpress and Poczta Polska all developing their own networks. At the same time, InPost is further extending its APM services, for example, with the introduction of refrigerated lockers.[201]

Increasing order return rates are putting further pressure on online players' logistics.[202] Retailers are investing in ensuring that the returns process is simple and flexible, for example, by providing a choice between return to store, return via mail, return at third-party drop-offs, and return via APM.[203] A customer-friendly returns policy can increase both revenues and share of wallet, making this a priority for online sellers.

Other consumer expectations in the area of deliveries and returns include tracking, detailed delivery notifications, and choice of delivery time. As the pace of innovation continues to grow and more companies embrace automation—from fulfillment to the last mile—ensuring competitive shipping practices will be crucial for digital commerce players. Some players, for example, already offer preemptive returns, shipping out a selection of products, letting the consumer choose and pay for the ones they want to keep and then return the rest using a return label (enclosed) and the original packaging.

Developments in the groceries sector are somewhat different. Traditionally focused on physical distribution methods, the sector is seeing a trend toward "ultra-convenience".[204] Q-commerce or "quick commerce" players, offering on-demand delivery, often heavily backed by venture capital, private equity, and technology investors, have rapidly disrupted the European online groceries landscape. In the first nine months of 2021, for instance, nearly €5.3 billion was invested globally in "dark convenience stores"—stores that function purely as hubs for online orders.[205] These micro-fulfillment centers offer immediate delivery, typically within 30 minutes, often by electric bike or scooter. Numerous players have emerged in this sector on the European market, including Rohlik (from the Czech Republic), Delivery Hero (Germany), Glovo (Spain), and Jush! (Poland). Further, more traditional players can provide wider service for customer by collaborating with specialists in Q-commerce, such as in the case of Studenac Market going into a partnership with Wolt to set up dark stores in Croatia.

Case studies

InPost

InPost is a local leader in the provision of automated parcel machines (APMs)

InPost is the largest logistics operator in Poland, with 5.6 million end-users on the app and significant network scale

- **2006** InPost established
- **2009** APMs introduced—self-service machines for receiving and sending packages, accessible 24/7
- **2015** InPost acquires partner mail firm, PGP
- **2017** Advent International buys >90% of InPost's parent company Integer.pl
- **2020** InPost has an estimated 11,000 APMs
- **2021** IPO in Jan 2021, valued at approx. EUR 8 billion. Towards end of year, InPost managed more than 19k parcel machines (16k in Poland and 3k in UK)
- **2022** In 2022, at end of first quarter, InPost operated around 22k APMs (17k+ in Poland) and more than 7 million application users, doubling its network in France to 650

49% of Poles live within a 7-minute walk of an InPost APM (2021)

Inhabitants per km²
Low — High
■ APM hotspots

Warsaw
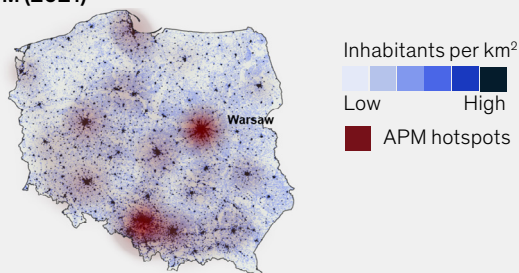
61% of respondents say they regularly use APMs—the most popular online shopping delivery mode in Poland

Core offering of InPost APMs is focused on convenience:

- Limited culture of choosing delivery to neighbors to avoid missing deliveries
- APMs are located close to home and can be part of daily routine
- APMs enable faster delivery speeds
- No unnecessary waiting at staffed pick-up/drop-off (PUDO) points
- No need to be home when parcel delivered
- Solution well integrated with e-commerce websites' checkout pages
- More hygienic, contactless delivery—more important since COVID-19

Polish digital commerce timeline, 2021

Polish digital commerce and parcel delivery market have become more competitive

Timeline of recent developments in Polish digital commerce and parcel delivery market, 2021

- **Feb** Several players enter quick commerce and e-groceries space (Empik e-grocery, Polomarket e-grocery, Auchan e-grocery, Jokr, Jush, Biedronka via Glovo)
- **Mar** 300 AliExpress lockers start to operate in Warsaw, further 8,000 planned
- **Apr** Amazon Poland launch
  Allegro introduces eco-packaging
- **May** Launch of Allegro Punkty, convenient pickup points in cooperation with Kolporter, etc.
- **Jun** InPost launches "Lodówkomaty" and e-groceries in partnership with Makro
- **Jul** Poczta Polska plans to set up 2,000 APMs in 2022
- **Sep** Shopee Poland Launch
  Orlen Paczka and Orlen APMs launch—company plans to install a further 3,000 APMs by end of 2022
  Allegro makes Allegro Pay buy now, pay later accessible to everyone and decreases minimum order value for free delivery from PLN 80 to 40 with Allegro Smart!
  InPost launches Same Day Delivery
- **Oct** Amazon Prime Launch
- **Nov** Allegro acquires Mall Group, one of the biggest e-commerce platforms in Central and Eastern Europe
  Allegro opens 600 eco-friendly APMs and aims to have 1,500 by end of 2021; 3,000 more planned for 2022
- **Dec** Leroy Merlin opens 66 APMs, 7 more planned by end of 2022
  InPost and Modivo partner to introduce eco-friendly, reusable packaging

Rohlik

A successful grocery e-retailer

Rohlik leads in e-groceries thanks to operational excellence and wide selection

- Rohlik Group has EUR 490+ m in revenue (2021) and in CEE is active in Austria, Czech Republic, Hungary, and Romania
- Rohlik offers unparalleled product selection, including 17,000+ products (depending on location), a large range of fresh and premium products, and a growing private-label portfolio
- Rohlik adds customer experience to their wide product selection, with same-day shipping within 3 hours Monday-Saturday (depending on location)

Expected impact

- Faster delivery than individual stores due to innovations such as automated storage/fulfillment in warehouses and Rohlik Points (refrigerated pickup stations for consumers and couriers)
- Scalable model—Rohlik has launched 5 brands with fast delivery times across different regions

Sources: Alza website, Similarweb website , Vinted press release, Klarna press release, press search

Rise of omnichannel

Offering an omnichannel experience is often seen as a strong advantage for retail players—indeed, it may soon become a requirement.[206] Omnichannel uses a set of integrated channels to cater to customers' preferences and provide increased efficiency. The idea itself is not new, but creating successful engagement across channels still poses challenges for retailers.[207] The core requirement for successful design and implementation is deep consumer-centrism. Customers increasingly expect a fast, frictionless, blended cross-channel experience, making consistency of information across channels particularly important.[208]

As omnichannel grows, consumers are interacting with an increasing number of sales channels. A pre-COVID survey found that 60 percent or more of consumers in Germany, the United Kingdom and the United States say that they engage equally with online and offline shopping channels.[209] Thus suggests that multichannel is becoming the new norm—a trend that will likely also affect consumers in the CEE region.

Businesses are now analyzing the end-to-end consumer journey, optimizing different online components to complement or replace in-person shopping experiences. What was once just an in-store retail experience has evolved to include online elements, such as ordering online after trying clothes on in person, or checking prices using a mobile device in store. Online-only customers are also embracing new channels, such as making purchases on social media during a livestreaming session or after engaging with influencers' content.

Virtual and augmented technologies further enable customers to interact digitally within the physical store environment or in entirely virtual environments. They allow retailers to address shoppers' immediate needs and preferences. Thus, augmented reality (AR) and virtual reality (VR) technology can bring enhanced shopping experiences to online, with products visualized in 3D space, or enable innovations such as interactive user manuals or seamless try-on processes for first-time buyers—especially useful for high-ticket items.

Technological advances will further support the development of sales channels and enhance the digital experience. Currently on the horizon are innovations such as the "metaverse"—a concept with various definitions, but generally considered to mean the next phase of the internet, where it becomes something we are immersed in rather than something we just view.[210] Emerging use cases in the digital commerce space revolve around product marketing and consumer engagement, for example, "Vans World" on the online game platform Roblox, where users can skateboard and dress their avatars in Vans apparel.[211] Another use case is virtual purchasing: AnamXR, for instance, uses game-engine technology to create cloud-based, virtual e-commerce platforms for 3-D immersive shopping experiences.[212]

Data-driven experience

With the rise of Big Data and predictive analytics, companies can now build capabilities to prioritize, predict, and build a holistic view of consumers.[213] Players are moving toward stronger integration of data into the workings of the enterprise and its handling of clients, leveraging data in decision-making (for example, product positioning, product recommendations) and employing rapid or real-time data-processing.[214]

Today's companies can access a broad array of datasets, from internal data on customer interactions (both digital and analog), transactions, and profiles to third-party datasets on customer attitudes, purchase behaviors, preferences, and digital behaviors, including social-media activity. An increased focus on data collection is visible across players. For example, footwear retailer and online player Eobuwie has introduced esize.me, a foot-scanning app and device, in stores in countries including Bulgaria, the Czech Republic, and Poland. The 3D scan is then assigned to the customer's profile and makes size recommendations when they shop online.

Big Data and analytics enable individualized experiences across the customer journey. Personalized awareness marketing and loyalty follow-up marketing improve acquisition and retention of online customers. They go beyond providing a 360-degree view of the customer at the marketing phase of the consumer journey, also determining customer preferences as they search for and evaluate products. Recommendation engines suggest models, sizes, and new products based on customers' behavior on the platform, purchase history, and other data. Anticipating product needs or recommending an upsell with complementary products, for example, can improve user experience and increase effectiveness at each stage of the funnel. Additionally, businesses can leverage data on customers' buying preferences, demand, and elasticity with regard to price changes and use it for dynamic pricing. Similarly, brands can lower prices in slow periods or raise them during demand spikes, responding to seasonal changes in demand, sudden interest in a specific industry, or changes in a competitor's pricing.

Case studies

Modivo

Seamless omnichannel stores

Modivo's brick-and-mortar flagship stores reinvent the garment shopping experience

— Online retailer Modivo has opened its first brick-and-mortar store, offering an omnichannel experience

— The complete shopping experience is focused on user-centricity, personalization, and ease of use

— Instead of shelves and hangers, customers view the assortment on tablets, choosing which items to try on—chosen items are automatically placed in specific changing rooms and the final purchase decision is made via a virtual mirror

Expected impact

— 10% increase in net promoter score (NPS) by exploiting data analytics and personalization

— Improved brand recognition through exposure to online channel

Shein

Social shopping

Shein's use of social media and marketing campaigns has enabled its success

— Chinese fast-fashion retailer Shein uses marketing strategies focused on younger generations, through apps such as TikTok, Instagram, and YouTube

— It partners with celebrities and influencers to promote its brand and provide promo codes

— It creates new products in small batches to measure consumer behavior, rotate inventory, and keep prices affordable

Expected impact

— Approx. 400% revenue growth since 2019, contributed to by Shein "try-on hauls" becoming a viral trend on YouTube and TikTok

— >4.6 million followers on TikTok, allowing the brand to sell to customers directly from the platform

e-obuwie

Tech-driven online improvements to shopping

Eobuwie leverages offline data collection with esize.me to enable online shopping

— CCC Group resolves issues related to shoe-fitting with esize.me—makes a 3D-scan of customers' feet and then develops tailored recommendations

— 3D scan is assigned to the customer's profile and can be used for future online shopping

— Complete shopping experience is focused on user-centricity, personalization, and ease of use

— Combined with a 100 days of free returns, esize.me enables online sales for a previously difficult product group

Expected impact

— esize.me provides customers with flexibility, convenience, and ease of mind when shopping

Sources: CCC Group Strategy 2025, press search

Key factors unlocking sustained growth of digital commerce

Triggered by the surge in digital during the pandemic, European companies increased their spending on IT by 25 percent between 2020 and 2022. However, consumers still do not perceive companies as focusing their improvement efforts on the main reasons for their dissatisfaction. Companies may consider redirecting their investments towards addressing key pain points.[215]

To determine where they need to invest more, players can assess their performance against the five key areas of consumer needs (availability, convenience, personalization and innovation, trust, and sustainability) and the key trends shaping the future of digital commerce discussed earlier in this chapter. Below, we identify what we believe are the main areas that they should concentrate on—the key factors for unlocking sustained growth in digital commerce in Digital Challenger countries.

Companies are not focusing their improvement efforts on the main reasons for user dissatisfaction

User satisfaction with digital interactions and perceived level of improvement

Main reasons for dissatisfaction,[1]
%

Bad UX/UI	28
Hard to know if product fits needs	23
Information not updated along the process	19
Fewer options available	19
Long delivery time	16
Payment issues	6
Fraud	5

Net perceived improvement in digital capabilities,[2]
Percentage points

Payment and checkout	41
Tracking information	40
Product catalog	39
Delivery time	36
UX/UI	35
Product information	31
Fraud protection	30

[1] Q: *What are the main reasons for your dissatisfaction?* Dissatisfied users include those ranking their level of satisfaction from 1 to 3 on a scale of 1 to 5; multiple answers allowed
[2] Q: *In general, how do you feel the following digital capabilities have improved over the past year?* Answers from 1 (significant worsening) to 5 (significant improvement). Difference between users perceiving significant or slight improvement and users perceiving significant or slight worsening
Source: McKinsey Global Digital Sentiment Survey

Increasing consumer convenience through improved digital user experience

As we demonstrated above, consumer convenience is growing in importance across all digital channels. The main way consumers in Digital Challengers perceive convenience is in the features offered by digital channels and the end-to-end shopping experience.[216]

To meet consumer expectations, industry players should consider focusing on providing an engaging user experience (UX) along the digital journey. The digital journey has several steps for consumers, including the moment they land on a particular page and decide to continue their shopping journey, navigating the online channel (website, mobile app, or similar), gathering information and product reviews, adding products to the shopping cart, and checking out.

Great features in the digital channel and an end-to-end shopping experience are the main drivers of perceived digital innovation

Customer perceptions of digital innovation by industry players, %

I can easily switch between physical and digital channels without repeating information	6
Company has a great online presence and community (e.g. forums, blogs, social media)	11
The digital channel features and functions are great (e.g. great design, easy to use)	34
Non-UX-related factors	48
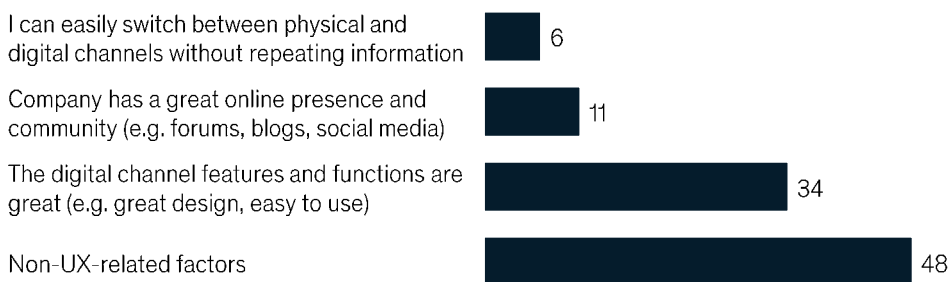
The main reasons shoppers consider industry players digitally innovative are great features in the digital channel and an end-to-end shopping experience

Being able to switch easily between physical and digital is the least relevant factor for users

Q: *Why do you consider [company] the most digitally-innovative company in [industry]? (Please select the main reason)*
Source: McKinsey & Company Global Digital Sentiment Survey: survey results for Czech Republic, Hungary, and Poland

Best practices in UX can help companies master digital commerce

	1	**2**	**3**	**4**	**5**
Topic	Convenient, seamless experience	Engaging and inspiring visual design	Experience personalization	Embracing new technology	Next-level social UX
UX	I can search by specific words and also by products –plus the pictures make it a fun experience	I can search for products at home and see full-width pages with highly-relevant product video clips and appealing images	I am shown smart, attractive product bundles and can buy the whole thing in one go	The interface is very conversational and directs me to the perfect combination of products, with a human touch	I can see live videos of the products I am searching for, and at any point I can buy what I see without having to search for it separately
" User feedback	*"Searches are really fast! You type in the first letters of the word and it already shows you the right products"*	*"The moving pictures of products make the experience really dynamic and appealing. I can see myself doing this"*	*"I think this is totally right for me! It is all really interesting. It's as if they know me!"*	*"This feels like a real conversation! I think it's really engaging interacting in this way"*	*"Oh look—I don't need to go to a separate page first. Smart!"*

In the Digital Challengers cluster, the digital user experience currently lags behind other clusters in certain key dimensions. According to the McKinsey Global Digital Sentiment Insights survey, consumers in Digital Challengers are still finding the online shopping journey difficult and laborious, despite the progress made on this front by some industry players. The survey shows that consumers still have to overcome challenges such as getting an overview of the services offered by companies, navigating websites, gaining transparency over final prices, and accessing personalized products or services.[217]

Companies may wish to consider conducting an assessment of their user journey from a user experience (UX) perspective, using this a basis for determining where they can make improvements. Their aim should be to create a user experience that is seamless across any device, any touchpoint, and at any step of the journey. This improves the customers' experience and drives lifetime value.

Addressing the pain points for consumers in Digital Challenger countries and focusing on the five key action areas above can help companies reduce the costs of customer acquisition, boost customer retention, and increase market share. Furthermore, McKinsey's 2018 Design

Index revealed a strong correlation between high scores on the Index and superior business performance, with top-quartile scorers registering 32 percentage points higher revenue growth than their industry counterparts over a five-year period,[218] regardless of the industry in focus.

Increasing consumer convenience through seamless fulfillment

The retail supply chain of yesterday has become obsolete today. Customers are changing their behavior and expectations: The old model where suppliers shipped products at regular intervals to shops is no longer fit for purpose in a world of digital commerce.[219] Moreover, not only do today's customers shop in different channels, they also expect instant gratification, or as close to instant gratification as possible, in all channels. In the traditional retail channel, customers browsed and then received the goods they wanted instantly; they now expect a similar experience, albeit in digital channels. Speed of delivery is thus of uttermost importance. Moreover, in a digital commerce environment, logistics is the only physical touchpoint of the online retailer with its customer. Therefore, improving supply chains and creating a seamless fulfillment experience for customers is a key enabler for sustained growth.

Last-mile delivery and returns will account for more than half the European digital commerce logistics market by 2023

Share of European e-commerce logistics revenue pool 2023,[1] %

Enabling webservices	Payment	E-fulfillment	Linehaul domestic	International linehaul[2]	Sorting center	Last mile	Returns
		33%	6%	4%		42%	15%
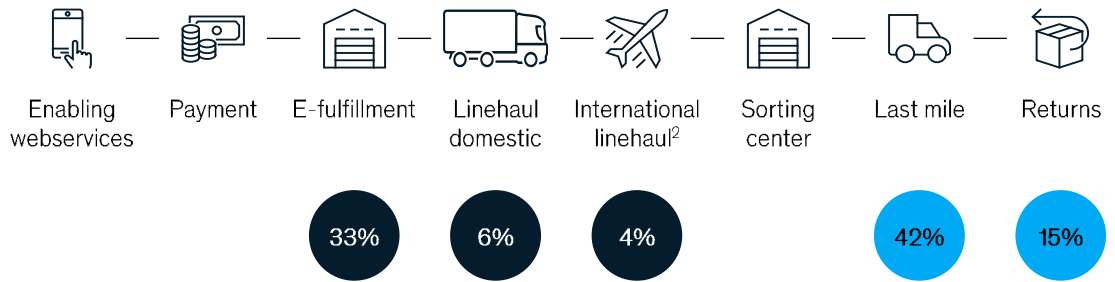
Marketplaces

Amazon   Zalando   Allegro   eMag   Alza   Alibaba Group

Logistics and parcel players

DHL   Fiege   Wincanton   InPost

To boost the growth of digital commerce, supply chains should perform strongly in five areas:

— Speed (same-day or next-day delivery)

— Convenience (customers can choose time windows and delivery points)

— Reliability (real-time tracking, zero failure)

— Competitive prices (efficient, low-cost or, even better, free structure)

— Portfolio availability (optimized online assortment with high in-stock availability)

Logistics costs generally consist of two major components: fulfillment (picking and packing, representing approximately 40 percent of costs) and delivery (60 percent). Logistics costs have risen for most online retailers over the past decade, due to the increasing complexity of digital commerce logistics (for example, returns, fulfillment expectations) and the need for online retailers to increase capacity to keep up with rising demand. In the B2C (business-to-customer) value chain, there are only a few players with an end-to-end digital commerce presence, such as Amazon. According to our analysis, last-mile logistics and returns are expected to account for more than half the European digital commerce logistics market by 2023, making it a key opportunity for companies in Digital Challengers.

The parcel market has been driven by the growth of digital commerce in Digital Challengers, particularly the rise in the volume of transactions. According to our analysis, the APM delivery channel is expected to account for around 50 percent of total parcel volumes by 2026. This increase is largely due to the fact that APMs enjoy good net promoter scores (NPS) and offer cost efficiencies to sellers, which translates into lower prices for customers and greater environmental sustainability.

Key factors driving growth in digital commerce fulfillment are strategic positioning and operational excellence. In terms of strategic positioning, companies can focus on providing a solution and service offering that stands out from their competitors—an end-to-end solution, for example, rather sheer manpower or picking capacity. They can also target the right customer segments, while ensuring the correct scale and level of automation for sustained growth. Operational excellence starts with choosing the right organizational setup, achieving continuous improvement through new technology, data analytics and IT excellence, and ensuring the

ability to address the complexity of digital commerce (with its multiple channels, faster pick and pack requirements, and later cut-off times) through smooth operational processes.[220]

Increasing innovation and personalization through omnichannel

Convenience is not the only consumer trend that industry players should consider. But it is a prerequisite for the growth of digital commerce in the Digital Challengers cluster overall—if consumers do not find shopping on digital channels convenient, they may simply not do it. Once consumers start engaging more with digital channels, two other factors come into play as differentiating factors between players in the digital commercial space: innovation and personalization. Savvy consumers reward players that provide innovative, personalized solutions, products, and bundles.

As mentioned before, the omnichannel concept is not new. However, its implementation varies widely between players and from country to country. The spike in the use of digital commerce during COVID-19, coupled with the return to offline channels in 2021, has brought the concept back into the spotlight, as consumers search for a more seamless experience across channels.

The physical channel is here to stay in Digital Challenger countries, particularly in sectors such as apparel and groceries. However, in all country clusters, the physical channel shows room for improvement according to the consumers surveyed in the McKinsey Global Digital Sentiment Insights survey. To improve the customer experience, bricks-and-mortar stores could allow shoppers to collect or drop off online purchases, engage in greater personalization, and make sure they form part of a seamless omnichannel experience.[221]

For industry players, no one-size-fits-all solution exists. Consumers rarely take single channel journeys, so it is vital that players are aware of the different online and offline touchpoints between retailers and consumers.

Companies are well aware that knowing their customers and understanding different customer journeys is important. Yet, many still struggle to capture the full potential and achieve the desired level of customer satisfaction, despite investments in omnichannel. When working with companies, we often find that they are unable to predict customer needs accurately due to limited data integration across different channels. This results in an inconsistent experience for customers, and inefficiencies in certain channels for certain journeys.

Another challenge for companies is that their digital adoption strategy is poorly organized from an organizational standpoint. This leads to

The physical channel is here to stay, but omnichannel is essential as online is part of the shopping experience

Customer opinions on how physical channels could improve, %

Any products purchased online can be collected and returned in store/branch	24
Great face-to-face customer service (staff is accessible and cares)	22
Use of technology to improve shopping experience (e.g. self-checkout, interactive mirrors)	14
Seamless omnichannel experience (I can switch between app/mobile and store without repeating information)	13
Interactive product-testing and building	10
Cool store design that is regularly modified	9
Store is becoming an experience/entertainment center	5
I prefer not to use physical channels in the future	3

Q: *How could physical channels (stores, branches) improve to encourage you to continue using them in a growing digital world?*
Source: McKinsey & Company Global Digital Sentiment Survey: survey results for Czech Republic, Hungary, Poland, and Romania

them making investments in all channels, for all customer journeys, without any prioritization, thereby increasing costs without a corresponding ROI (return on investment) The way organizations continue to think about the customer journey, with the traditional marketing funnel, also leads to inefficiencies in marketing spend. Consumers' shopping behavior today is more dynamic than in the past, with many different "influence moments". This requires a fresh approach. Many tools are available for analyzing marketing spend, from attribution models to algorithms connected to real-time bidding systems. These approaches can help organizations understand which advertisements influence conversion at which specific moment in the customer journey. In our projects supporting clients, we find that implementing an integrated analytics approach to marketing frees up on average 15–20 percent[222] of marketing spend, which the company can then reinvest in its bottom line.

Based on our analysis, we identify seven core capabilities that organizations require in order to build a successful omnichannel business.

Digital commerce players can create immersive, authentic moments by hosting real-time conversations between employees, local celebrities or influencers and customers on social media, as some social-media-savvy companies are already doing. Similarly, some wineries

organize training webinars and live tastings, for example. Fostering a community of enthusiastic insiders and experts who actively review and comment on products, and supporting user-to-user conversations, drives user engagement and online-offline sales. Another tactic is to add private-label or new product samples to online delivery orders, or allow customers to choose samples at checkout; this encourages risk-free product discovery and a feeling of "surprise and delight" among shoppers. These are some of the tactical initiatives that organizations can implement—alongside investing in their core capabilities, of course—to improve the omnichannel experience. As with all initiatives, a systematic approach is necessary in order to ensure long-term results.

Increasing innovation and personalization through tailored solutions

Today's consumers care more about personalization than ever before.[223] However, a recent McKinsey survey found that only 15 percent of CMOs (chief marketing officers) believe that their company is on the right track with regards to personalization,[224] and fewer than 10 percent of companies currently deploy personalization beyond digital channels. This has particular implications for offline channels, especially in Digital Challengers countries, where in-store

Value proposition & customer journey
Seamless O2O2O[1] customer journeys that offer a timely, personalized experience with customer flexibility and consistent recognition across all channel interactions

Product-bundling
Innovative product bundles tailored to customers' evolving needs

Channel integration
A digitally-enabled and incentivized sales force, and offline and online partnerships

Data & analytics
A robust data warehouse with a 360° customer view; an analytics engine that enables personalized product targeting and channel optimization, with a feedback loop to enable model learning over time

Technology
Scalable and open technology architecture that connects to and integrates data from ecosystem partners and operations

Ecosystem partnerships
A network of ecosystem partners to enable low-cost acquisitions at scale or provide synergies to the omnichannel business, e.g. data, distribution

Talent & capability-building
Scale-up of organizational capabilities to run and grow an omnichannel business, equipped with a customer-centric, agile and data-driven way of working

Seven core capabilities are needed to build an omnichannel business

[1]Online-to-offline-to-online
Sources: McKinsey & Company analysis

shopping is more prevalent. Using advanced analytics to provide insights into personalized offerings in face-to-face interactions between employees and customers can have a significant impact on service improvement. Next-generation technology, such as facial and location recognition, and biometric sensors will become more widely used in the future.

Trust is built on strong relationships and relies on the ability of individuals to relate to the emotions of others. This is difficult to replicate digitally. However, machine-learning is getting better and better at understanding and reacting to people's emotions with the help of more advanced algorithms, which allow programs to analyze visual and auditory data and react to it.

Ecosystems, which bring together different providers, create value for customers by integrating the entire customer journey into a single process. Even in traditional retail, the shopper's buying experience is influenced by different actors, from the operator of the shopping mall to the retailer in question and company behind the brand. However, in traditional retail each of these actors can only influence part of the total customer journey. Connecting the different actors into an ecosystem allows consumers to experience a seamless and more consistent end-to-end shopping experience. We estimate that the share of global sales that moves through ecosystems will reach 30 percent by 2025.[225]

Yet, according to research by the McKinsey Ecosystem Strategy Hub, value creation within ecosystems is still proving challenging for players, and only a subset of organizations manage to generate a distinctive impact.

One of the main reasons for the driving challenges to generate a distinctive impact is that companies look for incremental changes in product sales, rather than a quantum leap in customer experience. Successful companies build their ecosystems around customer journeys and cross-industry value chains. They understand customer needs and "checkpoints" along the value chain. And they include regular feedback loops in their product development roadmaps.

Personalization relies on an organization's ability to manage data, decisioning, design, and distribution. Data needs to be centralized and available, as the activities taking place in one channel support real-time or near real-time engagements in another channel. This is true across the customer journey, from being able to deliver a personalized advertisement at the awareness stage all the way to user experience, customer service, and loyalty. Decisioning logic is also necessary, as without it, customers receive an inconsistent experience across channels; machine-learning-based integrated decisioning engines can assess customers and provide real-time triggers here. Companies can optimize how they manage design by breaking content down

The solutions architecture and operating model should be guided by a simple and effective organizing framework

Create customer-data platform to provide a 360-degree customer view
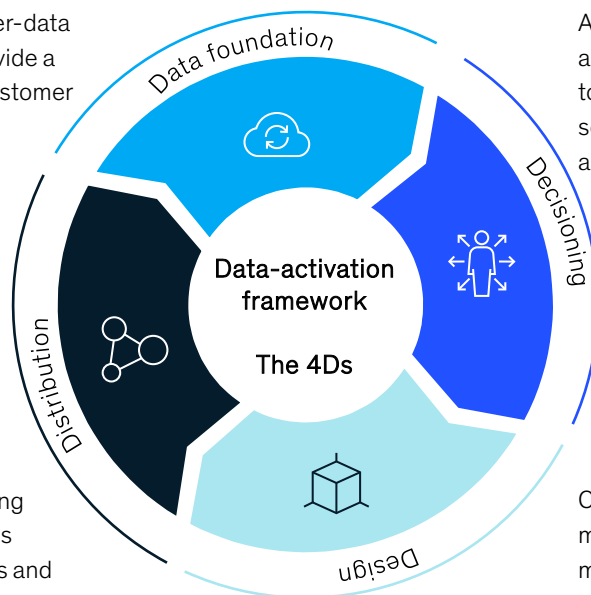
Advanced analytics and machine learning to create customer scoring ("signalization") and real-time triggers

Data foundation

Decisioning

Data-activation framework

The 4Ds

Distribution

Design

Deliver marketing and experiences across channels and feed response data to customer-data platform

Content-factory model, digital-asset management, and agile marketing to drive experimentation

into small modules that can be dynamically mixed for maximum flexibility. Distribution allows to deliver the experiences across channels. Finally, data, decisioning, design, and distribution need to be linked to marketing technology systems, so that they influence the company's communication and react to customer actions continuously, rather than only during specific campaigns.

Increasing security and driving consumer trust

As consumers become more and more careful about sharing data, and regulators step up their privacy requirements, leading companies are learning that data protection and privacy can actually create a business advantage. Trust is a requirement in order for consumers to become more active in digital commerce. In the European Union, however, overall consumer trust across industries is lower than in other regions—and the reasons for distrust vary widely between

industries.[226] Around the globe, data security is the main concern affecting trust in the entertainment sector; in the travel and groceries sector, the main concern is compensation in the event of errors; and in retail, the main concern is secure payment processes.

Concerns about trust in Digital Challenger countries are similar to those elsewhere, with protection against cyberattacks, secure handling of data, and compensation in the case of errors (for example, overcharging) all rated about the same in terms of their relevance for trust in digital commerce. Companies should therefore focus on not only providing a secure experience to their customers, but also communicating this to them and giving them the feeling that their personal data is being handled safely. Interestingly, consumers in Digital Challenger countries had more trust in payment processes in 2022 than a year earlier, possibly as a result of their positive experiences with digital commerce during the pandemic.

What is needed to win the trust of digital consumers varies by industry
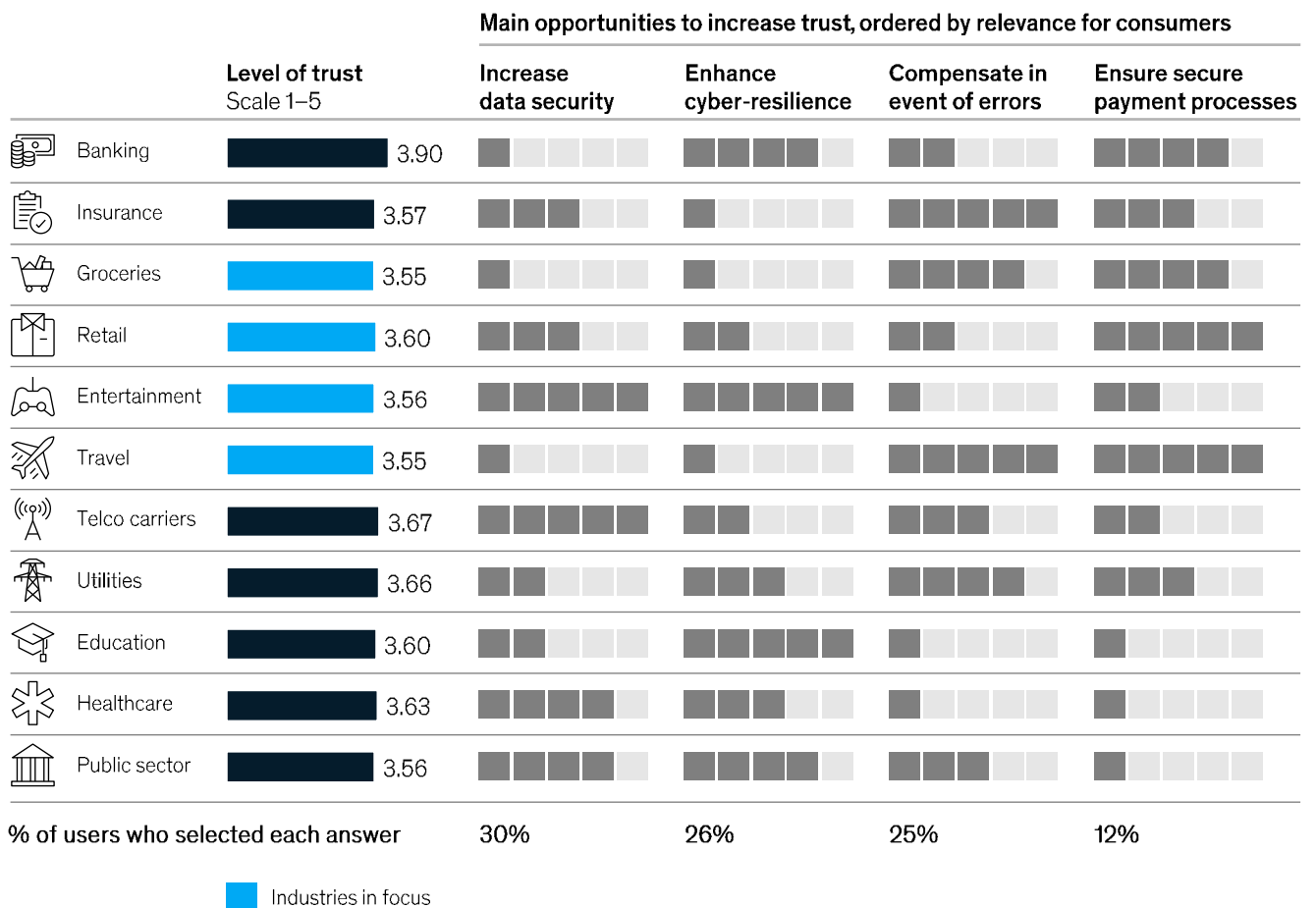
	Level of trust Scale 1–5	Main opportunities to increase trust, ordered by relevance for consumers			
		Increase data security	Enhance cyber-resilience	Compensate in event of errors	Ensure secure payment processes
Banking	3.90	■□□□□	■■■■□	■■□□□	■■■■□
Insurance	3.57	■■■□□	■□□□□	■■■■■	■■■□□
Groceries	3.55	■□□□□	■□□□□	■■■■□	■■■■□
Retail	3.60	■■■□□	■■□□□	■■□□□	■■■■■
Entertainment	3.56	■■■■■	■■■■□	■□□□□	■■□□□
Travel	3.55	■□□□□	■□□□□	■■■■■	■■■■■
Telco carriers	3.67	■■■■□	■■□□□	■■■□□	■■□□□
Utilities	3.66	■■□□□	■■■□□	■■■□□	■■□□□
Education	3.60	■■□□□	■■■■□	■□□□□	■□□□□
Healthcare	3.63	■■■■□	■■□□□	■□□□□	■□□□□
Public sector	3.56	■■■□□	■■■■□	■■■□□	■□□□□
% of users who selected each answer		30%	26%	25%	12%

■ Industries in focus

Protecting against cyberattacks, handling data securely, and compensating in the event of errors are all equally important for consumer trust

Main reasons for lack of consumer trust
Percentage of consumers choosing each answer
as the main reason for distrust in a given industry

Change vs. 2021,
pp

Cyberattacks	27	▲ +2
Data-handling	25	▲ −3
Compensation for errors	25	▲ −3
Payment processes	20	▲ +7
Other	3	▲ −3

Q: *What is the main reason you don't trust these services?* (Only users ranking their level of trust 1 to 3 on a scale of 1 to 5)
Source: McKinsey & Company Global Digital Sentiment Survey: survey results for Czech Republic, Hungary, Poland, and Romania

Historically, payment services were offered by banks. Recently, however, dedicated payment providers have entered the market. In 2020, revenues from global payments reached a level of €2.2 trillion, as greater numbers of both individuals and digital commerce players adopted payment services.[227] Digital payment mechanisms include cards and also recent payment innovations such as digital wallets. Of course, more payment service providers means an increased risk of financial crime. Merchants have put several practices in place to counter this, such as matching the IP with the billing information, tokenization, passwords, 3D securing, and encryption. Another solution is to generate a virtual burner card each time users enter their card number on the web; this keeps the actual card number safe and can be done via a browser extension or an iOS app.

Given the low levels of trust in digital among Digital Challengers, it is unsurprising that consumers wish to restrict the types of data that they share with organizations. A wide range of privacy tools are available that increase consumers' control of their personal information. These include built-in-cookie blockers in web browsers, incognito browsers (used by more than 40 percent of internet users globally), and ad-blocking software (used on more than 600 million devices around the world).[228] It is worth noting, however, that despite consumers' concerns about data security and privacy, if a product or a service is critical to consumers, they are willing to ignore those concerns. Moreover, while consumers are generally knowledgeable about privacy and how they can protect themselves, few actually do so by changing their passwords regularly or using encrypted online communication.[229]

Consumer trust in digital services is not only important for the growth of digital commerce, in that it increases the size of the addressable market, but it also increases organizations' access to important customer data. This then allows them to implement better UX (user experience) and omnichannel practices. At the same time, the way customer data is gathered, used, and regulated has changed tremendously over the past decade. The EU's GDPR (General Data Protection Regulation) law imposes obligations on all organization that target or collect data related to people in the European Union is the toughest privacy and security law in the world and uses heavy fines for violation of the obligation.[230] Companies have started creating strategies to ensure strict compliance with the regulations. Google, for example, has announced that it will phase out third-party cookies in Chrome by late 2024.[231] This will have a notable effect on digital marketing, which uses cookies to improve customer outreach. Companies will now have to develop a first-party data strategy or increase their marketing spend by 10–20 percent to generate the same yields.[232] Those wanting a long-term, effective solution may consider rooting their approach to data in a stronger relationship with their customers—one that is built on trust and a true exchange of value.

A comprehensive data relationship management (DRM) program can help build a robust first-party database

Find products faster and see ads relevant to your interests by allowing us to use your online activity and share it with partners

Next

Security center

Value

Customers are more likely to opt into data requests if they feel they are getting something in return.
A strong value proposition can help demonstrate the value of a data relationship

User control

Giving customers a place where they can change their data permissions at a granular level will reinforce your commitment to a transparent data relationship and make your customer feel in control

Dialogue

Over time, customers may change their mind about giving access to their data. Reminding and refreshing the value exchange is a critical part of the relationship

Pre-prompts help to explain the benefits of giving permission for data-sharing

1

Find products faster and see ads relevant to your interests by allowing us to use your online activity and share it with partners

Next

2

Find products faster and see ads relevant to your interests by allowing us to use your online activity and share it with partners

Allow "Company" to track your activity across other apps and websites?
Your browsing activity will be used to show you personalized ads

Ask App Not to Track

Allow

Source: "A customer-centric approach to marketing in a privacy-first world," McKinsey & Company, May 2021

A stronger relationship starts with a fully permission-based relationship. This means companies moving away from the use of "accept" prompts, where customers may not fully understand what they are agreeing to, and instead providing detailed information in accessible language—the sort of language that they use when inviting customers to join their loyalty programs, for example. Best practices in the use of data invitations include: taking an omnichannel approach to ensure that customers see the "invitation" to share their data (using the channel customers are most likely to use, be it text, push message, email, or in-store information); making the invitation highly visible, explicit, and personalized (for example, in video format); and using pre-prompts.[233]

Companies can improve not just the way they obtain consumers' consent for storing and using their data, but also the way they manage their relationships with consumers on topics relating to data. Ensuring an ongoing dialogue with customers and communicating transparently about data-protection measures in place at the company can build customer trust and engage customers, improving their overall experience.[234]

Export as a contributor to the growth of digital commerce

This report focuses on spending by customers within Digital Challengers. However, the export of goods and services via digital channels to countries outside the cluster also has the potential to further increase the cluster's GDP. According to our estimates, retail export sales via digital channels were worth more than €12 billion in 2021, equivalent to approximately 10 percent of total domestic consumption. Increasingly, this is becoming an important focus area for Digital Challengers.

Within the cluster, Romania and the Czech Republic have the highest share of exports in total digital commerce sales of goods. This is mainly driven by two marketplaces from these countries that have a presence in other countries: eMag (operating in Hungary and Bulgaria) and Alza (operating in Germany, Austria, Slovakia, and Hungary).[235] Hungary's position is especially interesting, as eMag and Alza are the two largest digital commerce companies in the country—ahead of the biggest marketplace originating in Hungary. It is also worth noting that Poland has a low share of export sales. This is mainly due to the lack of foreign domains operated by Polish online e-commerce platform Allegro, which accounts for around 40 percent of the Polish market. Our analysis shows that Poland's share of exports may double following Allegro's recent acquisition of Czech e-commerce player Mall Group.

When services sold via digital commerce are included, the estimated total export market for Digital Challengers is around €12 billion (goods and services combined). The total import market is €33 billion, giving Digital Challengers a negative trade balance of €21 billion. Around €25 billion of the €33 billion spent on imports goes to countries outside of the CEE region, mainly via global marketplaces, such as Amazon and AliExpress, and global digital services companies with a local presence, such as Uber. Of the individual countries in the cluster, only Romania and the Czech Republic have a positive trade balance, which is due to their high share of exports; for all other countries, imports account for at least 25 percent of total digital spend—with Croatia having the highest share of imports, at 56 percent.

Romania, Czech Republic, and Slovenia have the highest share of exports in total sales of goods via digital commerce in the cluster

Exports as a share of total sales of goods via digital commerce in Digital Challengers,[1] 2021, %

Romania	Czech Republic	Slovenia	Croatia	Hungary	Slovakia	Bulgaria	Lithuania	Poland
24.4	21.4	20.4	7.1	6.1	6.0	5.7	5.6	4.1
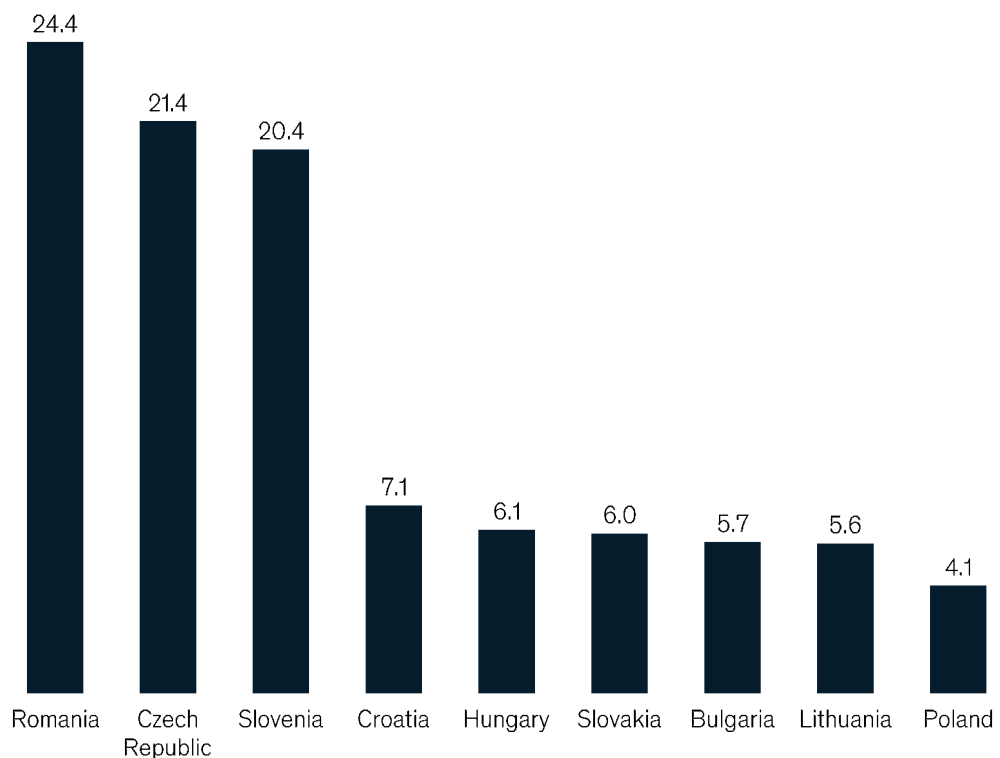
¹ Data for Latvia unavailable
Source: SimilarWeb data; McKinsey Global Payments Map

Digital Challengers have a negative trade balance for digital goods and services of −€21 bn

Trade balance for digital commerce, 2021,
€ billion

Total customer spending	124
Customer spending on imports	33
Export production	12
Total production	103
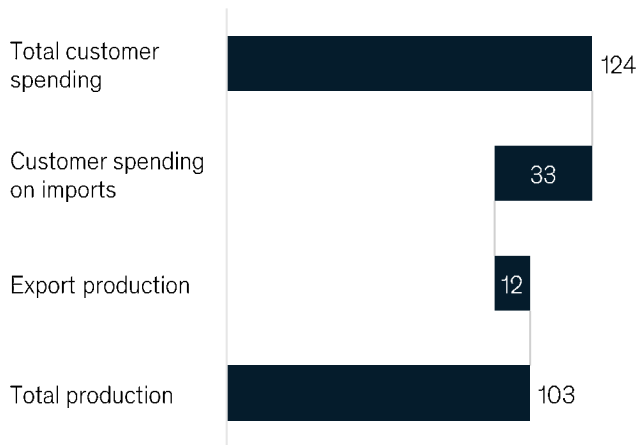
Exports via digital commerce from Digital Challengers to non-CEE countries are worth €3–4bn

Digital commerce sales by destination, 2021,
Goods and services, € billion

Total production	103
Domestic consumption	91
Exports to CEE countries	8–9
Exports to non-CEE countries	3–4
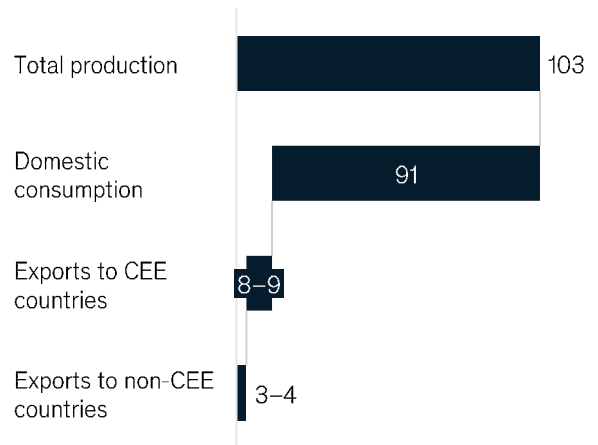
Source: Euromonitor; DKSZ; SimilarWeb data; McKinsey Global Payments Map

We estimate exports from Digital Challengers to non-Digital Challengers to be worth around €3−4 billion.

If all Digital Challenger countries matched the e-commerce export levels of Romania and the Czech Republic, the cluster's economies could potentially grow by a total of €8 billion. However, this task would not be easy. Tailoring both product offerings and user experience to different markets, while fighting off fierce competition from global players, would be an uphill struggle. Drawing on research carried out by Digital Retail Alliance (DKSZ), a Hungarian alliance of digital commerce companies, and figures from the European Commission Joint Research Centre Institute for Prospective Technological Studies, we identify the following six major barriers to expanding e-commerce exports:

— **Logistics costs:** Establishing a fulfillment network in a new geographical location comes with significant costs: Players must either ship goods from the country of origin and contract last-mile services locally, or establish local fulfillment centers and last-mile operations in the new market—both of which often involve prohibitive costs, especially at large volumes. Removing this barrier could increase the number of exporting medium-sized and large enterprises by an estimated 15−18 percent[236]

— **Localization of product portfolio:** Delivering goods to foreign markets requires localization of products. This means adjusting product quality to local preferences and product packaging in line with customer preferences and local legislation. This creates additional costs that not all exporting companies can offset. Resolving the challenges related to adapting product labeling could increase the number of small enterprises exporting their products by an estimated 13 percent.[237] In Hungary, 47 percent of non-exporting digital commerce companies say that their portfolio is not suitable for export,[238] revealing further gaps in product fit and the need for localization

— **Complaint resolution:** Exporting requires advanced customer-management practices, including the ability to manage returns from abroad and provide customer service in multiple languages. To build these capabilities, companies must hire workers with local language skills and, of course, comply with all local employment regulations. Economies of scale are a significant factor here: Larger companies can generate sufficient export revenues to compensate for the additional customer management costs, while smaller firms with less than 50 FTEs (full-time employees) are often unable to handle foreign complaints cost-efficiently[239]

— **Foreign taxation and customs:** Companies in Digital Challenger countries that wish to export must adhere to the taxation rules of the markets they export to, and also customs legislation if exporting outside the European Union. Most players, especially smaller ones, have neither the resources nor the required knowledge to meet all these regulations and are therefore unable to enter these markets. Removing the barriers related to foreign taxation could potentially increase the number of small enterprises (companies with between ten and 50 employees) engaging in export by 21 percent.[240] In Hungary, companies rank customs management as the second-hardest challenge for potential exporters[241]

— **Export restrictions:** Digital commerce players may face restrictions on exports imposed by the original manufacturers of the products, or due to copyright regulations. In Hungary, for example, 25 percent of companies who say their products are not suitable for export cite restrictions on the export of their products as the reason.[242] To take a case in point, wholesalers sometimes make exclusive contracts with players that limit their ability to export the products to additional markets. This barrier reduces the number of small companies engaging in export by an estimated 40 percent[243]

— **Upfront investment requirement:** Entering a new market requires investments in acquiring new customers, which is a significant upfront cost. According to our estimates, the cost of customer acquisition is €40–70 per customer in Western European countries, which means companies must make an investment of €20–35 million to reach 500,000 monthly active users. This prohibits many smaller companies from engaging in export

Despite these barriers, opportunities exist for companies in Digital Challenger countries to tap into the value of exports. If broad approaches are not possible, exporters can potentially find specific segments where barriers are lower, and work on improving their capabilities in these areas. These niches often have certain features in common. For example, digital services that are delivered either online or within the home country do not need extended logistics networks. Products that are developed by sellers themselves, who own the intellectual property (IP) rights, are not subject to copyright or supplier-side restrictions. Localization and complaint resolution are also significantly easier in niches where customers do not expect

localized information—for example, where English is the normal language for services in question. The following areas meet these criteria and are therefore less impacted by potential export barriers:

— Gaming

— Other software

— Digital media subscriptions

— Aggregators

— Tourism and experiences

To show how Digital Challengers can potentially capture higher value by exporting digital services, it is worth looking at the Polish gaming scene. We carried out an extensive review of the sector, identifying key learnings that are also applicable to other countries and segments. The Polish gaming industry—by which we mean the production of online games—is a widely-acknowledged success story when it comes to digital exports. In our 2018 report T*he rise of Digital Challengers: Perspective on Poland*, we already described it as an emerging, vibrant ecosystem.[244] In 2020, according to the Polish Agency for Enterprise Development, the industry generated €969 million in revenues, with 96 percent of this stemming from exports.[245] The Polish gaming industry also contributes to the country's economic development in other ways, employing more than 12,000 people in high value-add activities, with a 24 percent year-on-year employment growth.[246] Poland stands out not only within CEE but also globally: Among the 200 "most-desired" games by users on Steam, the largest digital game distribution platform, 38 were developed in Poland. This puts the country in pole position—ahead of even the United States.[247]

The Polish gaming industry enjoys a history of success. Revenues grew from €304 million in 2016 to €479 million in 2019, a 16 percent CAGR.[248] While 2020 revenues are unlikely to be sustained going forward due to the cyclical nature of the industry and the recent revenue boost supplied by the blockbuster game *Cyberpunk 2077*, experts estimate that the overall positive trend will continue,[249] outperforming other key digital commerce industries. The number of global game publishers originating in Poland also continues to grow, increasing from 13 in 2016 to 44 in 2020.[250] Besides publishing, Polish companies are also involved in distribution (for example, Gog.com), porting (Lionbridge), and localization (Roboto).

Within the industry, approximately 90 percent of the developments are mainly for PC and console, including Nintendo Switch, with mobile

developments only accounting for 10 percent.[251] With approximately 50 percent of companies declaring mobile as a development platform, this implies a scattered mobile landscape and a relative lack of mobile-focused companies (with a few exceptions such as HUUUGE Games). This is also in line with the fact that 73 percent of developers are working on premium titles, and only 12 percent on free-to-play (F2P) games—a category that accounts for a large share of mobile games.[252] As mobile games are expected to be the future growth engine within this sector, increasing Polish developers' focus on casual mobile gamers could potentially push up future revenues, while also reducing the cyclical nature of revenues.

Overall, we credit the Polish gaming industry's global success to three key factors:

— A large pool of suitably-qualified graduates: Poland has 71 university programs offering degrees related to gaming, the majority related to programming. All programs have at least one course that is game development-specific

— Competitive labor costs: Poland's average hourly labor cost is 3.1 times lower than the average of Digital Frontrunners, and around 2.6 times lower than in Big 5.[253] This creates a competitive advantage both for Polish developers and for offering outsourcing partnerships to Western European and US companies

— A diverse employee pool: Approximately 25 percent of the employee pool in the Polish gaming industry is female, and more than 8 percent of total employees are foreigners. This creates a diverse environment—often a proxy for success in creative industries[254]
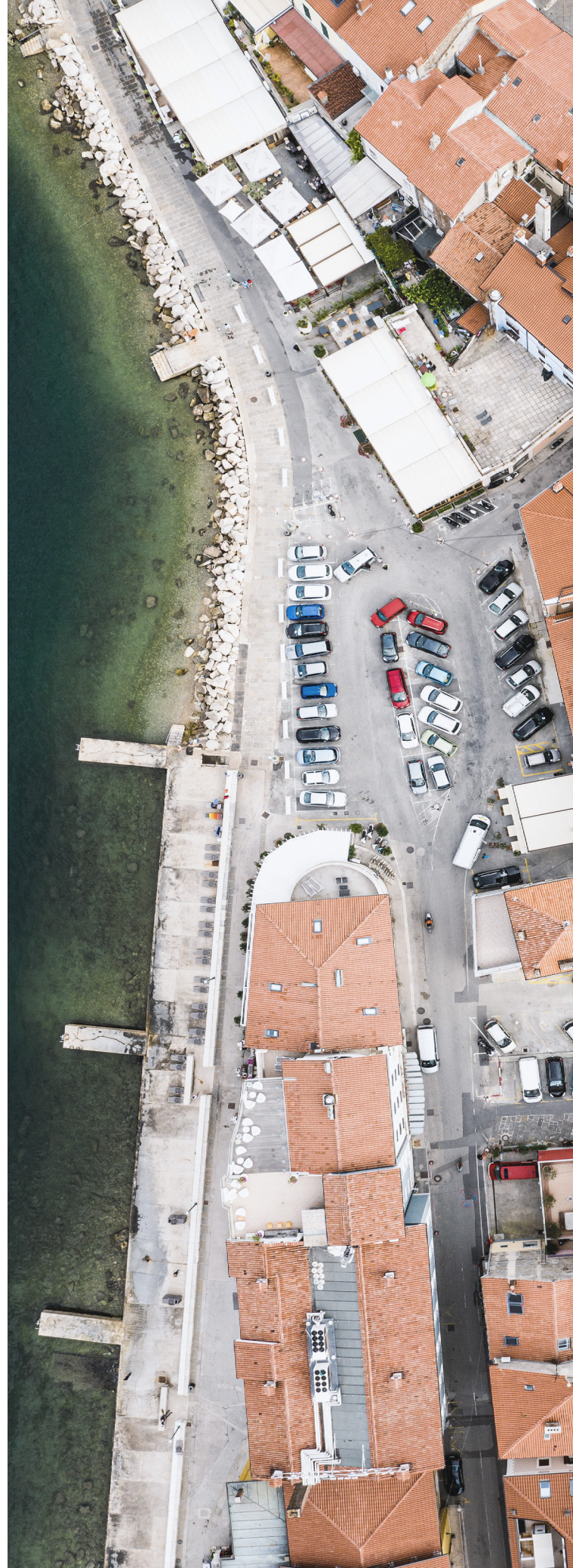
Piran, Slovenia©Didier Marti/Getty Images

Prague, Czech Republic©Givaga/Getty Images

4

Implications for stakeholders

In the fourth and final chapter of our study, we turn to the implications for stakeholders in Digital Challenger countries. How can they contribute to the growth of the digital economy? How do they stand to benefit from it? And how should they react to the digital advancement of the region? We look at three specific groups of stakeholders:

— Policymakers: Policymakers can consider ways to on to promote digitization of the public and private sectors, strengthen the digital talent pool, further develop digital infrastructure, and enable cross-border cooperation and trade

— Business leaders and companies: The private sector can focus on enabling value capture, boosting digital customer-centricity, refining ecosystem solutions and partnerships, investing in building data capabilities, and improving their fulfillment and logistics processes

— Individuals: Individuals could look to invest in their readiness for a changing landscape, which has major implications for their everyday lives, work-life balance, and approach to learning

Implications for policymakers

It often takes a crisis for countries to set the foundations for future growth. History shows that a nation's resilience during times of disruption depends on its adaptability and decisiveness.[255] On the following pages are some examples of countries and business leaders that acted decisively during COVID-19 and other crises, demonstrating their resilience and their ability to react with speed and at scale.

Countries seeking to achieve their short-term economic goals, can consider actions that help build a resilient economy—actions that address climate, healthcare, supply chains, digitization, finance, inequality, and economic development holistically, rather than in isolation. Moreover, the COVID-19 pandemic shows that shorter decision cycles, based on access to timely information are invaluable. The evidence shows policymakers, like businesses, have benefited from being flexible and learning continuously when facing uncertainty. This includes placing heightened value on anticipating trends.

For policymakers, digitization means considering what actions can benefit all stakeholders and create resilience (Chapter 1). Various Policymakers were able to unlock the value upside by facilitating exports and cross-border trade and cooperation, supporting digitization of the public and private sectors, developing digital talent, and putting superior digital infrastructure in place. Indeed, throughout the COVID-19 pandemic many policymakers have made effective use of digital technology, such as using AI to help contain the pandemic or introducing telemedicine to help healthcare services meet the surge in demand.

In our 2018 *The rise of the Digital Challengers* report, we discussed how policymakers could consider focusing on developing digital talent and digitizing the public and private sectors. This analysis was reinforced in 2020 *Digital Challengers in the next normal*. Two years on, this idea is as relevant as ever. Overall, the Digital Challenger cluster is not performing in line with our Aspirational scenario for the region. Without the twin pillars of digital talent and digitized public and private sectors, stronger growth of the digital economy may not be possible. Moreover, the COVID-19 pandemic has shown that countries with stronger digital economies are not only more likely to be resilient to the negative impact of crises, but also more likely to go on to recover faster.

Promote cross-border cooperation and trade

To improve opportunities in digital commerce, policymakers may consider implications related to strengthening cross-border cooperation and trade. This could include building awareness about export via digital channels potential and exploring financial and policy devices for building export capabilities, support intergovernmental bodies (or set them up, where necessary), invest in innovation enablement, and promote local products and capabilities abroad.

Build awareness about export potential via digital channels

Educating SMEs and larger enterprises about the potential value of exports via digital channels can help close the awareness gap that currently exists in Digital Challenger countries. For example, 20 percent of Hungarian companies do not consider exporting, despite not facing any significant barriers to doing so.[256] Companies planning to enter foreign markets will need to address three key topics:

— Geographical strategy: Where to play?

— Operating model: How to play?

— Execution: How to win?[257]

Policymakers could help support companies by providing tools to support discussion on these three topics. They can educate businesses about the possibilities of exports by running industry-specific campaigns—for example, online videos on capturing export value potential, characteristics of potential target markets, and actions required along each step of the journey. Institutions and international bodies can also promote tools such as the interactive "Grow My Store" website by Google, to help businesses evaluate their opportunities.

Explore financial and policy devices to strengthen exports

Financial and policy devices can build export capabilities across borders. For example, the Japan-EU Economic Partnership Agreement, signed in 2018, created an open trade zone for nearly one-third of the world's GDP.[258] Policymakers could look at potential for benefits from reviewing cross-border trade regulations and explore the opportunities presented by trade agreements with neighboring countries. Additionally, they could consider mechanisms for offering preferential loans to domestic companies to help enable scale across borders and compete in relevant markets.

Parcel players' cross-border expansion journeys typically have three stages

Cross-border expansion journey

Launch of business

- Set up of business/unit/joint venture
- Strong initial focus on selected region/trade lane (typically China outbound)
- Establishment of minimum viable product and organization
- Launch and massive expansion from a small base

Initial expansion

- Investment from parent company/partner(s)
- Selective M&A
- Sales force expansion development/scale-up of IT technology solutions
- Expansion with focused growth on major regions/trade lanes

Scaling the global reach

- Investment across the value chain (customs capabilities, warehouse, etc)
- Regional/global expansion
- Multiplication of gateways and hub

Furthermore, they could consider what taxation frameworks could incentive companies to obtain financing in the countries they export to.

Strengthen intergovernmental bodies

Policymakers may consider increasing cross-border cooperation by supporting governmental and intergovernmental bodies, or setting them up where necessary. For example, the Nordic Council was founded as early as 1952 to promote collaboration and data exchange between certain Northern European countries.[259] Governmental and intergovernmental bodies can disseminate market and consumer data, help SMEs understand local taxes and customs, and support partnerships with players in foreign countries—for example, in areas such as logistics or payments.

Invest in innovation enablement

Innovation enablement led by policymakers can drive the development of intellectual property (IP) for exports and give countries a long-term competitive advantage. For example, Polish incentive packages for research and development (R&D), which include tax incentives, grants, and EU schemes, have led to Poland ranking first in CEE and seventh in the European Union in the development and implementation of AI.[260] Potential areas include support for the

development of ecosystems and for innovation. Policies supporting the growth of digital ecosystems can focus on startup infrastructure and funding, such as direct government venture-capital funding[261] or co-investing in venture-capital funds that target local companies. Policymakers may consider creating an environment that supports the digitization of existing businesses, for example, by setting up incubators and sponsoring conferences on digital business development. They can also explore the use of funding to create incentives for businesses to invest in areas such as R&D—for example, offering a double tax credit on R&D spending.

Promote exports abroad

Policymakers could explore ways to support to businesses in industries with export via digital channels potential. Overall, it may help governments to consider a unifying policy aim that helps focus efforts on creating an environment that encourages startups and other small companies to develop their export capabilities. This may involve developing programs that help small local businesses acquire the necessary export capabilities. It may also mean being responsive to market dynamics, supporting growing export industries by providing financing or encouraging the development of a talent pipeline.

Case studies

Ireland offers end-to-end support for enterprises, aimed at boosting exports. The government organization Enterprise Ireland offers firms with ten or more employees special workshops on exporting. Companies can also complete an online scorecard to gauge their export readiness. Enterprise Ireland further supports companies with online tools, such as Export Scorecard that can help companies assess their readiness to develop export led business strategy.[262] Overall, Ireland ranks as one of the top EU countries in terms of exports per capita.[263, 264]

Nordic Smart Government and Business is a collaboration program between organizations in five Nordic countries, launched in 2016 by the Nordic Council. The initiative has four core areas of action aimed at increasing business activity and exports: capturing and leveraging digital information, providing real-time access to standardized and structured data, creating a more user-friendly startup process to support the growth of SMEs, and providing data services to SMEs.[265]

Poland provides focused policy support to a key export industry: gaming, including external development. The country supports small studios, and has enabled dozens of studios to grow from under 16 employees to 17–40 employees today. Additionally, Poland helps universities develop relevant curricula—the country now offers 71 degree programs related to game development. In 2021, exports accounted for 96 percent of the Polish gaming industry's revenue.[266]

Reasons people purchase items cross-border rather than domestically[1]

% of respondents

Prices lower in foreign country

60

Predominantly for **East–West** trade lanes, due to lower prices of products coming from Asia

Product/brand not available domestically

36

Delivery from aboard is cheap

20

Predominantly **for West–East** trade lanes, as growing middle class likes to order Western brands

Trust foreign country of purchase

13

Delivery speed from aboard is fast

9

Website not available domestically

8

Understand language of foreign website

7

Mostly **intraregion**; focus of online shoppers originating from small domestic e-commerce markets and big neighbouring markets with convenience infrastructure access

¹Respondents could pick more than one reason
Source: IPC

Strengthening cross-border cooperation and trade can help to improve opportunities in digital commerce

Enable cross-border cooperation and trade

Possible initiatives	Potential actions
Build awareness about export potential	— Launch campaigns focused on the value potential of exports, especially in key sectors with low barriers to cross-border selling — Develop or promote tools to help businesses evaluate the opportunities, such as markets for similar products, preferences, or goods/services particularly in demand, and help companies understand customs and tax regulations
Institute financial and policy devices to strengthen export	— Review cross-border trade regulations that may limit businesses' ability to export — Ensure support and tools are available to enable local companies to scale across borders and compete in relevant markets, e.g. offering preferential loans, examining what preferential loans, tax breaks, and financing is available in target countries — Embrace opportunities offered by trade agreements, such as the EU-UK Trade and Cooperation Agreement
Strengthen intergovernmental bodies	— Create a centralized function for developing digital exports focused on disseminating market and customer knowledge in foreign markets — Support development of partnerships in areas such as logistics and payments, e.g. with players in Western European countries target countries
Invest in innovation enablement	— Invest in startup infrastructure and funding ecosystems, e.g. by promoting digital business development conferences or early-stage incubators — Institute policies that support and incentivize investment in innovation, e.g. direct government investment in startups or tax credits for R&D spending
Promote exports abroad	— Launch government campaigns in target countries to promote domestic industries with competitive product/services and value propositions that local companies cannot offer, such as lower prices or brands not available in the target country

Benefits of digitization in the private sector

As we discussed in Chapter 1, businesses in Digital Challenger countries show room for improvement in their use of digital solutions and their participation in online sales, particularly when compared to Digital Frontrunners and the Big 5. Small enterprises also have lower levels of digitization than bigger ones. In addition, businesses make less use of more advanced digital solutions, such as AI and cloud, than they do of less advanced digital tools.[267] Enabling digitization of the private sector can be seen by governments as a growth-enabling policy area, with potential initiatives around providing tools and opportunities for digitization and ensuring a supportive regulatory environment for business.

Tools and opportunities available to support the digitization of business

Policymakers could help support business growth by considering initiatives that help companies digitize. Effective support could include supporting firms across all stages of their development. For example, when starting up, many companies would benefit from information and coaching on setting up operations in digital channels—how to buy domains, exploit social media for business, leverage targeted advertising, and run or outsource order fulfillment. Established companies may benefit from support with digital transformation—for example, access to loans or subsidies for promising digitization initiatives, such as transferring data to the cloud or incorporating Big Data analytics and AI.

Consider the regulatory environment

Having a regulatory environment that supports businesses growth can make a substantial difference to the performance of companies and the opportunities they can exploit. The regulatory environment affects a company's margins, its decision-making, its offerings, and its risk adversity. Policymakers looking to support the growth of digital commerce could choose to review existing policies around online sales of certain products or the use of particular sales channels. Another areas policymakers could look at is ways to provide help to businesses to comply with the existing regulation, such as the GDPR. The European Union's "New Deal for Consumers", which entered into force in May 2022, awards digital goods and services the same consumer protection as for physical goods and services.[268] This may increase trust in digital commerce. Creating a constant "feedback loop" could help policymakers to balance legislation aimed at building consumer trust and legislation that may limit the ability of businesses to innovate and grow the economy.

Private-sector digitization is a growth-enabling policy area

	Possible initiatives	Potential actions
Support private- sector digitization	Provide tools and opportunities for business digitization	— Provide educational and supporting materials for digitization of businesses, e.g. via a "one-stop website" with training, tools for setting up a web domain, and links to government programs — Create incentives and support for companies in their digital transformation process, e.g. by providing subsidies for digitization — Promote the benefits of digitization with case studies and best practices from the market
	Ensure a supportive regulatory environment	— Review legislation related to digitization and online operations, such as enabling online pharmacy prescription verification and online sales — To increase trust in digital channels, institute government controls protecting businesses and customers, e.g. establish minimum number of days for returns, compensation in the event of errors, and protection for data and digital intellectual property (IP)

Case studies on government support of business digitization

Estonia has instituted a policy allowing businesses to register online without physically visiting a government office. Since 2011, most new companies have made use of this scheme, known as the e-Business Register, and the latest figures show that currently 98 percent do so.[269] In this way, the Estonian government has effectively cut the amount of time it takes to register a business and increased the accessibility of business registration.

Sweden has created a regulatory "sandbox" in which companies or academics can develop new solutions for areas such as AI, the Internet of Things (IoT), 5G/6G, gamification, IT security, factory connectivity, cloud computing, mobility technology, advanced robotics, and remote learning.[270] "Testbeds" provide businesses with an area where they can experiment, build knowledge, and gain traction in nascent industries. Best practices derived from these testbeds have also been made publicly available to businesses and individuals via blog posts, demos, and sector-specific websites, such as the website of AI Sweden.[271] These actions have helped Sweden become home to a vibrant digital economy with an ICT sector that employs 6.1 percent of the population—twice the EU average.[272]

Strengthen the digital talent pool

Digital skills and digital talent are fundamental to the growth of all components of digital economy. Digital fluency among citizens fuels the development of solutions and enables their wider implementation. The expected growth of the digital economy, combined with increasing automation of the labor market, creates additional demand for technical skills and talent.

Support post-pandemic recovery of learning loss

The pandemic has taken a toll on students' learning globally, with Digital Challengers potentially having seen a more significant negative impact on academic progress than clusters with more advanced educational systems, such as Digital Frontrunners and the Big 5. This slowdown in educational progress may have influenced individuals' wellbeing and future earnings; it can also have an impact on a country's future economic growth.

Policymakers face an urgent challenge and limited timeframe to decide how best to support recovery of learning loss. Policymakers, working with schools, might consider the following steps:

— Ensure a safe environment for in-person learning, while maintaining the tools that contributed to the resilience of systems during the pandemic

— Promote reenrollment in education and focus on learning across all groups, including students, teachers, and families

— Ensure holistic, needs-based support for students during the recovery phase, focusing on both the academic and social/emotional effects of the crisis

— Recommit to quality education for every child, doubling down on the fundamentals of educational excellence[273]

Align formal education to the skills needed for high value-add jobs in a digital economy

A survey of 18,000 people in 15 countries carried out by the McKinsey Global Institute identified the skills that citizens will need in the future.[274] These skills can potentially give CEE countries and their companies a competitive advantage over their global peers. The skills in question should help citizens fulfill three criteria, regardless of which sector they work in:

Respondents' proficiency was lowest in two skill groups in the digital category—"software use and development" and "understanding digital systems"

Difference[1] by category and skill group, all countries, average score[2]

- Cognitive
- Interpersonal
- Self-leadership
- Digital
- Relative weakness

61 Critical thinking & mental flexibility	54 Planning and ways of working	62 Developing relationships	59 Teamwork effectiveness
52 Communication	58 Average	59 Mobilizing systems	60 Average
62 Self-awareness & self-management	58 Goals achievement	61 Digital fluency	39 Software use and development
63 Entrepreneurship	61 Average	42 Understanding digital systems	48 Average
			57 Total average

Note: The margin of error is 1% with a 95% confidence interval. Averages are computed as the mean of country averages and not of all respondents' averages.
[1] Distinct element of talent
[2] Index score calculation: Survey answers for each difference were associated with a proficiency level of 1-3, which in turn corresponded with a score of 0-100. The index for each aggregation is calculated as the average of the answers for each difference within the skill group

— Add value beyond what can be done by automated systems and intelligent machines

— Operate in a digital environment

— Continually adapt to new ways of working and new occupations[275]

Across all sectors, the need for manual, physical and basic cognitive skills is expected to decline, while the need for digital, interpersonal, self-leadership, and higher cognitive skills will increase. Digital skills were those where respondents in the survey had the lowest levels of proficiency.[276] Policymakers can support the development of digital skills that enable citizens to adjust to a changing labor market, increase productivity, and strengthen the foundations for future growth of the digital economy.[277]

The educational system is core to ensuring that demand for skills on the market is met. Policymakers may therefore wish to increase their focus on the availability and attractiveness of programs strengthening digital skills across all stages of education.

In elementary and high-school education, the curriculum can be adjusted to ensure basic digital fluency and boost students' interest in technology. Government can create incentives for schools to do this successfully, such as Ireland's "Digital Schools of Distinction" program, which certifies elementary schools that effectively combine ICT in their learning and teaching practices.[278] Policymakers might consider ways to encourage schools to make classes more engaging for students, for example, by using gamification and personalized approaches. Technology must be used correctly in order to be effective; it should be consistent with the learning goals and curriculum. Teachers could also adapt lesson plans to optimize the use of technology—teaching is more effective if teachers use the technology themselves or side-by-side with students, rather than letting students use the technology on their own.[279] A potential way to appeal to school-aged children is by offering out-of-school courses, mentoring programs, and competitions, such as Hackathons.

Some student-based technologies are associated with lower student outcomes

Impact of using technology in the classroom, points change in PISA score between "No" and "Yes and use technology in classroom" in a regression (40 points ≈ 1 year of learning)[1]

	Reading	Math	Science
Data projector	42	32	34
Internet-connected computer	30	28	30
Laptop	N/A	−5	N/A
Tablet	−21	−15	−18
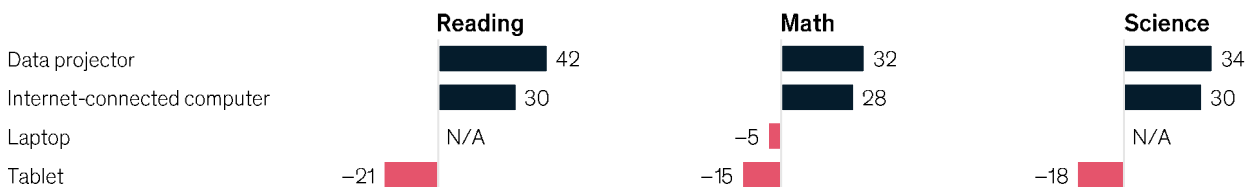
The best results come when teachers alone use devices, the worst when students alone use them

Impact of using digital devices in the classroom based on who is using the device, points change in PISA score from "No use of device"

	Student only	Teacher and student	Teacher only
Reading	−34	N/A	17
Math	−39	−10	10
Science	−28	10	24
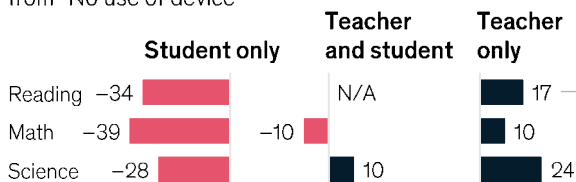
Regional impact in reading only, points change in PISA score from "No use of device"
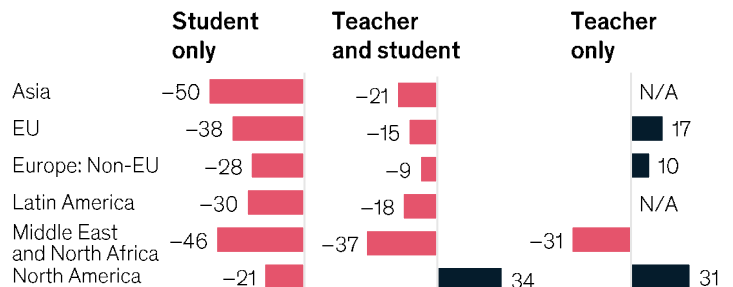
	Student only	Teacher and student	Teacher only
Asia	−50	−21	N/A
EU	−38	−15	17
Europe: Non-EU	−28	−9	10
Latin America	−30	−18	N/A
Middle East and North Africa	−46	−37	−31
North America	−21	34	31

Controlling for student socioeconomic status, type of school {public, private}, and location (urban, rural); statistically significant at 95% confidence level. Results not shown if not statistically significant. In addition to the devices shown, desktop computers and interactive whiteboards had no statistically significant results at the global level
Source: OECD PISA 2018

Higher education can help create a direct flow of talent into the economy. Policymakers in Digital Challengers may therefore wish to focus on strengthening the pool of technical and ICT talent in the employed population. To fuel growth of the digital economy—which has the potential to increase 2.7-fold between 2021 and 2030, according to our Aspirational scenario—policymakers could look at ways to increase the attractiveness of STEM subjects (science, technology, engineering, mathematics) and ICT at university, and boost the number of students studying them. Options for how to support the educational system include, for example, by funding the purchase of IT equipment in schools, or laptop loan programs for students, and supporting teachers with the necessary skills. To build the resilience of the educational system in the longer term, they can also consider introducing hybrid learning to accommodate for circumstances, funding easily accessible learning courses, creating virtual resource centers, building skills-based learning modules, and increasing accessibility to top teachers and experts.[280]

Lifelong digital learning

To address demand for technical and digital skills, and to help adults navigate the rapidly evolving environment, policymakers can also consider ways to strengthen digital skills outside of formal school education. One way to do this is through lifelong learning, including upskilling and reskilling. The rapid rise of remote work and digitization triggered by the pandemic has led to a sharp increase in demand for technical and basic digital skills. Companies have responded by focusing on building skills internally. This approach is more prevalent now than it was prior to the pandemic, and has seen a greater focus by companies than other actions aimed at closing skill gaps, such as hiring, contracting, redeploying, and releasing.[281]

Policymakers could choose to support business in the upskilling and reskilling process, for example, by incentivizing on-the-job training and providing resources such as courses, workshops, and online learning platforms. They can also offer these skill-building programs to the general public, for example, by offering open-access courses in areas such as libraries and job centers and running free learning platforms. Delivering lifelong learning to underemployed and unemployed citizens can also help train more of the workforce for high-demand jobs; ideally, such schemes would also then be support individuals with their jobseeking efforts and transition to new careers.

69% of respondents report an increase in skill-building during the pandemic, more so than for other actions to close skill gaps

Changes in actions used to close skill gaps, since end of 2019,
% of respondents[1]

Percentage-point difference
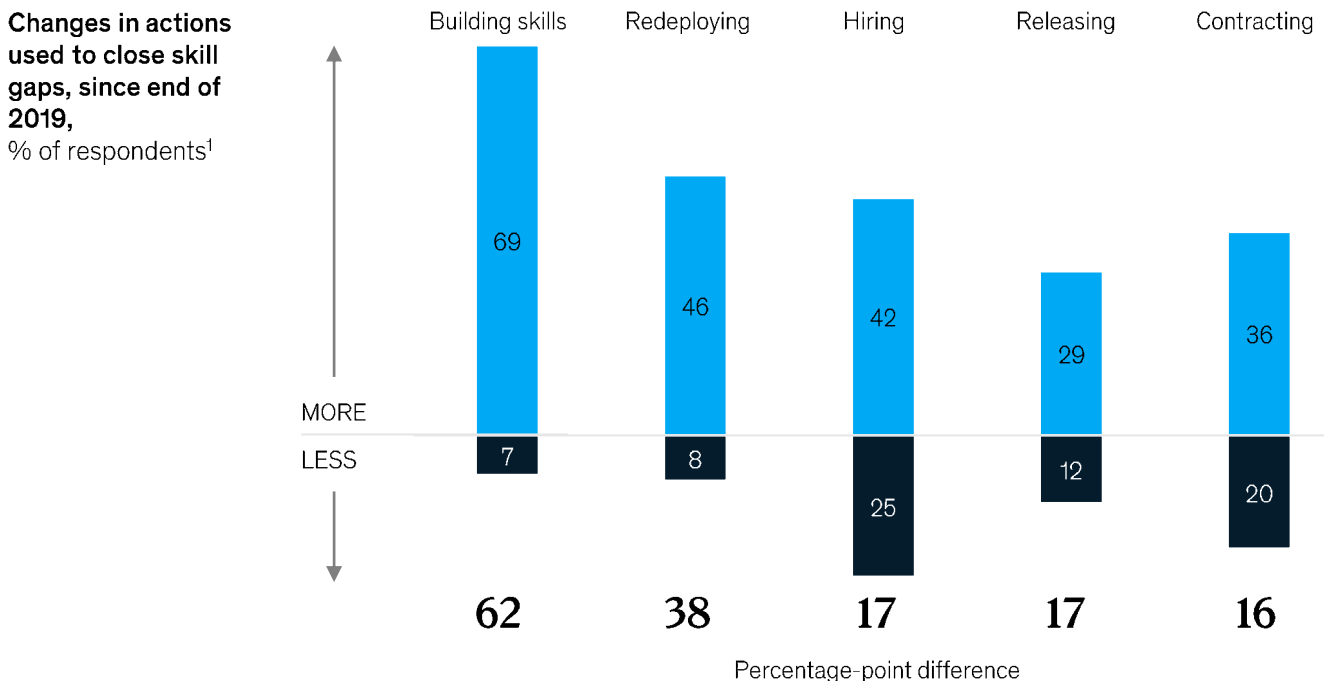
` Respondents who answered "no change" or "don't know" are not shown; n= 700

Case studies

Policymakers strengthening digital education
As early as the 1990s, Estonia introduced digital components into its school curricula from elementary level upwards. This included providing schools with computers and internet access. As a result, the country is now extremely digitally advanced, with one of the highest ICT graduation rates in Europe. Around 90 percent of schools offer classes in IT and technology.[282]

Policymakers enabling education during citizens' working life
South Korea has created a lifelong learning system that engages stakeholders with financial incentives and rewards. The government provides training facilities and employs experts to develop and update the contents of its courses. Under the Lifelong Education Act, South Korean provinces are responsible for lifelong learning centers within their region. In Suwon City, for example, 1.2 million inhabitants are within a ten-minute walk of such a center.[283]

Growth of the digital economy and increasing automation of the labor market creates demand for technical skills and talent

	Possible initiatives	Potential actions
Develop digital talent	Support post-COVID-19 pandemic recovery of learning	— Ensure safety during in-person learning, while maintaining the tools that contributed to the resilience of systems during the pandemic — Promote re-enrollment and focus on learning across all groups, including students, teachers, and families — Ensure holistic, needs-based support for students during the recovery phase (with focus on both academic and social-emotional effects of the crisis) — Commit to high-quality education for every child, doubling down on the fundamentals of educational excellence
	Strengthen formal education by promoting digital	— Ensure that the development of digital and practical skills is incorporated into the curriculum — Create interest in technology and enhance the experience of students through digital tools, such as use of gamification or digital equipment (e.g. VR) in learning — Promote optional programs and competitions focused on digital skills, e.g. a touring workshop on digital opportunities, trips to science centers, or Hackathons — Encourage participation in tertiary education with a focus on STEM and ICT programs, and ensure participation of underrepresented groups such as women — Support provision of digital equipment to schools and students, e.g. by funding digital whiteboards and online learning software, or subsidizing laptop loaner programs — Train teachers in the digital skills and opportunities provided by technology in the classroom
	Promote lifelong digital learning	— Encourage reskilling and upskilling programs for the labor force — Promote open-access courses for underemployed and unemployed citizens — Ensure digital talent retention in key industries, e.g. by encouraging working remotely from rural areas rather than relocating

Support digitization of public sector

Digitization of the public sector can help bring benefits to multiple stakeholders in society. It can help improve the productivity of the public sector, support the operations of businesses, and increases convenience for citizens. It is also an area that policymakers can have a direct influence on. Below, we discuss four potential actions that policymakers can consider to support digitization of the public sector: ensure effective digital transformation and governance; speed up the adoption of digital public services by citizens; increase the digitization of public-led industries; and digitize and leverage government databases.

Digital transformation and governance

To support the digitization of the public sector, policymakers can focus on ensuring effective digital transformation and governance. Improving digital capabilities and tools is already a goal of many country and EU-wide initiatives, such as the "single digital gateway."[284] A potential benefit of digital transformation efforts is value-creating outcomes for the public, where the effects are maintained in the future. However, research by McKinsey and the Oxford Global Project into public and private-sector IT projects, showed the effects of public-sector IT projects tend to lag behind those of private-sector projects in terms of cost, timeline, and benefits.[285]

To realize the future value of technological changes, policymakers could benefit from setting a clear vision for digital transformation and strive to keep this vision alive over time. This is especially important due to the number of potentially dispersed stakeholders involved in the process. In the ongoing war for talent, the ability to attract, cultivate, and retain top talent in technological areas will be important to scaling. This will likely require adapting operating models to attract talent, for example, proactively reaching out to talent that would traditionally go to technology and product companies and offering them value propositions that get them excited about working in public-sector roles. With digital natives such as Gen Z and millennials joining the workforce in larger numbers, there is an opportunity to capitalize on the excitement and interest of individuals who are in any case highly motivated by mission and purpose.[286]

Security is a strategic imperative during transformations. The increased popularity of remote work since the pandemic and the emphasis on security during current crises make cybersecurity and risk management more important than ever for public institutions. Public bodies can benefit from embedding cybersecurity in their new processes and technologies as a strategic imperative, rather than as an afterthought.[287]

The foundation for all these initiatives is governance. Public bodies can benefit from an ongoing process and structure that provides oversight, accountability, decision-making, and pathways for escalation and continuous improvement. Effective governance helps ensure that technology, data, and digital practices are in line with organizational objectives. Digital Challengers can strengthen their progress here by means of regional collaboration: For example, an overarching intergovernmental body can support cooperation by setting standards, ensuring the scalability of promising solutions, and capturing improvement opportunities.

Speed up the adoption of digital public services by citizens

On average, Digital Challengers have a lower share of citizens using e-government solutions than Digital Frontrunners and the Big 5.[288] Yet, some progress is visible. In 2020 for example, Romania, which has one of the lowest levels of use of e-government services in the cluster, issued a decree requiring public institutions to accept digitally-signed documents as equivalent to those signed by hand. Other examples of progress exist. Overall, however, Digital Challengers can still capture significant value and savings by digitizing public services.

Digitizing public services benefits many stakeholders in the economy. Digital public services are often more efficient (thanks to the cost and time savings), less burdensome for all parties involved in interactions, and also contribute to higher productivity (for example, by freeing up resources). Furthermore, they generate higher levels of public trust in institutions, thanks to the increased transparency of processes. Yet, creating user-friendly public services that are widely used by citizens is a complex task. Policymakers could deliver quick wins by focusing first on improving the quality and functionality of online services—the main reason given by citizens for dissatisfaction with government digital channels is the user experience and user interface. Our research also shows that Europeans consider centralized access to all services and the validity of electronic documents the two most important features that would increase their use of online public services.[289]

Online public-sector services in Europe could benefit from developing additional functionalities

% of users of online government and public-sector services
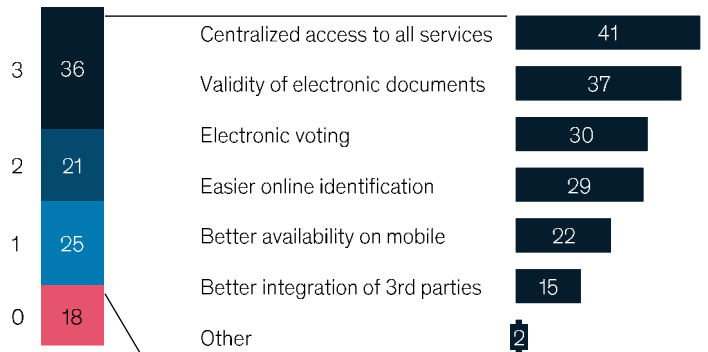
Online public-sector services

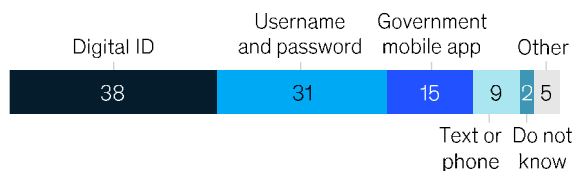Q: *Which of the following interactions with the government have you managed to complete online?*

Income tax declaration	66
Tax bills/payment of fines	44
Request for official certificate	37
Update official records	35
Subsidy request	23
Rights violation report	8
Other	6
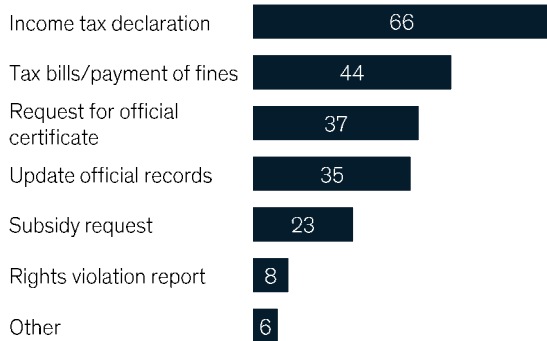
Features that would increase usage

No. of services selected[1]

Q: *Which of these features would increase your use of online government services?*

No. of services selected	
3	36
2	21
1	25
0	18

Centralized access to all services	41
Validity of electronic documents	37
Electronic voting	30
Easier online identification	29
Better availability on mobile	22
Better integration of 3rd parties	15
Other	2

Preferred authentication methods

Q: *How do you usually confirm your identity in digital transactions with the government?*

Digital ID	Username and password	Government mobile app	Other	Text or phone	Do not know
38	31	15	9	2	5

Public-sector digital services vs. other industries

Q: *How would you rate your overall digital experience with government services compared to other digital services you use?*

Much worse	Worse	About the same	Better	Much better
4	13	59	19	5
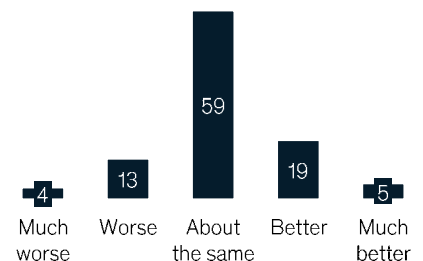
*Share of users according to no. of options selected (max 3 choices), %
Source: McKinsey & Company Global Digital Sentiment Insights: survey results for Europe

Digital Challengers have significant room for improvement in the area of authentication methods, which need to be rapid, safe, and effortless. In Europe as a whole, the most widely used authentication method is Digital ID (used by 38 percent of users).[290] In some CEE countries such as Hungary and Romania, by contrast, the most widely used methods are password and username.[291]

To improve user experience, e-government solutions need to be intuitive—ideally, no more complicated than shopping online. Citizens should be able to find relevant services easily and receive information in clear, simple language, preferably during a single digital journey. For example, analysis shows new parents want to be able to get a birth certificate, apply for child benefit, register for parental leave, and access other relevant services in one easy process, instead of having to interact with multiple agencies, often in person, sharing the same information multiple times. Making improvements here is complex,

however, as typically governments are responsible for more customer journeys than private-sector organizations—in some cases as many as 50 to 100 journeys, covering thousands of individual services.[292] One of the core enablers for providing a centralized digital public-service platform is being able to access aggregated government databases.

Increase the digitization of public-led industries

Public-led industries such as healthcare, education, and utilities show the lowest levels of user satisfaction with digital channels. Typically, policymakers can have a significant influence on these sectors. They can improve user experience here—named by the public as the main reason for dissatisfaction—by increasing their efficiency and simplifying processes. In healthcare, for example, digital advancement not only benefits clinical decision-making and interventions, but also improves operational processes. This then has a positive impact on the quality and availability of care for citizens.[293]

The average customer satisfaction with digital channels is flat year-on-year, with bad UX/UI as the main reason or dissatisfaction

Customer satisfaction with digital channels in 2021 and 2022
Average degree of satisfaction by industry[1]

■ 2021 ■ 2022

	Banking	Insurance	Groceries	Apparel and other retail	Entertain-ment	Travel	Telco services	Utilities	Education	Health-care	Government
2021	4.04	3.91	4.01	3.99	4.00	4.05	3.84	3.88	3.77	3.80	3.76
2022	4.12	3.88	3.88	3.96	3.99	3.99	3.86	3.82	3.78	3.75	3.71

Satisfied = 4

Main reason for dissatisfaction[2]: Bad UX/UI | Hard to know if I'm buying what I need | Bad UX/UI
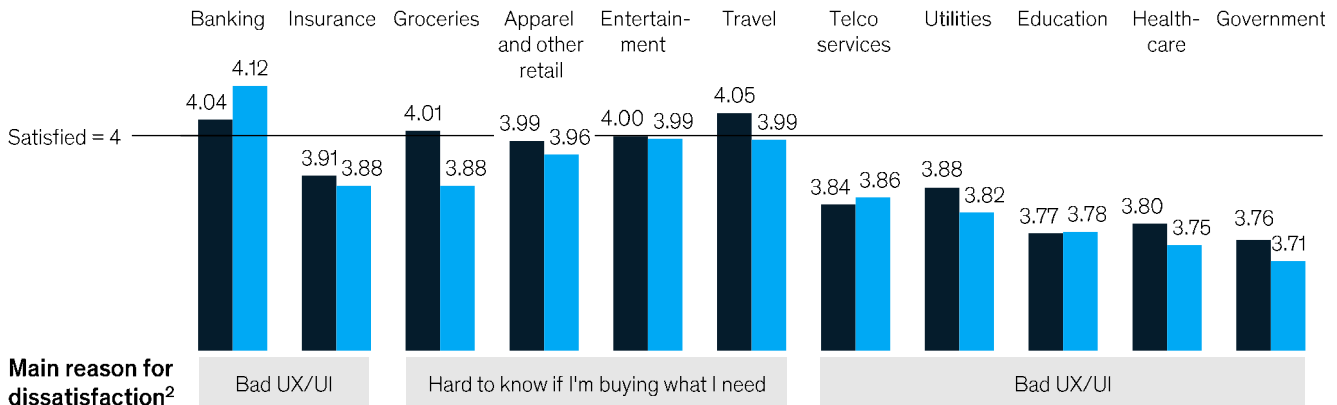
[1] Q: *How satisfied are you with the online experience offered by the companies you interact with in each industry? Options: Very satisfied, satisfied, mixed feelings, dissatisfied, very dissatisfied*
[2] Q: *What are the main reasons for your dissatisfaction?* (Only users ranking their level of satisfaction 1 to 3 on a scale of 1 to 5) Options: Bad user experience (slow, hard to use, poor design, etc.); *I can't find the same options as in other channels; It's hard to know if I'm buying what I need; Information is not updated during the process; Delivery/execution time is too long or unpredictable; I have experienced fraud or scams; I have problems paying with my preferred method*; other
Source: McKinsey & Company Global Digital Sentiment Insights: survey results for Europe

Case studies

Adoption of e-government

During the pandemic, the Polish government supported the development of telemedicine by providing public and private healthcare entities with financing for IT and telemedicine equipment. Their objective was to facilitate remote access during the pandemic and speed up the digital transformation of healthcare. Electronic prescriptions became obligatory in January 2020—one of the most important steps towards the end-to-end digitization of healthcare in Poland.[294] According to a survey of patients published in late 2021, more than 72 percent now prefer electronic prescriptions, due to their convenience.[295]

GovTech—Singapore's Government Technology Agency—uses a data-driven approach to ensure simplified journeys for both businesses and individuals. This approach ensures that service recommendations are customized for different user profiles.[296]

Singapore has fully digitized its process for registering a company, shortening the time required to complete the process and automatically issuing notices of incorporation to corporate secretaries.[297] For citizens, the public platform bundles services based on life situations, with offerings for young families and seniors, through its Moments of Life app.[298]

Denmark has national websites for citizens and businesses offering a range of convenient functions. For example, 92 percent of the population use the Digital Post secure messaging application to communicate with the government.[299] Danish citizens can use a single digital key, known as "NemID", to securely access more than a hundred different public services and, in addition, various private services—from signing up their children for kindergarten to paying bills via online banking.[300]

Digitizing government databases

Estonia was one of the first countries to implement the "once only" principle, which later gradually spread to many other European Union countries in one form or another. The Estonian Public Information Act, enacted in 2000, prohibited the creation of separate databases for collecting the same data. The name "once only" refers to the principle that users, whether citizens or businesses, only need to provide their data once when contacting government bodies; after the initial data transfer, different parts of government are permitted to share the data between themselves.[301] The European Union is currently supporting the implementation of similar solutions across different countries with its "Once Only Technical System". This enables the sharing of information between public administrations across EU borders, without citizens having to provide the same information separately to different public entities in each country.[302]

Digitize and leverage government databases

By digitizing government databases, policymakers can simplify the delivery of public services, reduce fraud and human error, and drive operational efficiency. Digital databases are particularly necessary as data is often dispersed across a fragmented landscape of registers and stored in formats that are hard to process.[303] This makes it difficult to use the data for decision-making, inhibits the progress of e-government, and provides citizens with little transparency as to how their data is used and stored.

In many countries, data was at the heart of managing the COVID-19 pandemic. Digitized data forms a foundation for the digital levers that enable resilience to crises, as we saw in Chapter 1. This is particularly true when digitized data used as the basis for large-scale analysis— for example, the European Union drew on local data on illnesses, recoveries, and vaccination rates from many different countries to create the EU Digital Covid Certificate.

Digitization is key to leveraging data and increasing the efficiency of government services

	Possible initiatives	Potential actions
Support public-sector digitization	Ensure effective digital transformation and governance	— Clearly articulate vision to all stakeholders, and keep it alive over time — Establish an efficient, cooperative model of work — Access and exploit digital talent, and train skills on the job — Embed security proactively as a strategic imperative — Raise awareness and incentivize the use of digital solutions among public-sector workers and citizens — Ensure robust governance going forward, with a focus on clear accountability and continuous improvement; can be supported by an international governmental body to strengthen cooperation in the digital space across the region
	Speed up adoption of digital public services	— Further grow the availability of public services online, both for individuals and businesses — Enhance the experience of users of digital public services by aggregating services on one platform, ensuring a seamless journey, and incorporating functionalities such as Digital ID as an authentication method — Support adoption by the population, e.g. by educating about e-solutions at in-person touchpoints with citizens — Encourage adoption by business, e.g. by launching educational campaigns for business owners and ensuring all the functions business needs are on one platform
	Increase digitization of public-led industries	— Digitize processes to improve efficiency in industries under government influence, such as education, healthcare, and pharmaceuticals
	Digitize and leverage government databases	— Aggregate government data into centralized, structured digital formats — Take on the role of reliable data provider, including distributing data for third-party entities and businesses for analytics — Exploit data in policymaking and actions in public-led industries — Use data to create a smoother, more holistic experience for citizens when using digital public services — Invest in digitization of back-end government processes

Further develop digital infrastructure

Expanding digital infrastructure is a foundation for digital growth, affecting businesses, government, and individuals. Initiatives in this area include ensuring high levels of cybersecurity, investing in digital infrastructure, and ensuring capital availability.

Ensure high levels of cybersecurity

Cybersecurity has commonly been seen as a never-ending race—and now the rate of change is accelerating.[304] Trends on the horizon that may need a response from policymakers include:

— High-speed transfers of large datasets, exacerbating the likelihood of breaches

— Hackers using advanced tools in increasingly sophisticated attacks

— An ever-growing regulatory landscape and continued gaps in resources, knowledge, and talent that threaten to outpace cybersecurity[305]

A McKinsey survey of cybersecurity maturity carried out in 2021 found that approximately 70 percent of companies did not yet have a mature approach, with industries such as telecommunications and media showing the greatest room for improvement.[306] Cybersecurity can be expected to further increase in importance, as costs related to cyber-crime may rise by 15 percent a year in the future.[307] This puts pressure on governments to work towards the provision of secure, trusted digital connectivity.

By creating cybersecurity standards, promoting awareness, and investing in secure infrastructure, policymakers can ensure a robust digital backbone for the country and its citizens. Cybersecurity contributes to increased business trust, which drives investment, and to increased consumer trust, which drives spending. Consistent policy-driven cybersecurity standards, such as two-factor authentication requirements for private-sector logins, can speed up the adoption of best practices and further highlight the importance of cybersecurity standards across the private sector. Cybersecurity awareness, such as campaigns explaining "phishing" or ransomware attacks, can increase constituents' vigilance with regard to cybercrimes. Investing in updating high-risk infrastructure, such as computer systems, can also reduce the risk of cyberattacks.

Invest in digital infrastructure

Connectivity and digital talent are prerequisites for the growth of the digital economy in Digital Challengers. Countries in the cluster have nearly closed the gap in the provision of core infrastructure (4G, broadband with speeds of at least 30 Mbps) and can now focus on enhanced broadband for ultrafast downloading, streaming, and exchanging data. Moreover, connectivity is expected to lie at the core of intelligent mobility systems (for example, public transit, car-sharing, vehicle-to-vehicle or vehicle-to-infrastructure communication) and to transform sectors such as healthcare (for example, at-home patient monitoring, large-scale data analysis leading to new treatments), manufacturing (for example, smart factories) and retail.

Policymakers can focus their attention on developing infrastructure that supports digital commerce and enacting suitable legislation. They can drive the installation of networks, broadband infrastructure, the IoT, and smart-city solutions via subsidies or direct government investment projects. Furthermore, they can support the growth of businesses operating in the area of digital commerce and develop distribution infrastructure, such as the national postal service and transportation infrastructure, that make digital commerce services more competitive and increase the breadth of distribution.

Ensure capital availability

Capital availability is another area with the potential to activate growth in Digital Challengers. While the startup ecosystem in the cluster is currently picking up speed, the region still has room for improvement in the availability of late-stage domestic investment, where it remains more reliant on international investors than other major European ecosystems.[308] Additionally, early-stage startups may not have the scale to attract international investors, and can be helped by increasing the availability of seed and angel-stage funding. Startups in the region can drive digital change: A large share of venture funding in CEE goes to sectors such as enterprise technology, marketing, and gaming. When unicorn companies extend their operations to foreign markets, they usually retain around 50–90 percent of their employment in CEE.[309]

Startups can make lasting contributions to society by bringing innovative, scalable products and services onto the market. These new ideas contribute to the growth of digital commerce through their superior value propositions; they also drive growth of the digital economy through their intellectual property (IP), which, if it is competitive on global markets, creates additional export potential. Startups' flat organizational structures and limited budgets tend to make their operating models agile, with shorter development cycles and faster product-testing than traditional or large enterprises.

Policymakers can support the digital startups and unicorns of tomorrow with policies that ensure capital availability and drive private investment in digital infrastructure. Actions aimed at activating capital availability range from promoting opportunities for businesses to simplifying procedures for obtaining funding. In direct funding areas, policymakers can begin with highly effective actions such as creating a funding pool for digital startups or contributing to grants for digital transformation. To provide increased access to existing funds, they can implement digital procedures for obtaining funds, such as digital applications and payment transfers. Additionally, they can create centralized government websites with information not only on the funding available from their own government, but from broader funding pools such as the European Union, venture capital firms, and multinational corporations.

Connectivity can improve the lives of individuals, drive growth of businesses, and accelerate the economic development of countries

Provide digital infrastructure	Possible initiatives	Potential actions
	Ensure high level of cybersecurity	— Mandate consistent cybersecurity standards for businesses and organizations, such as two-factor authentication, scanning of remote infrastructure, endpoint protection and monitoring
		— Promote best practices in cybersecurity for citizens, e.g. through an online game explaining phishing or a mass text from government reminding citizens about key practices such as password changes
		— Invest in updating high-risk public infrastructure, such as large datasets with broad access, outdated computing systems
	Invest in infrastructure for digital economy	— Invest or incentivize investment (in case of privately-owned providers) in broadband networks to increase coverage and quality of infrastructure
		— Set targets for quality and coverage of infrastructure, prioritizing underpenetrated areas
		— Invest in advancement of IoT and smart cities in areas such as smart mobility and energy provision
		— Create knowledge hubs to encourage cooperation and facilitate innovation
		— Invest in infrastructure supporting the development of digital commerce, such as the quality of postal services to increase quality and competitiveness of fulfillment networks
	Ensure capital availability	— Create government fund pools for key digital initiatives
		— Simplify and educate about procedures for obtaining funds, e.g. applying for angel investment or venture-capital funds, authenticate crowd-funding websites
		— Help businesses obtain government or EU digital funds as part of programs such as the Recovery and Resilience Facility digital allocation, European Social Fund Plus

Case study

Denmark has established a centralized government website called "Invest in Denmark", with special web pages and government contacts dedicated to foreign investment in ICT.[310]

Denmark already has strong, steady demand for ICT products. In 2021, the country ranked third out of 130 economies in the Network Readiness Index.[311]

Implications for business leaders

Digital is a critical, top-of-mind issue for companies—93 percent of executives in McKinsey's Digital Quotient Survey believe that it is critical for achieving their strategic goals.[312] However, only 15 percent of executives have embedded digital technologies in more than half of all their businesses.[313]

With the emergence of digital technologies such as AI, the IoT, and AR, new application areas are being developed throughout the value chain. That means that digital is becoming part of every aspect of business. Companies need to embed digital at their core to remain competitive and reap the benefits of technological opportunities.[314] The changes they need to make will differ from company to company—but those changes are of fundamental importance if the company wishes to retain or improve its position in the market.

Companies at the forefront of the digital revolution enjoy a stronger financial performance than other companies: On average, their five-year revenue CAGR is 3.5 times as high as other firms.[315] Digital pioneers also increase their resilience—the ability to withstand unpredictable threats or adapt to change and emerge stronger. Resilience is an essential advantage during economic downturns and periods of recovery.

Our analysis on the financial crisis of 2007–08 shows that resilient companies navigated the crisis better and enjoyed a stronger financial performance than non-resilient companies.[316] Between 2008 and 2011, TSR (total shareholder return) at resilient companies grew at an annual rate of 32 percent, compared to 14 percent for non-resilient companies. This led to resilient companies generating almost three times more TSR in 2011 than non-resilient ones.

This situation, driven by disruption, where only a few players remain in the market on a long-term basis, is something that we have witnessed in many different industries. In automotive, PC manufacturers, televisions, and penicillin, to name but a few examples, the number of producers peaked and then fell by 70–97 percent.[317] But digital is different: Here, the disruptions are coming faster and harder. As a result, to cope with the pace of change, business leaders need to be nimble and build resilience.

In this section we focus on five implications for business leaders to focus in the future: they should focus their attention: improve digital customer-centricity, create value from digital ecosystems, invest in data capabilities, master the omnichannel supply chain, and increase export sales.

Our analysis of the last recession shows that resilient companies generated more TSR than others during the downturn and recovery

Total shareholder return (TSR)[1]
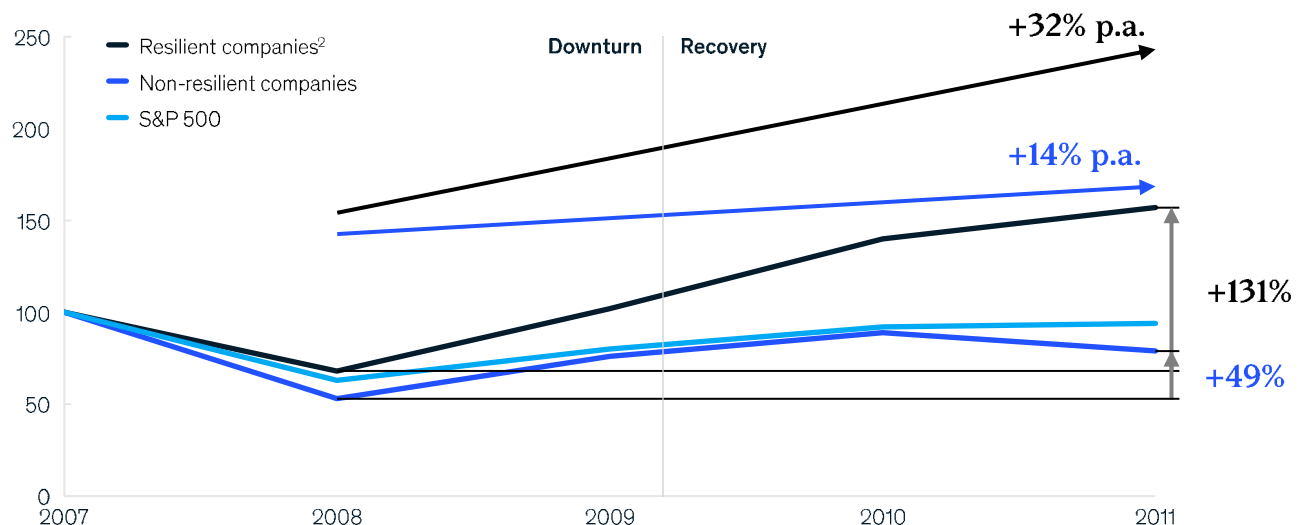
Note: Analysis excludes financial companies
[*] Calculated as average of sub-sector median performance of resilient and non-resilient companies; includes 1,140 companies (excl. FIG & REITs)
[2] Resilient companies defined as top geometric mean TSR quantile by sector
Source: "Bubbles pop, downturns stop," bobmorris.biz, 2019; CPAnalytics; McKinsey analysis

Improve digital customer-centricity

Redefine the omnichannel approach

Offering a riveting omnichannel experience has long been at the forefront of technological advances in retail—indeed, in many cases it is necessary for survival. However, unfocused efforts here can destroy value rather than enhance it. Business leaders should consider concentrating on the top two or three cross-channel customer interactions.

First, companies should identify the different categories of customers that they serve. Customers differ in their digital behavior, from those who fully integrate digital into their lives to those living completely offline. Advanced analytics can help firms use their customer interaction data to accurately understand customer intentions and behaviors across different channels. Business leaders should also bear in mind customers' tendency to use multiple channels and the importance of different journeys for different customers.

Once they know their customers, companies can focus on designing end-to-end customer journeys across online and offline channels. They can then single out the relevant channels for the different journeys and build functionalities that address them. One important factor enabling a personalized omnichannel experience is the free flow of information between the different channels in a specific customer journey.[318]

Before they implement their omnichannel strategy, companies need to invest in building the foundations—in other words, the factors that enable effective implementation. The first such enabler is increased agility. Many customer-care functions are currently approached in a traditional manner, focused on standardization. By contrast, "agile" empowers customer-care employees and managers to be nimbler, increases transparency, and generates ownership, creating a truly customer-centric environment. The second enabler is giving employees the right skill sets in the area of service: Omnichannel requires a shift from execution to continuous improvement, and calls for true customer empathy.

For companies to achieve a superior omnichannel experience, customer-centricity needs to be embedded in the entire the organization, from the highest organizational level to the lowest one. One way to achieve this is to break down organizational "silos" and organize teams around different customer journeys. This brings agility to the way the company works and creates transparency over customers' concerns, across different functions.[319] Ideally, customer satisfaction measurements should cascade upwards, from the front line to management scorecards, and every employee in the organization should know the company's customers.

An organization can tailor its omnichannel approach by mapping each customer journey to a quadrant of the matrix and focusing on just two or three in the top-right corner

High

Propensity to use multiple channels

Low

Steer customers to channel(s) with the most efficient issue resolution while ensuring their basic functionality

Build/enhance functionalities of customers' preferred channels for these journeys

Ensure basic functionality of the channel

Ensure functionality of primary channel that creates moments of delight to optimize customer experience

Low ⟵ **Importance of journey to customers** ⟶ High

Get personalization right

Companies that successfully implement personalization see it as more than a marketing problem. They approach it from a holistic perspective, looking at the customer's lifetime value and adapting the organization so it can deliver on its personalization promise. Companies often focus their personalization efforts on the digital channel and neglect to implement it in physical channels, too. The challenge now is to make the journey personalized across both physical and digital worlds.

Companies that master personalization are highly skilled at understanding the key "influence moments" in the customer journey and identifying the desired business outcome for each—for example, increasing basket size during visits to a specific channel.[320] Moreover, they prioritize specific customer journeys, testing their ability to deliver value for the customer and the business. Only through repeated tests are organizations able to find the sweet spot for specific journeys and specific customer types.

To improve personalization in omnichannel, companies should focus on where digital and physical channels converge—for example, the point of sale (POS), tech-enabled or call-center associates, interactive screens, digital displays, and mobile apps. One prerequisite for personalization is the ability to identify the customer. Customers should be prompted to identify themselves by offering them a tangible benefit in return, such as personalized offers, free services, or an e-receipt. They can also be identified via location tracking on their app or through the use of wearable devices.[321]

Understanding customers and customer touchpoints is only the first step to getting personalization right. Equally important is using this information and making the right decisions on its basis. Machine-learning or AI-based integrated decisioning engines can help assess customers and provide real-time triggers for appropriate action. They also adapt and learn as they gather more and more customer data, and can optimize a company's sales metrics (important for inventory level), while responding increasingly effectively to customer needs.

Last but not least, having agile marketing teams that work cross-functionally is a best practice in omnichannel personalization. Usually, such teams will include data scientists, marketing specialists, marketing tech experts, touchpoint-specific product leaders, on-site operations managers, and hardware and software technology experts. The most successful agile teams focus on specific consumer segments or journeys—such as "new shopper", "shopper returning a product"—and gather feedback from customers on new services, offers, and experiences, in a process of rapid learning and adapting.[322]

Personalization is common in the online customer journey, but less so for in-person shoppers

The online journey is becoming increasingly optimized and personalized

Pre-visit (awareness)	✓ Targeted display advertisements
	✓ Personalized emails
During visit (conversion)	✓ Personalized journey with recommendations
	✓ Tracked browsing behavior
Post-visit (deepening engagement)	✓ Site tracks cart abandonment and resurfaces those products
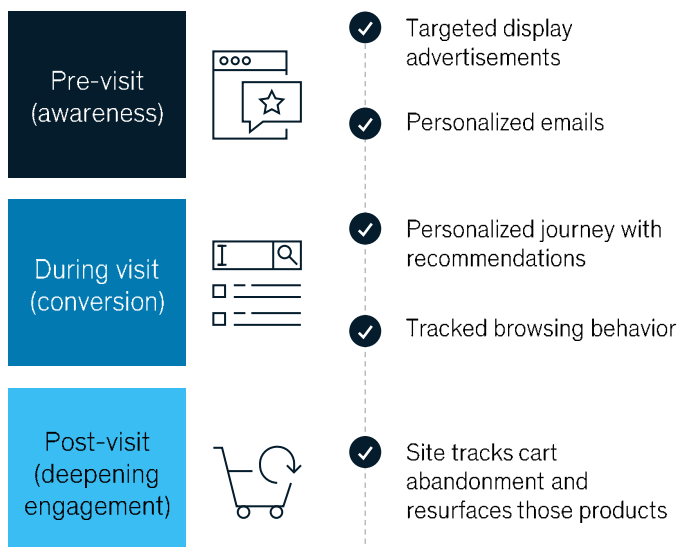
Omnichannel journeys have gaps, which lead to missed upsell and conversion opportunities

- ✕ Customer sees generic displays
- ✕ Customer arrives at generic storefront, often not acknowledged
- ✕ Customer browses through items, but no data is collected to generate recommendations
- ✕ If no purchase occurs, no data is collected
- ✕ Customer information sometimes received at end of purchase

Digital touchpoints can play different roles to personalize the in-person journey

Journey		Mobile app	Digital displays	Interactive screens	Tech-enabled associates[1]	Point of sale
Pre-visit (awareness)	Drive traffic	Personalized location-based notifications	Personalized context specific ads			
During visit (conversion)	Increase conversion	In-store guidance and augmented reality experiences	Smart shelves and dynamic displays	Browse, compare, and receive recommendations Virtual try-on/ augmented reality	Guided browsing and product recommendations	
During visit (conversion)	Increase basket size	In-store recommendations Complementary products at checkout	Smart shelves and dynamic displays	Add-on options based on behavior and purchases; suggest bundles of items	Suggestions for complementary products based on purchase history	Restock of past purchases Add-on options based on past purchases
Post-visit (deepening engagement)	Increase retention/ repeat purchase	Reminders on app of in-store events and relevant notifications				Send follow-up content about purchase and personalize future orders

[1] May also include call-center associates

Combine CX with design

In the past, companies could count on a product's superiority in terms of its functions and features would give them an edge over competition for at least a year.[323] Today, digitization increases the frequency with which disruptions occur. Moreover, with growing customer demands for convenience and personalization, the boundaries between products, services, and user environments is becoming blurred. This leads to a growing number of new products and a new set of competitors, with product-focused companies creating services and service providers offering products. For example, Evernote (an app designed for note-taking) and Moleskine (an Italian manufacturer of luxury notebooks) have both created notebooks that let physical notes be organized digitally in an app, while Amazon, formerly only present in the digital channel, has opened its first physical stores.

As the lines get increasingly blurred, companies should consider combining traditional customer experience (CX) practices with user experience (UX) design processes when mapping out journeys. UX design processes include research, opportunities definition, idea generation, and prototyping. These processes should not take place in a separate design team, but rather be integrated with the CX team.[324]

Making the connection between design and the wider CX team upfront has two benefits: On the one hand, it ensures that the redesign of specific touchpoints relates to the end-to-end customer experience, while on the other, it secures the business's ability to support the proposed changes and create impact. Their upfront cooperation transforms the end-to-end experience, not just a single element.

To achieve this goal, design thinking needs to be embedded at every step of the journey. Unlike the traditional CX process, a combined CX-design approach puts greater emphasis on making the customer the center of everything, adding a layer of empathy and an understanding of underlying motivations. Moreover, design-empowered prototyping goes beyond the traditional CX process, it is focused on customer pain points and exploring alternative solutions that go beyond incremental improvements.

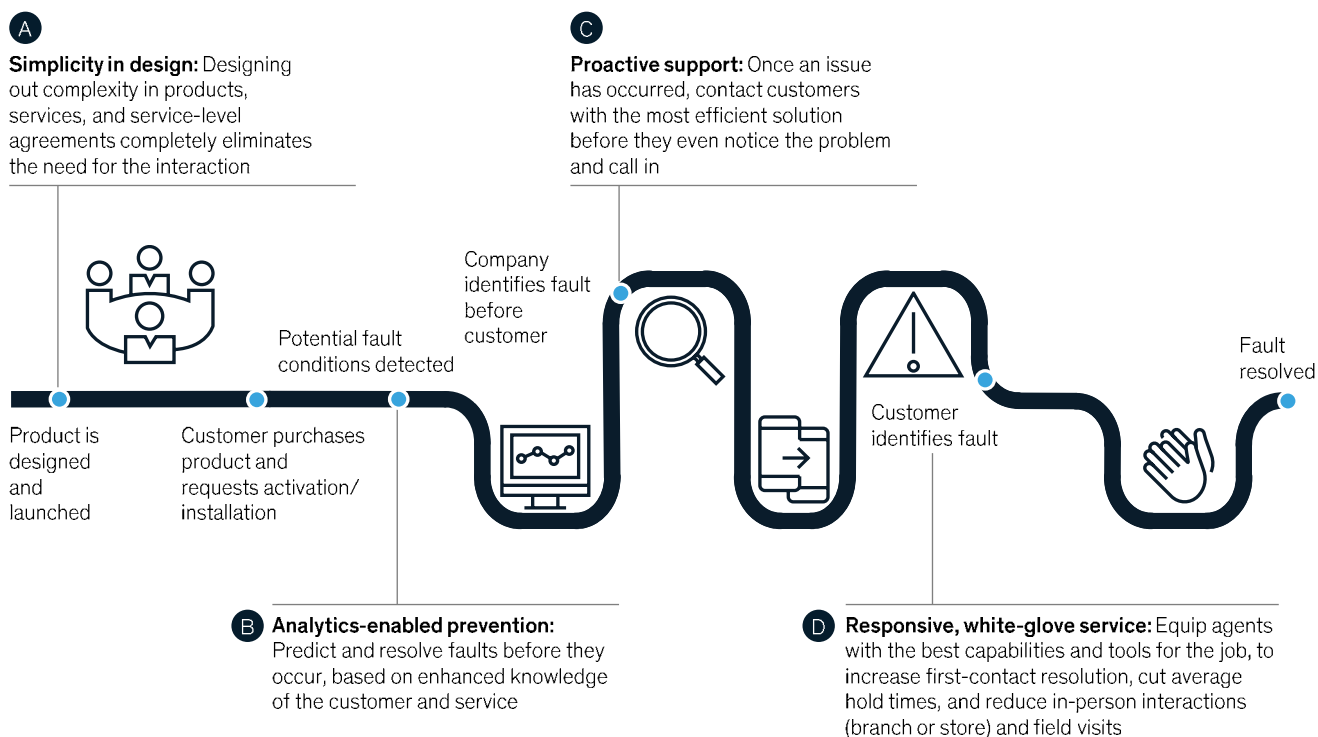# Design thinking is infused in each step of the business transformation

Discover customer needs

Design solutions and redesign journeys

Deliver impact

Research the need (e.g., customer and corporate team interviews, process insights)

Define Opportunities (research analysis, insight generation)

Ideate and shape possible solutions

Prototype test, and iterate solutions

Launch and scale an MVP (minimal viable product) version of the concept continue testing to support gradual improvement and scaling

Ensure next-level consumer service

The most efficient way to reduce customers' need to interact with a call center or a self-service digital channel is to eliminate the need for that interaction in the first place. This means that companies should, above all, focus on reducing the complexity of their goods and services. Digital tools, such as advanced analytics, can also be valuable for companies, as they help them anticipate customer problems and take action to address them before they even happen. Companies should take every opportunity to deliver a better customer experience and improve their efficiency. Upstream solutions should be a priority: They are more convenient for customers and more cost-efficient for companies.[325]

Every opportunity can be addressed, with a preference for upstream solutions

A Simplicity in design: Designing out complexity in products, services, and service-level agreements completely eliminates the need for the interaction

C Proactive support: Once an issue has occurred, contact customers with the most efficient solution before they even notice the problem and call in

Company identifies fault before customer

Potential fault conditions detected

Fault resolved

Product is designed and launched

Customer purchases product and requests activation/ installation

Customer identifies fault

B Analytics-enabled prevention: Predict and resolve faults before they occur, based on enhanced knowledge of the customer and service

D Responsive, white-glove service: Equip agents with the best capabilities and tools for the job, to increase first-contact resolution, cut average hold times, and reduce in-person interactions (branch or store) and field visits

One consequence of the increased use of social media is that customer service is no longer a private affair between the company and the individual customers. Customer service interactions now take place in front of an audience of potentially millions of people. This leads to reputational risk, but it also creates great opportunities for businesses. Digital-native companies have set the tone for customer service: Consumers now expect rapid responses, 24/7, through convenient channels. And the approach to customer service on social media must, of course, be different to that used in traditional channels.

Social media encompass different platforms with different demographics, so companies need to differentiate between customer groups; treating all customer-service interactions on social media the same is a precursor to failure. Companies need to map the customer journey workflow, exploit supporting technology, and develop an end-to-end strategy for different service levels.

The leading companies at social-media customer service use text mining and intent engines to address simple customer queries through auto-responses, while their customer service teams handle more complex queries. Within their customer service teams, specialized staff manage posts by highly sensitive users and influencers. Integrating the social-media platform with the CRM system is an essential step in ensuring a consistent omnichannel customer service experience.[326]

The best-practice social media service journey is enabled by intelligent workflows, tech, and AI

Journey from customer posts to resolution

Gathering posts

Workflow begins with 24/7 text mining of social media platforms

→

Collecting customer info

Social media webform collects contact info

→

Allocating requests

Intent engines automatically segregate simpler customer posts from more complex ones; rule-based system automatically allocates to teams

→

Assigning responsibility

Main social media team managers business-as-usual posts; specialized "social experts" manage influencers and sensitive posts

Mitigating future problems

Self-help videos, customer stories, public-awareness campaigns build awareness and trust

←

Monitoring responses

Social analytics-based real-time cockpit view alerts teams to responses and follow-up requests

←

Dealing with complex requests

Predefined response templates reduce work requirement; prioritized access to other functions and automated workflows speed up resolution

Companies need to embed digital at their core to remain competitive and reap the benefits of technological opportunities

	Possible initiatives	Potential actions
Increase digital customer-centricity	Redefine the omnichannel approach	— Find the right cross-channel journeys to prioritize — Map service journeys and design for the channels that matter — Invest in foundational enablers, such as agile ways of working and developing workers' skillsets — Embed a customer-centric mindset by democratizing consumer insights and measuring customer satisfaction
	Get personalization right	— Address digital touchpoints to help activate personalized experiences in the physical environment — Use an omnichannel decisioning engine to deliver experiences and measure performance — Implement agile operating practices to promote joint ownership of the customer journey
	Combine CX with design	— Use both customer experience (CX) and user-centered design processes to create compelling user environments across journeys — Link customer journeys with broader business objectives — Embed design-thinking in every step of the journey
	Ensure next-level customer service	— Transform your customer operations, making them simple, predictive, proactive, and responsive — Shift your social media to a full-service channel — Develop best-in-class social-media servicing

Create value from digital ecosystems

Ecosystems of different shapes and sizes have existed for a long time, enabling users to have their cross-sectoral needs met. The importance of digital ecosystems grew during the COVID-19 pandemic, however, when consumers moved in large numbers to digital channels. This trend continues today: By 2030, we estimate that the ecosystem economy could account for 25 percent of the total economy—up from 1–2 percent today.[327]

Today's leading ecosystem players are tech companies that have used their platforms to substitute traditional players' offerings. They have done so by taking control of the customer interface and other control points, such as search, messaging, and advertising.

Ecosystems integrate customers from different industries or sectors and offer products that a single company could not offer on its own. In this sense, they can be considered next-level product bundles. Through their AI-driven access to a larger pool of customers, ecosystems can understand customers better, generate more targeted offerings, and provide a more consolidated value proposition. "Cloud-as-a-service" has also been a great enabler here, allowing new partners to plug easily into ready-made ecosystems. The benefit for customers is that can access a wider range of products and services through a single access point—the ecosystem.

Ecosystem design should start with understanding customers and agreeing on a value proposition. To achieve this, companies need to identify relevant consumer needs and, once again, map the customer journey. This is a prerequisite to understanding the customer experience within the ecosystem. One takeaway from previous attempts at building ecosystems is that very few companies have managed to create ecosystems that yield significant value. A common pitfall is that companies focus on incremental improvements within their normal business constraints, rather than trying to identify new opportunities that the ecosystem partners can address collectively. Ecosystems provide great value-generation opportunities, but they are not a quick fix: They require long-term strategic thinking and investments in the partnership.

Ecosystems help companies understand customers better, generate better offerings, and capture additional value

	Possible initiatives	Potential actions
Creating value from digital ecosystems	Build a digital ecosystem	— Start the ecosystem design with understanding customers and agreeing on the value proposition — Focus on identifying unfamiliar opportunities that can be addressed collectively by the ecosystem partners — Think of the ecosystem as a long-term strategic investment

Invest in data capabilities

Adopt artificial intelligence

In the previous sections we have frequently mentioned AI, machine-learning, and data analytics as key enablers of omnichannel and personalization. The problem is that companies think of AI as the core of their organization, rather than as a use case for selective improvements. They may consider internalizing, at an organizational level, the strategic long-term benefits of supplementing human decision-making and adapting their operational and business strategies on the basis of data. The top use cases for AI in companies that have embraced the technology are service operations, product development, and marketing and sales.[328]

Top AI use cases cover a range of functional activities

Most commonly adopted AI use cases[1] by function, % of respondents

Use case	%	
Service-operations optimization	27	Service operations
New AI-based enhancements of products	22	Product and/or service development
Contact-center automation	22	Marketing and sales
Product-feature optimization	20	Risk
Predictive service and intervention	18	
Customer-service analytics	17	
Creation of new AI-based products	17	
Customer segmentation	16	
Risk modeling and analytics	16	
Fraud and debt analytics	14	

[1]Out of 39 use cases. Only respondents who said their organizations had adopted AI in at least one business function were asked the question
Source: *The State of AI in 2021,* McKinsey Global Survey

Across functions, respondents reported bigger cost decreases from the adoption of AI in the first year of the pandemic, while revenue increases continued steadily

Revenue increase from adoption of AI by function, % of respondents[1]

■ 5% increase ■ 6–10% increase ■ 10%+ increase

	Fiscal year 2019				Fiscal year 2020			
Service operations	25	19	13	57	34	16	15	65
Manufacturing	43	18	10	71	38	15	10	63
Human resources	35	11	10	56	30	18	15	63
Marketing and sales	43	26	10	79	38	25	11	74
Risk	33	16	19	68	26	25	13	64
Supply-chain management	38	26	8	72	27	15	12	54
Product and/or service development	30	19	16	65	30	25	15	70
Strategy and corporate finance	36	24	13	73	33	32	2	67
Avg. for all activities	36	20	10	66	33	21	13	67

[1]Only of respondents who said their organizations had adopted AI in a given function were asked the question. Respondents who said "no change," "cost increase," "not applicable," or "don't know" are not shown
Source: *The State of AI in 2021,* McKinsey Global Survey

The analysis shows that business functions using AI report revenue increases from inventory and parts optimization, pricing and promotion, customer-service analytics, and sales and demand forecasting.[329] Many companies also see results at wider organizational level, particularly those using AI at scale.

As the technology has matured, so new solutions and roles have emerged within organizations. Data engineers and machine-learning engineers have become vital for the rollout of AI at scale. Technologies have automated data-monitoring and live application updates. Open-source solutions have helped organizations by providing proven workflows—for example, Airbnb and Netflix, among others, share their work in developer communities. Moreover, a different way

of working has emerged, known in AI as machine-learning operations (MLOps), like DevOps in software engineering. This standardizes and automates work.[330] MLOps leads to higher productivity, with an average application development cycle from ideation to live solution of just three months.

Implementing MLOps has two additional value-adding benefits for companies. First, it reduces human or manual errors. And second, it helps companies attract talent—one of the biggest challenges for companies trying to scale AI. The value proposition for talent offered by organizations implementing MLOps is that their job now involves solving challenging analytics problems, rather than carrying out transactional tasks such as data cleansing.

Machine-learning operations (MLOps) establishes key practices across the application lifecycle that increase productivity, speed, and reliability and reduce risk

AI/ML[1] application lifecycle

Data management	Development	Deployment	Live model operations
Ensure data availability, quality, and control to feed the AI system	Streamline the development workflow to improve productivity, collaboration, and maintenance	Standardize processes and provision tooling to optimize the deployment of models to the live environment	Maintain reliable model performance and drive continuous improvement

Enablers supporting every phase

Technology stack

Provisioning the environment and tooling to optimize workflows

Compliance, security, and risk

Establishing processes, governance, and tooling to control the AI system

Assetization

Creating reusable components to increase efficiency and reduce risk

People

Ensuring the right talent mix and operating model to execute best practices across the AI lifecycle

[1] Artificial Intelligence and machine learning

A different kind of cybersecurity

As organizations digitize, IT teams face conflicting pressures. On the one hand, they need to develop digital innovations fast; on the other, they must protect the organization against cyberthreats. To avoid becoming the bottleneck in the digitization process, cybersecurity teams can embed cybersecurity into the value chain of the business and employ an agile, cloud-based operating model, aligning with product development teams to generate digital customer experiences that are both convenient and secure.[331]

In many companies, cybersecurity services have been established at company level. In this way, the company can consolidate all activities related to cybersecurity into a single team, assess the risk appetite across the company, and minimize security gaps. This makes it possible to establish company-wide policies and standards—which is important, as governance structures to ensure time-to-market and cost can be just as important as risk and security. Aligning business development with cybersecurity teams also minimizes missed business opportunities, as both teams develop new capabilities simultaneously, avoiding delays in time-to-market due to cybersecurity. It also reduces vulnerabilities where the development team might be tempted to bend the security rules.[332]

Traditionally, cybersecurity decisions were made based on the judgment, intuition, and experience of managers. Today, as the number of assets to protect has increased, companies are employing quantitative risk analytics based on behavioral metadata to preempt insider threats and safely allocate user access to critical systems. In addition, leading companies build cybersecurity along their entire value chain, from suppliers to customer relationships, ensuring that the cyber-risks that arise at every step are addressed through advanced business capabilities.

Achieving the IT transformation necessary to support a company's digital aspirations requires enabling an agile, cloud-based operating model. Among other things, this means companies moving away from ticket-based interfaces towards APIs for security services, organizing security teams into agile Scrum teams, recruiting product owners for security services, and building cloud-native security models.[333]

Supply chain

Legend: → Product flow — — Data flow ● Advanced business capability ● Resulting cyber risks

Dynamic, cloud-based network optimization

Suppliers → Bulk manufacturing → Finishing and packaging → Smart-warehouse distribution center → Customers
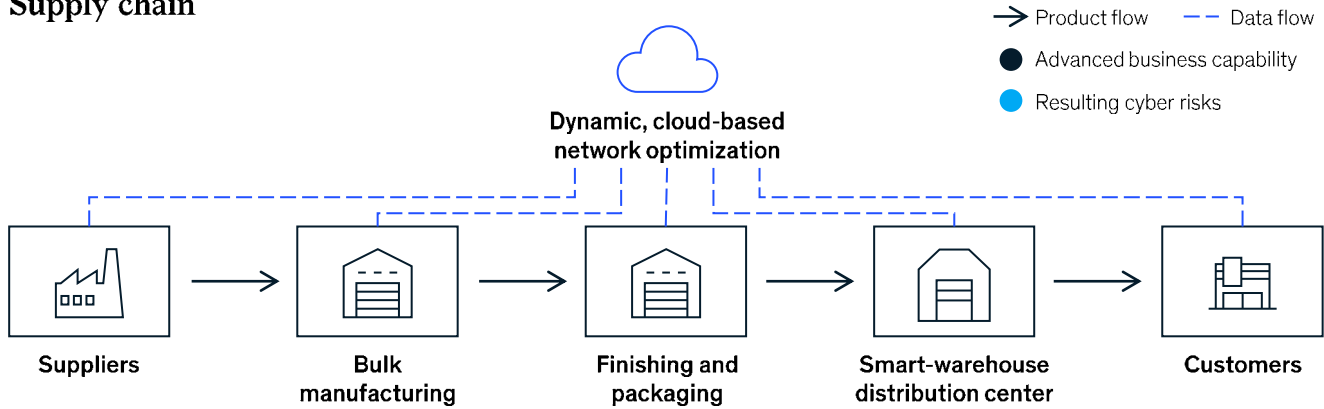
Suppliers
- Predictive supplier risk protection
- Risk of exposed vendor details and trade secrets

Bulk manufacturing
- Yield optimization through advanced analytics and digitized operations
- Hacking of legacy equipment
- Unauthorized changes in safety or compliance regulations
- Loss of intellectual property and competitive advantage

Finishing and packaging
- Fully integrated and automated production
- Attack on process, leading to shutdowns or errors
- Transition from closed to open systems prompts new security risks

Customers
- No-touch order management
- Leak of customer data, leading to loss of customer trust and competitive data

Overarching technologies
- Machine-learning forecasting and integrated production-planning
- Inaccurate business decisions and bad-actor access
- Real-time monitoring
- Unauthorized monitoring of processes and leakage of business decisions

Use data to achieve business impact

Data is a strength for companies—if they have the capacity to capitalize on it.[334] In other words, companies need not only to excel at collecting data, they need to have the business processes and technical capabilities required to analyze, visualize, and apply the insights it provides. Successfully applying data insights in the business context relies on having the right, digitally-skilled human capital and the right, cross-functional, agile organizational setup.

Data is valuable across business functions—but within the context of commerce, sales is the key area that business leaders want to grow. Lead generation is key in any company trying to expand its market share. In digital channels, the ability to find new customers, sell the right products to the right customers, and increase retention is complex and cannot be solved with traditional ways of working and tools. What separates market leaders from the rest is the way that they systematically maximize the value they get from data. For example, leading companies use data-mining across functions along the sales funnel as a lever

in prioritizing business decisions and identifying growth opportunities.

Data and analytics are important not only for increasing sales, but for providing a better customer experience. Many companies have implemented advanced analytics in their customer service functions, but only a few are able to capture the full value of the data. The reason? Many companies use data analytics to understand the past performance of the call center, but not to predict future customer actions. If, instead, they used advanced data analytics to draw insights about future actions, customer service would become a strategic differentiator and the enterprise would likely achieve cost reductions, revenue growth, and increased customer satisfaction.[335]

Moving to a new way of working and increasing the use of technological tools needs a different way of managing employee performance, too. Rather than just focusing on meeting sales targets, leading companies tend to measure success by how well they build the capabilities that allow their people to use data analytics.

Capturing value from data requires excellence in all components of the "insights value chain"

Technical foundations			Business foundations		
Data ⊗ **Analytics** ⊗ **IT** ⊗			**People** ⊗ **Processes** =		**Value captured**

Insights value chain						
New data sources	Descriptive statistics	Cloud sourcing	Cultural change	Adaptation business processes	The insights value chain is multiplicative, that is, you are only as good as the weakest link in the chain
Orchestration of data	Classical predictive statistics	Horizontal scaling (No-SQL, Hadoop)	Data-enabled decision-making	Automation business processes	
Unstructured data	Machine learning	Analytical program languages	Role profiles	Data and analytics governance	
Privacy and legal considerations	Cognitive modeling	Data visualization	Organization	Cross-functionality	
Data security	Optimization	In-memory analytics	Analytics talent	Agile processes	
	Simulation	IT stack		Ecosystem management	

Develop human capital

In the future, AI may change ways of work. According to analysis by the McKinsey Global Institute, automation and AI will change the nature of most jobs, but not completely replace them.[336] With this in mind, executives in key functions can already start planning how their strategic workforce will keep up with technology innovation. They can effectively lead the transformations that their businesses require. Engaging in strategic workforce planning optimizes the current supply and future demand for capabilities, in line with strategic business priorities. Done early, companies can use a number of levers to build their workforce of the future: Their focus will be on attracting new talent ("buy") and developing existing talent ("build").

Analysis carried out by McKinsey & Company in April 2022 reveals significant skills gaps in the workforce in seven areas. These gaps are expected to become more severe over time.[337] For example, in Germany alone, 780,000 additional tech specialists will be needed by 2026 to meet demand, and globally more than three million

cybersecurity positions were unfilled as of 2020.[338] The most significant skills gaps are in DevOps, platform and products, automation, customer experience, cybersecurity and privacy, data management, and cloud. Finding tech talent is a challenge, as is retaining both tech and non-tech talent across functions.

Finding the tech talent a company needs requires a complete talent management strategy approach, focused on the experience of the end-user—that is, the candidate and later employee. Companies cannot afford to master just one aspect of the talent management process and neglect the rest: Everything from hiring to continuous development and career paths matters for attracting and retaining top talent. For tech talent in particular, the employer value proposition (EVP) is critical, particularly in the context of the shift towards new working models that allow talent to work remotely. Top tech talent can now access companies in geographical areas that they would never have considered before, and so local companies must improve their value propositions. Companies that attract top tech talent generally focus their EVPs

Companies can develop a workforce-priority grid to identify what roles to build, buy, and partner within the organization

Workforce-priority grid

Core to business priorities

Core roles
(capabilities that are higher priority for the business)

Non-core roles
(capabilities that are lower priority for the business)

Flexible

Urgent (<3 months)

Time constraints to fill role
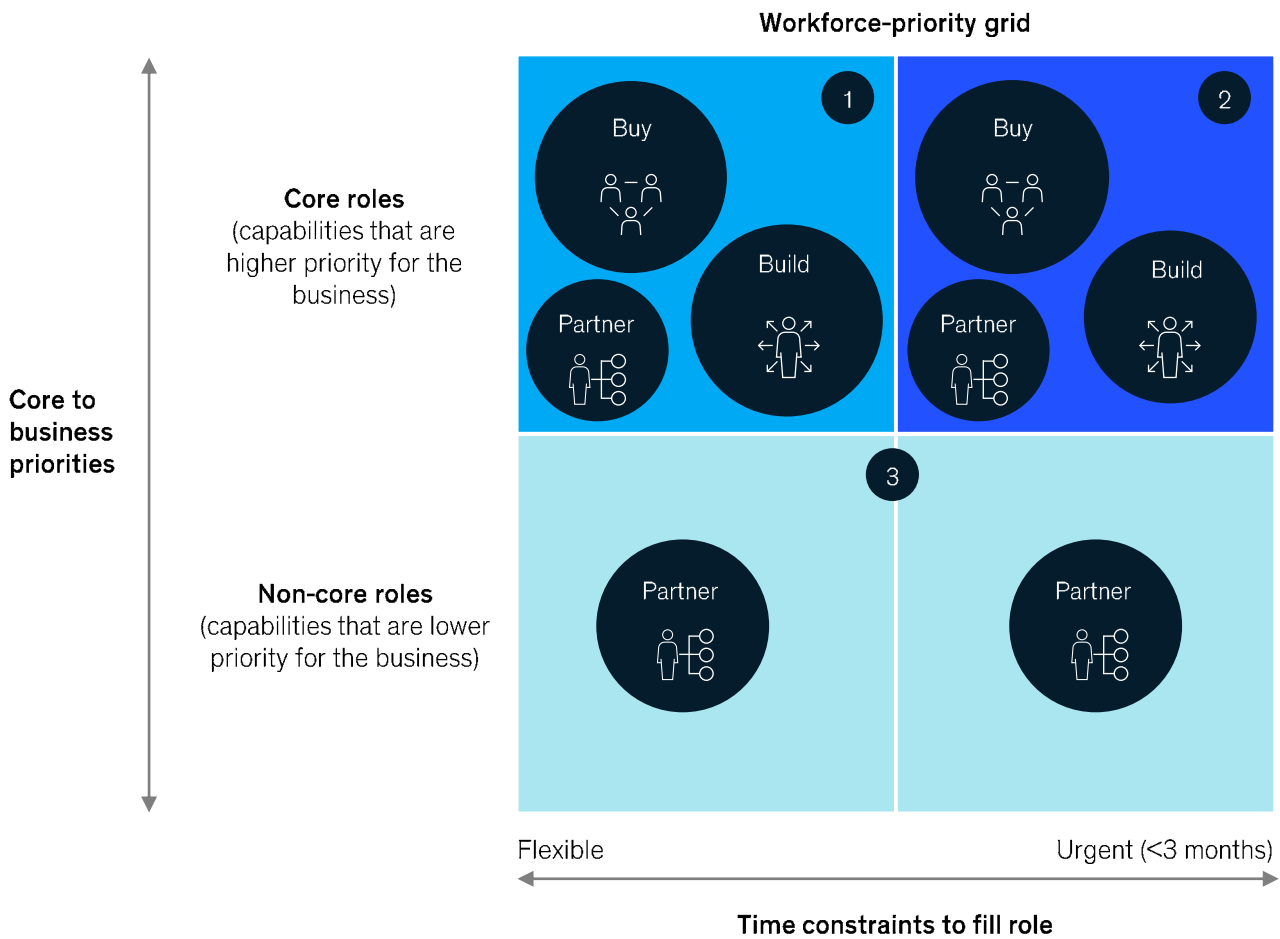
on a meaningful purpose, a technology-focused culture, and opportunities for staff to further develop their skills.[339]

Building talent is equally important, as digitization radically changes job profiles and requires investments in lifelong learning. Organizations need to identify skills gaps and set up measures to reskill the workforce. This process starts with identifying the digital talent within the organization, which may be scattered across different teams and functions, and selecting the groups most suited for cross-training. Skilling targets should be achievable in a predetermined, short period—no more than 18 months, for

example—and learning content must be directly applicable and tailored to the job in question. Reskilled employees should know their target position, as this increases motivation and focuses efforts; new capabilities should be trained and applied on the job. In our work supporting companies we see that this approach works well in practice: For example, one utilities company managed to scale up its agile capabilities in just six weeks, while an automotive supplier successfully launched a self-service project to bring big data analytics closer to non-IT employees in its business units.

Data capabilities are critical for supporting a company's digital aspirations

	Possible initiatives	Potential actions
Invest in data capabilities	Adopt artificial intelligence	— Think of AI as the core of your organization, rather than as a use case for selective improvements — Use machine-learning operations (MLOps) to enable the application of AI
	Implement a different kind of cybersecurity	— Consolidate all activities related to cybersecurity in a single team — Align business development teams with cybersecurity teams to minimize missed business opportunities — Employ quantitative risk analytics to make fact-based decisions about insider threats and user access to critical systems — Build cybersecurity along the value chain, including supplier and customer relationships
	Use data to achieve business impact	— Invest in your company's business processes and technical capabilities so you can analyze, visualize, and implement insights derived from data — Use data-mining to prioritize business decisions and identify growth opportunities — Use advanced data analytics to develop insights into future customer actions and turn customer service into a strategic differentiator
	Develop human capital	— Start planning your strategic workforce to keep up with technological advances and be able to lead the transformation your business requires — Invest in your employer value proposition (EVP) to attract and retain top talent — Identify the skill gap in your organization and set up measures to reskill the workforce

Master the omnichannel supply chain

With few exceptions, supply chains were built before the introduction of the omnichannel concept. As omnichannel grew in importance and popularity, companies started adding new capabilities on top of their legacy systems. Today, consumer demands with regard to delivery speed, costs, and individualization have reached new heights, requiring organizations to manage profound transformations of their supply chains. This entails an end-to-end redesign of the fulfillment process and a rethinking of the role of each step of the value chain from the perspective of enhancing the customer experience. Despite the growth of digital commerce, physical stores still have a strategic role to play in educating consumers about the product offering and strengthening the position of the brand, thereby enabling further digital growth. In 2020, for example, Nike opened a 2,400 m2 flagship store in Paris, called its "House of Innovation", giving consumers an offline destination that is digitally immersive.[340]

To achieve excellence in omnichannel, companies should prioritize the consumer segments that are most valuable to them—targeting all customers would be both inefficient and ineffective. Having selected the key consumer segments, they can then design value chains that meet customer demands. For example, a company can have a cutting-edge supply chain for their premium segment, focused on reliability and fast delivery, and an efficient supply chain for a different customer segment that accepts longer delivery times. To achieve this level of service personalization, firms need to find the right blend of partners, locations (nodes), and distribution centers, and ensure that information is shared across the value chain. For example, Zalando and Adidas have pioneered the concept of inventory

sharing by digitizing their stock inventory, with Adidas making same-day deliveries of orders placed on Zalando's website.[341]

These kind of transformational changes to the supply chain can only take place if all partners in the ecosystem collaborate to drive innovation. A change like this requires altering the current ways of working, shifting to a decentralized inventory, where algorithms for optimum inventory levels are used at each node of the supply chain. Moreover, planning tools and processes need to be digitized across channels to allow the information flow to be seamless.[342] Additionally, consumer-product companies should reevaluate their store layouts and processes, and also the flow of digital and offline orders. This is necessary because serving online and offline customers is different: For offline customers, distribution centers use truckloads or pellets as their units of measure, while for online customers, shipments are small or single units. Similarly, in-store deliveries are planned and booked in advance, while digital

commerce orders are more frequent and require last-mile delivery.

To fully capitalize on the benefits of omnichannel, companies need to rethink their processes, mindset, capabilities, and performance management system. Cross-channel omnichannel teams can break down barriers and thinking in "silos", and also take ownership for customer service and inventory optimization across channels. The company's organizational structure needs to allow strong collaboration with supply-chain partners, with clear end-to-end responsibility. For example, one leading apparel and footwear player has set up "city teams" that are responsible for everything from supply management to cross-channel inventory management.[343] Last, but not least, the transformation is best achieved by means of an agile approach, allowing the company to test, learn, and improve before scaling the solution across products and customer segments.

To fully capitalize on the benefits of omnichannel, companies need to rethink their processes, mindsets, capabilities, and performance management system

	Possible initiatives	Potential actions
Mastering the omnichannel supply chain	Build an omnichannel supply chain	— Redesign the end-to-end fulfillment process and rethink the role of each step of the value chain in enhancing the customer experience
		— Prioritize the consumer segments most valuable to you and design the value chain for them
		— Create cross-channel omnichannel teams to break down "silos" and take ownership of optimizing inventory and customer service

Increase export sales

As discussed earlier, increasing exports could contribute significantly to the GDP of the Digital Challengers cluster: The estimated value potential if all countries were to reach the current Czech and Romanian export levels is € 8 billion. To unlock this value, it is not enough for policymakers to enable cross-border trade, however—companies also need to double down on selling their goods and services abroad.

Companies, especially SMEs, need to be careful when considering setting up an export strategy, checking whether their offering portfolio is

suitable and developing a perspective on how they could enter foreign markets. Next, they need to develop the required knowledge and operational capabilities to carry out exports, such as understanding foreign laws and taxation, building the required language skills, and developing the necessary IT infrastructure. Additionally, they need to identify potential partners—for example, payment providers and logistics companies—to support their export operations in the target geographies, and then work with them to set up key processes and ensure a seamless customer journey.

Increasing companies' exposure to export sales can contribute significantly to unlocking additional value

	Possible initiatives	Potential actions
Increase export sales	Tap into new markets	— Set up an export strategy by assessing your product portfolio's fit with other markets and developing a perspective on market entry
		— Develop the required knowledge and operational capabilities to carry out export (e.g. IT infrastructure, skills, knowledge of regulations)
		— Identify potential partners (e.g. payment providers, logistics companies) to support your export operations in the target geographies

Implications for individuals

Sooner or later, digital advances will affect most areas of peoples' lives. Individuals are already adjusting. The COVID-19 pandemic accelerated the change, pushing them towards digital channels in areas ranging from home entertainment and staying in touch with friends and family to remote working. Digital fluency is becoming a requirement, not only in the world of work but in people's day-to-day lives.

People in Digital Challenger countries on average have a lower level of digital skills than in Digital Frontrunners and the Big 5. This gap is even bigger among older age groups. Yet, digital skills are a prerequisite for the successful implementation of digital solutions and services provided by public sector and businesses. Digital skills and solutions increase productivity for individuals, making daily tasks faster to complete. They also make life easier for people, whether it is in the area of work, day-to-day activities or leisure pursuits. For example, digital solutions in banking increase the transparency of finances, speed up currency exchange, and make it easier to access financial products. Similarly, digital solutions enable people to optimize their commutes, whether through efficient route planning on public transit or through on-demand taxi services via apps. Likewise, digital

entertainment services offer convenient access to platforms with a wide range of music, movies, and so on—and unsurprisingly recorded a spike in the first waves of the COVID-19 pandemic.[344]

Individuals will need to invest in developing their digital skills to meet the demands of a changing labor market. This affects not only people working in technical professions, but across industries. Besides joining training programs at work, people can take responsibility for developing their own digital skills, continuously updating their abilities in areas such as programming, cybersecurity, and data literacy—while at the same time strengthening any skills they may have that are not at risk of automation.

Digital advances also mean that many digital tools are now available to help people acquire new skills. Online, individuals can access global knowledge pools offering a wide range of materials and new learning methods. They can make use of digital content, such as online courses with recognized certifications. Digital technology makes apprenticeships more accessible, too, as it allows remote cooperation with specialists in different fields. And it can add significant diversity to online discussions, enabling real-time exchange with a wide group of individuals.

Closing remarks

The past two years have been a time of unrelenting change. Just as the CEE region was getting ready to leave behind multiple waves of COVID-19, the Russian invasion of Ukraine caused the greatest humanitarian crisis in Europe since World War II. It also unleashed new macroeconomic challenges for CEE—from inflationary pressure and strained supply chains to the challenge of welcoming a massive influx of refugees.

One clear lesson from the pandemic was that digitization not only enables economic growth, it provides resilience in times of crisis. Businesses and governments in CEE should aim to use digital technology to achieve that resilience in their infrastructure, economies, and populations. As this report shows, creating a digital future for Digital Challengers will be key to thriving in the aftermath of the recent crises, and in adapting to future ones. Digital Challengers can engage policymakers, businesses, and individuals in effectively navigating the digital transformation that lies ahead. That may be the way for the ten countries in the cluster to develop their digital economies and ensure continued growth for the region in the coming decades.

We hope that the data and analyses presented in this report shed some light on the potential for digitization across the region. We have laid out the facts concerning the digital economies of CEE countries, the region's fundamentals with regard to digital, and our future scenarios for the Digital Challengers' digital economy to 2030. The insights and analysis in this report can help policymakers, businesses, and individuals understand and consider the implications of an increasingly digital world—and then make informed choices.

Methodological appendix

Forecasting the digital economy

For the purposes of this report we created an overarching forecasting model, including a definition of the digital economy. This enabled historical data and benchmark comparisons, and allowed us to develop scenarios for the evolution of the digital economy and its components.

Sources of historical data

We used three key sources for historical data:

— The McKinsey Global Payments Map (GPM): McKinsey's proprietary database offers a perspective on B2C retail expenses by country, based on aggregated transaction-level data. It includes splits by countries (based on the location of the transactions), channels, verticals, and categories. We used this to build a detailed view of the makeup of the retail market. We also used it for digital commerce and offline spend on digital components

— The IDC ICT spending database: International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets. We used IDC's proprietary ICT spending database to create a perspective on the ICT component of the digital economy both historically and looking forwards

— Euromonitor: We used 2021 Euromonitor data to cross-check and confirm historical data and growth rates across all components of the digital economy, enabling us to carry out detailed country-level reviews of the key splits with key opinion leaders and experts. Additionally, we aggregated country-level statistics from Euromonitor, such as population size, GDP evolution, and inflation

Key assumptions for forecasting the digital economy of Digital Challengers

Digital commerce

Business-as-usual

— Penetration constant in 2022 and 2023 as a "cooldown" period ensues after COVID-19-induced outperformance

— Between 2024 and 2026, penetration rates in each Digital Challenger country grow in line with Digital Frontrunners' average growth rates between 2017 and 2019

— Penetration constant from 2027 onwards

Aspirational

— Between 2022 and 2024, penetration rates in each Digital Challenger country grow in line with Digital Frontrunners' average growth rates between 2017 and 2019; no cooldown period is assumed

— Digital Challengers' average penetration rate grows to 23.7 percent by 2030, equal to Digital Frontrunners' average growth rate (excluding Sweden, where COVID-19 did not significantly affect penetration rates); countries' relative penetration rates within the cluster are maintained for all countries, except from the Czech Republic and Romania, based on expert discussion and predicted rapid development of marketplaces

ICT

Business-as-usual

— All Digital Challengers grow at the historical CAGR for 2016–19

Aspirational

— Seven Digital Challengers (all countries in the cluster excluding Romania, Latvia and Lithuania) achieve the average ICT spend per capita of Digital Frontrunners by 2030

— Romania, which currently has below-average maturity among the Digital Challengers, achieves the ICT spend per capita of bottom half of Digital Frontrunners (considering ICT per capital level) by 2030

— Latvia and Lithuania grow in line with the Business-as-usual scenario due to their already advanced maturity compared to their global peers

Offline spend
— Euromonitor forecast until 2026

— Forecast CAGR for 2024–26 extended until 2030

— No difference between Business-as-usual and Aspirational scenarios

Methodology for export modeling
To understand the current export position of Digital Challenger countries, we estimated the total digital export of the countries (excluding Latvia) based on an analysis of web traffic data. We used SimilarWeb to review the traffic of the top five to ten digital commerce companies in each country, and based on the origin of visits, adjusted for bounce rates, we estimated the percentage of exports in the total production of goods sold through digital channels.

Complementing this view with services to cover the full breadth of our digital commerce definition, we used Hungary, which has a relatively balanced portfolio of goods and services, as a benchmark to estimate the value of services exports. This was necessary due to the lack of detailed data for each country. For Hungary, we used research by DKSZ[345] and data from Euromonitor to estimate the value share of goods in total exports at 55 percent.

To estimate exports to non-CEE markets, we again relied on SimilarWeb's traffic data. We estimated that non-CEE markets account for approximately 25–30 percent of total exports based on the origin of website visits. We used the share of visits from non-CEE countries as a benchmark.

About the authors

Amadeusz Andrzejewski

Associate Partner

Amadeusz is an expert in the field of advanced data analysis, data science, agile, IT transformation and building market entry strategies. He supports clients mainly in the telecommunications sector in the region of Western Europe and Central and Eastern Europe, as well as in the banking and insurance sectors.

Gergely Antal

Engagement Manager

Since joining McKinsey, Gergely has supported clients in Europe in Life Sciences and multiple industries beyond, focusing on strategy and digital topics related to the evolution of go-to-market models, customer value propositions and infrastructure. Gergely supported the development of multiple economic development reports published by McKinsey including *Carbon-neutral Hungary* in 2022.

Kamil Górecki

Senior Business Analyst

Since joining McKinsey, Kamil has supported clients in Europe in insurance and TMT, focusing on strategy and transformation. Prior to joining McKinsey he read mathematics at the University of Oxford.

Madalina Kmen

Associate

Madalina has supported clients in Europe in multiple industries, focusing on strategy, growth and digital topics. Prior to joining McKinsey, she attained over 6 years of diverse marketing and sales experience in large multinational companies, across automotive, retail and FMCG in Western and Northern Europe.

Tamara Kruczek

Junior Associate

Tamara's work has been split between consumer and insurance practices. She has supported clients throughout their journey from strategy design, master planning to implementation. She has worked with Polish and European companies mostly on topics of digital, logistics, communication and culture change management.

Milena Malinowska

Communications Specialist

Milena is responsible for external and internal communications in Poland. She has co-authored previous edition of *Digital Challengers* report. Previously she worked for major non-governmental business organizations, preparing and implementing communication strategies for flagship international business conferences.

Tomasz Marciniak

Managing Partner in Poland

Tomasz is an expert in the field of advanced analytics, strategy development, digital transformation, mergers and acquisitions. He has co-authored several reports by McKinsey & Company, including *The rise of Digital Challengers*, *Poland as a Digital Challenger*, *Shoulder to shoulder with robots, and The AI revolution*.

Jurica Novak

Managing Partner in CEE

Jurica advises clients from the financial, telecommunications, consumer goods, and private equity sectors mainly in the field of strategy development, including digital, corporate finance, risk management, transformation, and operational efficiency. He has co-authored several reports published by McKinsey & Company, including *The rise of Digital Challengers*, and *A new dawn: Reigniting growth in Central and Eastern Europe.*

Borys Pastusiak

Associate Partner

Borys supports clients in a wide range of areas, including building growth and digitization strategies, integrating enterprises after mergers or acquisitions, developing new products, improving sales efficiency, implementing organizational improvements, and optimizing operational processes. Borys has co-authored several reports by McKinsey & Company, including *Digital Challengers in the next normal.*

Marcin Purta

Partner

Marcin advises clients on growth strategies using advanced analytics and digital innovations in sectors such as technology, media, and telecommunications, retail, energy, and logistics. He has co-authored several reports by McKinsey & Company, including *Carbon-neutral Poland 2050, The rise of Digital Challengers, Poland as a Digital Challenger, Shoulder to shoulder with robots,* and *The AI revolution.*

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