

DISRUPTIVE TECHNOLOGIES AND E-COMMERCE FOR A LEAN TRANSITION TO THE POST-PANDEMIC WORLD

Ioan Matei, Purcarea¹

Abstract

Technology shifts can be challenging for most of the successful business models. The difficulty of switching one core technology for another has been frequently demonstrated. Only a quarter of efforts to find growth beyond core business succeed and Amazon is a great example of entrance on new markets with its digital services. Amazon announced at the beginning of 2021 the plans to enter the Polish Market, \$19 billion in value, taking advantage of the 10 logistics centers they have in the country that help process European deliveries. Amazon was planning on hiring additional 12,000 workers to the existing 18,000 ones in Poland by the end of 2020 right before the big news, while shares in the east European nation's e-commerce leader Allegro.eu significantly dropped. The paper analysis the way Amazon succeeded in entering the Eastern Europe market and how Amazon is positively impacting the eastern national economies that are currently under constant pressure caused by the COVID-19 pandemic.

Keywords: *Disruptive technologies, E-commerce, Amazon, COVID-19 pandemic*

JEL Classification: *D83, L21, M31, M37, O31, O33*

Introduction

The world is changing due to disruptive technologies like AI, Big Data, autonomous weapons systems, quantum technologies and biotechnologies, and therefore the way NATO operates. Alongside with other emerging and disruptive technologies (EDT), there are both opportunities and risks for NATO, as well as for Allies. This can be one reason why the Alliance is working with partners from public and private sector, civil society and academia, so as to develop and adopt new technologies, further as strengthening the Allied industrial base and maintain NATO's technological capabilities. The Alliance is additionally engaging with other international organizations, including the European Union and also the United Nations, to handle emerging and disruptive technologies. During this context, at the Brussels Summit which came about this year, as part of the NATO 2030 agenda, NATO Leaders came to the identical conclusion to launch a civil-military Defense Innovation Accelerator for the North Atlantic, and establish a NATO Innovation Fund.²

NATO's currently innovation activities concentrate on key strategic areas, identified as priorities in the Coherent Implementation Strategy:

- Artificial Intelligence (AI)
- Data and computing
- Quantum-enabled technologies
- Biotechnology and human enhancements
- Autonomy
- Hypersonic technologies
- Space

NATO's Innovation Board centralizes high-level military and civilian leadership from across the Alliance, being chaired by the Deputy Secretary General. The goal is to take a close look at new ideas outside the Organization, start discussion, adopt best practices and secure cross-NATO support for changes that will help the Organization permanently innovate. Thus, the Organization's Advisory Group on Emerging and Disruptive Technologies, established in July 2020, offers recommendations, and helps in developing EDT policy and manage innovation programmes.

¹ PhD student, Institute of National Economy, Romanian Academy, ioanmateipurcarea@gmail.com

² NATO, Emerging and disruptive technologies.

*NATO innovation bodies also consists of:*¹

- Allied Command Transformation (ACT) which holds capability development position for NATO and Allied militaries, currently working on a range of EDT-related projects, including: military-grade blockchain applications, unmanned autonomous vehicles, as well as artificial intelligence for military decision-making
- NATO's Science and Technology Organization (STO) carries on EDT-related research projects, such as augmentation technologies to improve human performance, medical systems for casualty evacuation, autonomous transport, and space weather environmental modelling
- Centre for Maritime Research and Experimentation (CMRE)
- NATO's Science for Peace and Security Programme (SPS)
- NATO Communications and Information Agency (NCIA)

The 2018 “NATO SCIENCE AND TECHNOLOGY: MAINTAINING THE EDGE AND ENHANCING ALLIANCE AGILITY - 183 STC 18 E rev. 1 fin” Special Report highlights the the fact that “defence technology gap between Allies must remain small enough to be bridged by interoperability”, problems need to be identified quickly and innovation streamlined through all the members of the NATO Alliance.²

At the 2021 Supply Chain Management for Efficient Consumer Response, Col. Prof. Tomasz Jałowiec from Management and Command Faculty, War Studies University, highlighted the fact that in Military and Civilian Logistics Cooperation the army needs civilians and civilians need an army.

A good example of the number 1 global ecommerce warrior that uses disruptive technologies to achieve some of the highest capitalizations in the world is Amazon, which also announced plans to enter the Polish Market at the beginning of 2021.

1. Recovery and resilience through digital transformation for a lean transition to the post-pandemic world

The Recovery and Resilience Facility, the biggest component of Next Generation EU, the landmark instrument of the European Union, makes 723.8 billion euros in grants and loans available to EU Member States in order to boost investments and reforms, with the purpose to mitigate economic and social impact of the current pandemic and make economies and societies more sustainable, resilient, and better prepared for the new challenges and opportunities of the twin transitions: Green and Digital.³



Fig. no. 1. Twin Transition: Green and Digital

Source: https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

¹ NATO, Emerging and disruptive technologies.

² Alleslev I., NATO science and technology: maintaining the edge and enhancing alliance agility

³ European Commission. Recovery and Resilience Facility.

Figure 2: Cross-country allocation of the grant component of the RRF

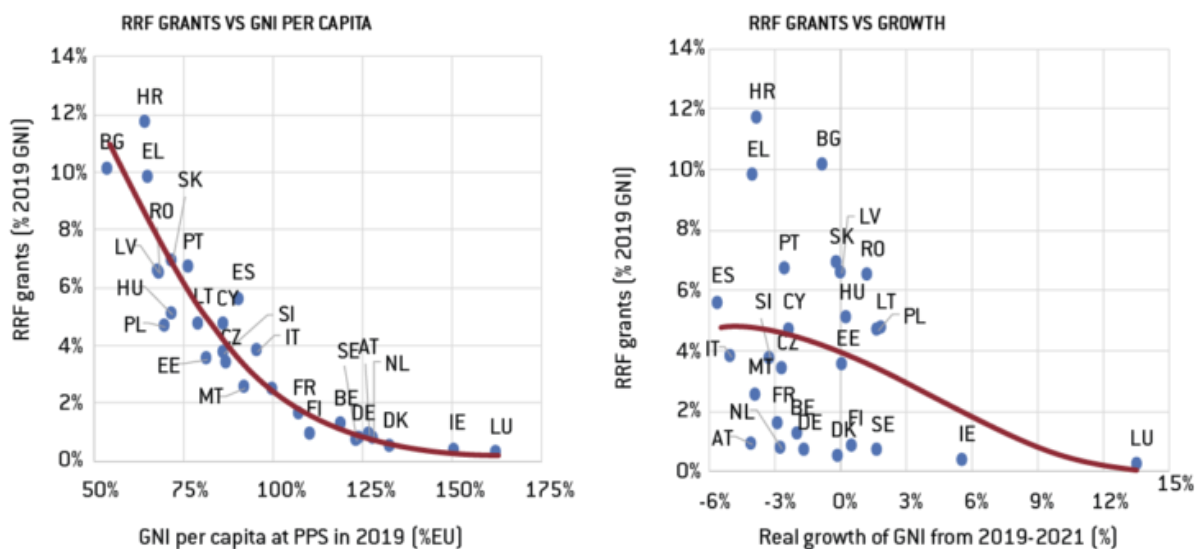


Fig. no. 2. Cross-cultural allocation of the grant component of the RRF

Source: <https://www.bruegel.org/publications/datasets/european-union-countries-recovery-and-resilience-plans/>

Panel A of Fig. 2 highlights the cross-country allocation of grants depending on the level of development, showing that the Recovery and Resilience Facility (RRF) could contribute to convergence on the part of poorer countries, while Panel B of Fig. 2 indicates that there is no association with expected GNI growth for 2019-2021, suggesting that the RRF is not mandatory a crisis-alleviation tool.¹

The six pillars defined in Article 3 of the RRF Regulation consists of:

1. Green transition
2. Digital transformation
3. Smart, sustainable and inclusive growth including economic cohesion
4. Social and territorial cohesion
5. Health and economic, social and institutional resilience
6. Policies for the next generation

Taking into consideration the great importance of digital transformation in the RRF Regulation, multinational corporations like Amazon keep up with emerging customer demands and help other companies better compete in a digital economy environment constantly changing as a response to technology evolutions, while the EU member states economies can also benefit from e-commerce in terms of e-readiness.

2. Amazon and the positive impact on East European economies

Among all those mentioned, Amazon announced at the beginning of 2021 the plans to enter the Polish Market, a booming billion dollars in value, taking advantage of the 10 logistics centers they have in the country that help process European deliveries. Amazon's move takes place a week after Alibaba Group Holding, in order to speed up deliveries from AliExpress, announced its intention to invest in parcel lockers in Poland.²

Amazon's big announcement also takes place at the same time with the market debut of InPost, which operates the automated network of parcel lockers in the country and closely works with Allegro.

¹ Darvas Z., European Union countries' recovery and resilience plans (September 28, 2021).

² Krasuski K., Battle for Poland's \$19 Billion E-Commerce Market Begins For Real With Amazon Entry (January 27, 2021).

E-COMMERCE MARKET LEADERS (SHARE OF GMV)			
COUNTRY	1ST	2ND	3RD
Poland	Allegro (36%)	AliExpress (3%)	RTV Euro AGD (2.5%)
Czech Rep.	Alza.cz (16%)	Mall (9%)	HP Tronic (4%)
Slovenia	Mall (24%)	Amazon (11%)	Ebay (11%)
Hungary	Emag (9%)	Media Markt (4%)	Tesco (3%)
Croatia	AliExpress (25%)	Ekupi (11%)	Amazon (10%)

Fig. no. 3. E-commerce market leaders (share of GMV)

Source: <https://www.bloomberg.com/news/articles/2021-11-04/allegro-agrees-to-buy-czech-mall-group-in-1-billion-deal>

When asked about Polish competitors, an Amazon spokesman stated that: “Business is not winner take all - industries rise together”.¹

Poland is attractive from an e-commerce point of view, leading Europe with a 42% growth rate. According to Euromonitor, Allegro has 33% share of the e-commerce market, with Alibaba Group’s AliExpress at 3.6% and Amazon at 1.3%, according to Euromonitor.

Digital connectivity and internet penetration are high within Polish people, around 95% of them own a smartphone and 50% are Social Media active users, while a new generation of internet-savvy shoppers will drive up the e-commerce growth, expected to be 10.6 percent (CAGR of 2019-2023).²

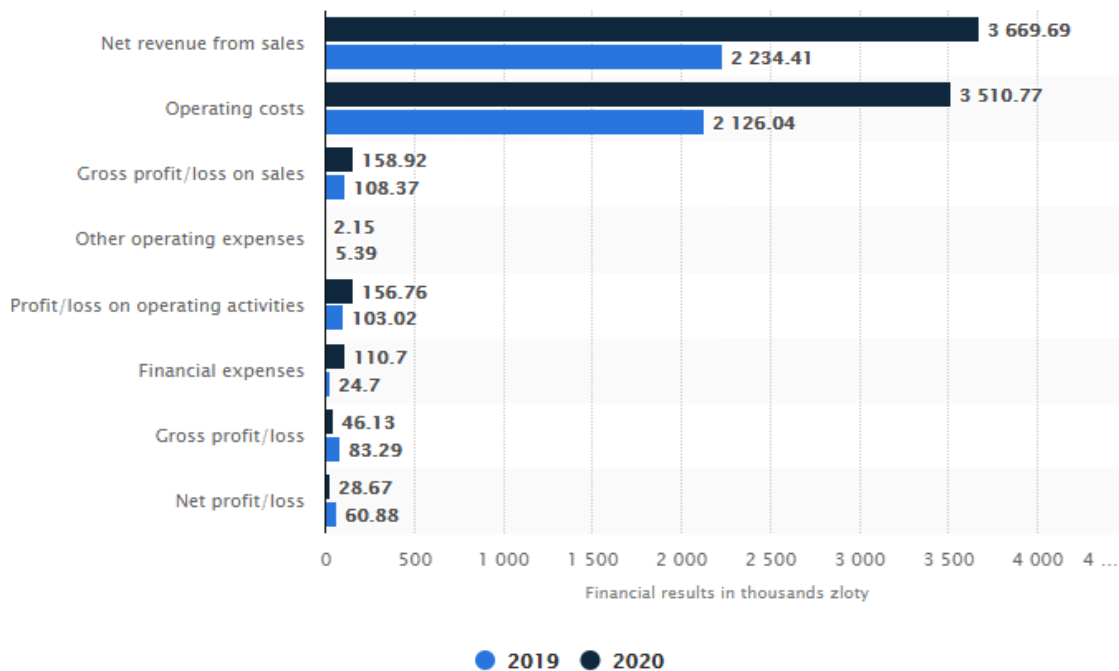


Fig. no. 4. Financial results of Amazon Fulfillment Poland from 2019 to 2020 (in 1,000s zloty)

Source: <https://www.statista.com/statistics/1111754/poland-amazon-revenues-and-costs/>

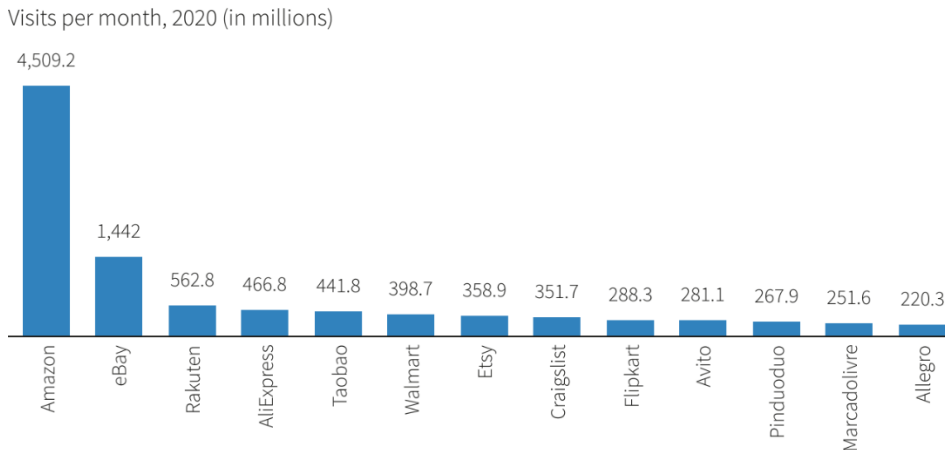
E-commerce is acting as a powerful engine of international trade and economic growth, increasing economic efficiency, positively impacting large shares of economic activity. From an e-commerce point of view, as the digitally-savvy generation has come of age, Poland is somehow an European hub for logistics and IT services, helping the sector grow at the same

¹ Barteczko A., Hovet J., Kahn M., Emerging Europe.com bolsters defences as Amazon enters Poland (March 3, 2021).

² Polish Investment and Trade Agency, Opportunities in Poland through e-commerce (March 3, 2021).

time as the consumer economy has matured, also showing potential for more expansion. Poland leads Eastern Europe e-commerce market and still is on an upward trajectory when it comes to spend across Fashion by \$6.49 billion, Beauty and Cosmetics by \$720 million, and Digital Goods by \$615 million.¹

Most popular e-commerce platforms in the world



Source: Statista (November 2020)

Fig. no. 5. Most popular e-commerce platforms in the world (visits per month, 2020)

Source: <https://www.reuters.com/article/us-allegro-cee-focus-idUSKBN2AV15U>

According to PayU, Romania offers a perspective on what the future might hold, being one of the fastest-growing e-commerce markets in Europe. Romania was one of the leading countries surveyed by PayU in its report for digital goods (+54% since 2019), beauty and cosmetics (+47% since 2019), and fashion (+75%), the average transaction value in the country on PayU’s platform was \$70, the highest of any EMEA market.

According to data from GPeC, the average shopper in Romania is between 25-35 years old, and 8/10 live in cities.²

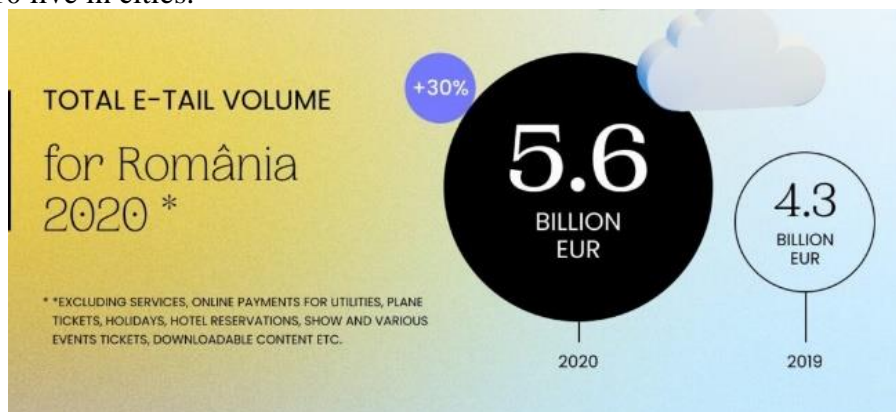


Fig. no. 6. Total E-tail volume for Romania 2020

Source: <https://www.gpec.ro/blog/en/gpec-romanian-e-commerce-2020-report-5-6-billion-euro-worth-of-online-shopping-a-30-yoy-growth>

ARMO (Association of Romanian Online Stores) estimates indicate that e-commerce in Romania exceeded the 5.6 billion euros threshold by the end of 2020, 30% more than in 2019 when the estimate was 4.3 billion euros. The 500 million euros approximate increase over the

¹ PayU, E-commerce in Eastern Europe: The future is bright.

² Ecommerce News Europe, Ecommerce in Romania.

initial estimate before the pandemic skyrocketed the online shopping behavior, and the percentage of online payments.¹

Andrei Radu, CEO & Founder GPeC stated that “Starting from the 5.6 billion euro total figure of the Romanian online commerce in 2020, an average would mean that Romanians have spent over 15 million euros daily last year on internet shopping, an increase from approx. 12 million euro – the daily average recorded in 2019.”(GPeC Romanian E-Commerce 2020 Report: 5.6 billion euro worth of online shopping, a +30% YoY growth)

Florinel Chiş, ARMO Executive Director stated that “For the online commerce sector, 2020 was the year that marked a spectacular evolution, reaching targets that were in some cases planned for the next 2-3 years. Yet this sector is just the visible and easily quantifiable part of what we largely call digital economy, whose value is higher and that is Romania’s chance to rapidly recover the development lags is has compared to the Western countries...” (GPeC Romanian E-Commerce 2020 Report: 5.6 billion euro worth of online shopping, a +30% YoY growth)

The COVID-19 pandemic accelerated e-commerce across Europe, and Amazon doubled down on investments by growing its workforce to more than 135 000 in 15 European countries, adding 20,000 new jobs, hiring more European employees in machine learning and software, operations, as well as cloud development.²

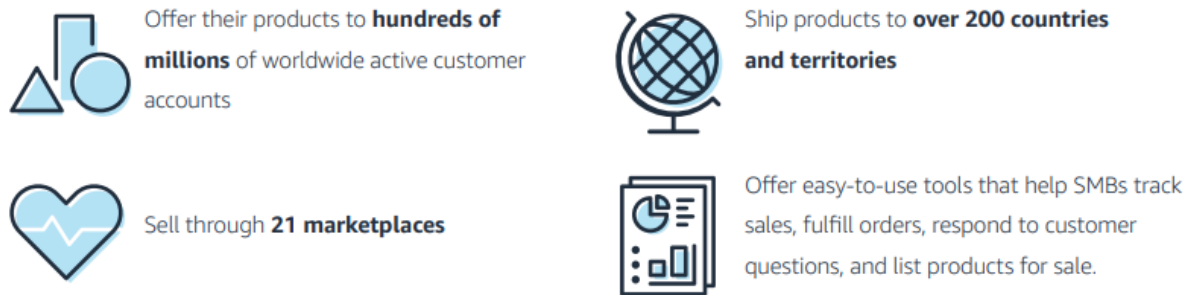


Fig. no. 7 How Amazon Supports European Small and Medium Businesses

Source: Amazon, Small and Medium Business Success and Resilience, 2021 European SMB Community Report (July 2021, PDF)

¹ Paunescu A., GPeC Romanian E-Commerce 2020 Report: 5.6 billion euro worth of online shopping, a +30% YoY growth (March 8, 2021).

² S&P Global Market Intelligence, Amazon is doubling down on European expansion amid pandemic – analysts (March 25, 2021).

**European Small and Medium Businesses Data
January–December 2020**



Fig. no. 8. European Small and Medium Businesses Data (January–December 2020)
Source: Amazon, Small and Medium Business Success and Resilience, 2021 European SMB Community Report (July 2021, PDF)

The U.S. is a major trading partner of the European Union, where Amazon invested heavily in its services and shipping infrastructure, strengthening the company's reputation in the region. Mark Shmulik, vice president and senior analyst with AB Bernstein stated that: “Europe may be an easier market for the company to expand its footprint as opposed to other countries like China, where Amazon failed to gain traction... I think what they have recognized is that at this point it's probably better to solidify and strengthen their incumbency position”.



Fig. no. 9. Amazon’s recent investments in Europe, UK
Source: <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/amazon-is-doubling-down-on-european-expansion-amid-pandemic-8211-analysts-63291102>

Amazon is working with more than 900,000 independent partners in Europe, creating challenges for European businesses. More than 1.8 billion products from Small and medium-sized businesses were sold across Europe only in 2020, SMBs accounting for more than 50% of everything they sell online, creating around 550,000 jobs to support their businesses online. European SMBs have also access to Amazon worldwide customers resulting in €12.5 billion in export sales.¹

Xavier Flaman, Director, EU Seller Services at Amazon highlighted that “Every day, we partner with thousands of small and medium-sized businesses and help them expand their businesses beyond their regions... These businesses are able to quickly and easily sell their products online, connecting with millions of customers around the world. We will continue to innovate for small and medium-sized businesses to help deliver a great shopping experience for our customers.”

Conclusions

The COVID-19 pandemic was the moment that truly changed everything, the trigger for accelerating the adoption of digital life and created new pathways for the digital economy, where e-commerce has seen unprecedented growth, and its impact on economies is of great importance, both as intensity and extent, accelerating the digital transformation and the digital entrepreneurship by encouraging innovation, increasing overall productivity, driving better shopping experiences, discovering new key pillars for economic growth and digital job creation, helping mitigate the economic downturns caused by the COVID-19 pandemic.

When Amazon will enter the Romanian e-commerce market it's just a matter of time. As a result, the economy will receive a boost, online shoppers will have new expectations, and the overall Romanian e-commerce players will be more focused on how to offer better purchases, better customer service, better incentives, get better sales (in this new context) and learn from competition.

References

NATO, Emerging and disruptive technologies (October 22, 2021). Retrieved from https://www.nato.int/cps/en/natohq/topics_184303.htm?

ALLESLEV L., NATO SCIENCE AND TECHNOLOGY: MAINTAINING THE EDGE AND ENHANCING ALLIANCE AGILITY (November 18, 2018, Special Report, PDF)

European Commission. Recovery and Resilience Facility. Retrieved from https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

Darvas Z., European Union countries' recovery and resilience plans (September 28, 2021). Retrieved from <https://www.bruegel.org/publications/datasets/european-union-countries-recovery-and-resilience-plans/>

Krasuski K., Battle for Poland's \$19 Billion E-Commerce Market Begins For Real With Amazon Entry (January 27, 2021). Retrieved from <https://www.bloomberg.com/news/articles/2021-01-27/battle-for-polish-e-commerce-begins-for-real-with-amazon-entry>

Barteczko A., Hovet J., Kahn M., Emerging Europe.com bolsters defences as Amazon enters Poland (March 3, 2021). Retrieved from: <https://www.reuters.com/article/us-allegro-cee-focus-idUSKBN2AV15U>

Polish Investment and Trade Agency, Opportunities in Poland through e-commerce (March 3, 2021). Retrieved from https://www.paih.gov.pl/20210303/webinar_opportunities_in_poland_through_ecommerce

PayU, E-commerce in Eastern Europe: The future is bright. Retrieved from: <https://corporate.payu.com/blog/why-cee-is-the-future-of-european-e-commerce/>

Ecommerce News Europe, Ecommerce in Romania: Retrieved from: <https://ecommercenews.eu/ecommerce-in-europe/ecommerce-romania/>

Paunescu A., GPeC Romanian E-Commerce 2020 Report: 5.6 billion euro worth of online shopping, a +30% YoY growth (March 8, 2021). Retrieved from: <https://www.gpec.ro/blog/en/gpec-romanian-e-commerce-2020-report-5-6-billion-euro-worth-of-online-shopping-a-30-yoy-growth>

S&P Global Market Intelligence, Amazon is doubling down on European expansion amid pandemic – analysts (March 25, 2021), <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/amazon-is-doubling-down-on-european-expansion-amid-pandemic-8211-analysts-63291102>

Amazon, Small and Medium Business Success and Resilience, 2021 European SMB Community Report (July 2021, PDF)

¹ Amazon, Small and Medium Business Success and Resilience, 2021 European SMB Community Report (July 2021, PDF)