

**The 6th International Conference on Economics and Social Sciences
Geopolitical Perspectives and Technological Challenges
for Sustainable Growth in the 21st Century
June 15-16, 2023
Bucharest University of Economic Studies, Romania**

**Digital Reliance within B2C and B2G Communication
Systems in the post-COVID-19 Pandemic Era:
A Systematic Literature Review**

Alexandra-Andreea MIRONESCU¹,
Cătălin-Alexandru VERDEȘ^{2*}, Cezar-Petre SIMION³

DOI: 10.2478/9788367405546-072

Abstract

In the framework of this study, we carried out a systematic review of the literature on digital reliance within B2C and B2G communication systems in order to reveal the particularities of this phenomenon in the post-COVID-19 pandemic era. For the systematic literature review on this topic, articles published in representative databases were selected using the PRISMA 2020 flow diagram. As a result of the systematic literature review, a significant number of articles on the subject of digital reliance on B2C and B2G communication systems were identified, most of them indicating the increase in the use of these communication systems in the post-COVID-19 pandemic era. Both in the B2C and B2G fields, the COVID-19 pandemic has resulted in the proliferation of remote communication methods, digital signatures, digitally encrypted documents, secure online connections, e-portals, online meetings, virtual public spaces, and other forms of digital communication.

Keywords: digital reliance, B2C, B2G, communication, systems.

JEL Classification: O33; O39.

1. Introduction

Digitalisation of public and private entities has always been on the working agenda of nations world-wide, the trajectory towards unrolling B2C and B2G commercial operations and documents transfers within an unitary-tax environment being a continuous engaging purpose. The disruptive events like COVID-19 and the

¹ Bucharest University of Economic Studies, Bucharest, Romania, alexandramironescu84@yahoo.ro.

² Bucharest University of Economic Studies, Bucharest, Romania, verdes.catalin@outlook.com.

* Corresponding author.

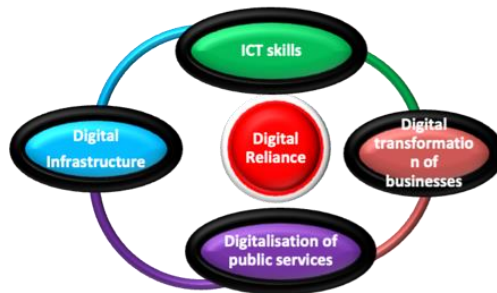
³ Bucharest University of Economic Studies, Bucharest, Romania, cezar.simion@man.ase.ro

actual 2023 socio-economic environment have been demonstrating that the critical role of the digitalisation is to become more laser focused, as nowadays the digital systems functioning on programmed parameters stage up for a new era of B2C and B2G communication systems. If before the COVID-19 pandemic, the digitalisation was a nice-to-have future development plan, nowadays it has begun being a sine-qua-non requirement.

The fiscal-digital public-private partnership has faced a major boost turn toward transiting from paper-documents signed and stamped to digital-support documents, electronically signed and electronically encrypted, and electronically transferred and confirmed, in the post-COVID-19 pandemic era.

As the aforementioned digital landscape empowered remote communication B2C and B2B methods that rely on secure online connections and collaborative software. In this context, the informational asymmetries identification on-time and on-spot helps on reducing and eliminating: the vulnerabilities caused by hyper-connectivity and the security breaches in the B2C and B2G data interoperability. The current literature review that was conducted revealed a major interest in finding new ways of bringing at the same table both public and private entities, in order to conduct predictive detailed analysis. Staring from the premises that data sets are a non-rival resource and having a continuous B2C and B2G Big Data transfer, the switch towards a model based on evidence for socio-economic politics elaboration is becoming more tangible as the private sector is using the public infrastructures on a daily operational basis and is in need of measuring digital security incidents and data breaches for proper functioning. As predictability is hindered by the data set's limited interoperability and lack of comparable evidence, public-private partnerships sustained by European mechanisms, are enhancing to spur innovation in the B2C and B2G data and documents workflow. The primary steps are to be made at European level as already 80% of citizens are targeted to have a digital identity and subject to an online platform usage on a daily basis, 75% of private and public entities are to be using Cloud Storage, Artificial Intelligence, and Big Data, 10000 climate-neutral highly secure edge nodes are on the projected trajectories, and also adding valuable human resources to the table in form of 20 million+ ICT Specialists has been taken into consideration in empowering the 2030 digital reliance, as shown in Figure 1.

Figure 1. European Digital Decade objectives for 2030



Source: European Commission (2022).

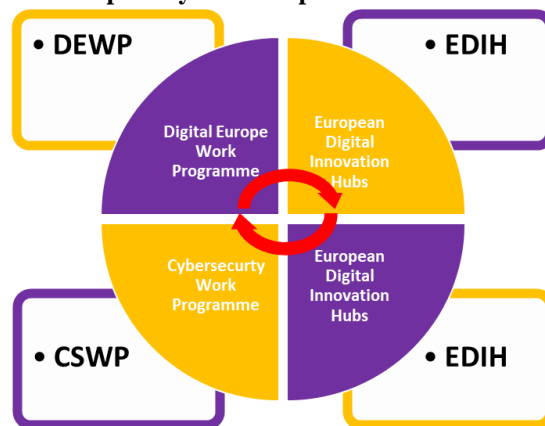
The systematic literature review emphasised that guidance is needed to secure B2C and B2G communication within a data-driven economy and the European Commission adopted in March 2023 the Digital Europe Programme for Europe's digital transition and cybersecurity, granting resources of 1.284 billion euro (digital-strategy.ec.europa.eu, 2023) in funding. Thus, cloud-to-edge federations and common data spaces have now both the resources and the purpose established in growing reliance on digital tools.

The primary goals of digitalisation were on the table all along, the COVID-19 pandemic, raised the leverage content and empowered a digital push, as the lack of resources kept in lagging digital transformation and dragged back B2C and B2G digital communication. Nowadays, the usage of e-platforms for virtual public spaces benefits citizens and both the public administrations and the businesses.

Consequently, the investments in digitalisation, B2C and B2G tailored, for a common data space is offering the incentives to further digital reliance expanding.

Hence the gaps in digital uptake due to lack of financial resources start to be filled in, the cornerstones of a B2C and B2G communication infrastructure, based on digital reliance of non-disclosure data to an unauthorised party, will grow in including: encryption, digital signatures with token, qualified electronic seal, DV (domain validation) and OV (organisation validation) digital certificates, QWAC and QSealC eIDAS certificates, strong authentication mechanisms for all the point-to-point and point-to-multipoint systems. Common space data requires availability, integrity and confidentiality, and this is also what EU Directive 2366/2015 legally states, that all data transfers, regardless of whether they are B2C or B2G, shall be managed through safe and secured channels and all the data within the transfer shall be protected in terms of authenticity. As both tangible and intangible damages can occur in the absence of secure communications, correlated with the slow rate of transposition of the bureaucratic segment towards technology, also European technical Standards like SR EN 1693-1 are to be implemented.

Figure 2. Current work programmes implementing DIGITAL, adopted by the European Commission



Source: European Commission (2023).

Digitalisation within B2C and B2G communication systems is expected to occur sooner as the disruptive events such as the COVID-19 pandemic raised the percentage of SME making more use of digital technologies by up to 70 %, and the Digital Europe Programme for Europe's digital transition and cybersecurity comes into shape, as shown in Figure 2. These contextual developments as well as the approach to the subject in specialised literature determined the interest in the research presented in this article.

2. Problem Statement

The issue of digital reliance within B2C and B2G communication systems in the specialised literature had different approaches both before the COVID-19 pandemic and during the pandemic, when the need to isolate individuals created new possibilities and needs for the fruition of digital opportunities by companies (Mitchell, Strubberg, 2022; Kysh, 2020; Vespe et al., 2021).

Digital reliance could be defined as the degree to which individuals, organisations, and societies depend on digital technologies for their daily functioning and well-being. Digital reliance can have positive and negative impacts on various aspects of human life, such as communication, education, health, economy, energy (Simion et al., 2023), security, and culture. In this regard, are significant the studies carried out by Pavelle and Wilkinson (2020), Al-Shareeda et al. (2022), Gössling (2021).

Digital reliance can also pose challenges and risks, such as digital divide (Litchfield et al., 2021), cybercrime (Tharshini et al., 2021), privacy breaches, misinformation, and digital addiction (Allcott et al., 2022). Therefore, digital reliance requires careful management and regulation to ensure that its benefits outweigh its costs.

Technology has become an integral part of our daily lives, from communication to entertainment, from education to health, from business to leisure. We rely on digital devices and platforms to connect, learn, create, share, and collaborate. This dynamic of the extent of technological changes and the effects on the management of organisations has long been revealed by the dynamics of managerial studies (Nicolescu, Nicolescu, 2014).

B2C stands for business-to-consumer, which refers to the type of transactions that occur between a business and its individual customers. B2C businesses typically focus on creating a positive customer experience and building brand loyalty. They use various marketing strategies, such as email campaigns, online reviews, influencer endorsements, or loyalty programs, to attract and retain customers. They also leverage data analytics and artificial intelligence to personalise their offerings and recommendations based on customer preferences and behaviour.

B2G stands for Business-to-Government, which is a type of e-commerce that involves transactions between businesses and public sector organisations. B2G can benefit both businesses and governments by: reducing costs and increasing efficiency through digitalisation and automation of processes, improving transparency and accountability through data sharing and reporting, enhancing innovation and competitiveness through collaboration and partnership.

Although there are numerous approaches in the specialised literature to the issue of digital reliance, B2C and B2G in the context of the COVID-19 pandemic, relatively few are focused on the evolution of digital reliance within B2C and B2G Communication Systems in the post-COVID-19 Pandemic Era. This research gap also appears because the peak period of the pandemic has just passed and there is still a relatively high degree of uncertainty about the developments in this field. In some areas, the post-pandemic developments seem to continue the trends from the period of the COVID-19 pandemic, and in others the period of post-pandemic seems to confirm a return to pre-pandemic trends and approaches.

3. Research Questions / Aims of the Research

The main purpose of the research presented in this article is to reveal the main mutations and implications that digital reliance within B2C and B2G communication systems in the post-COVID-19 pandemic era was based on a literature review that included articles published in three periods: the period from before the COVID-19 pandemic, during the COVID-19 pandemic, and in the post-pandemic period.

In accordance with the main purpose of the research, the following research objectives must be achieved:

- identification of relevant databases for the subject of the research carried out;
- the systematic research of specialised literature and the identification of studies and research carried out on the subject of digital reliance within B2C and B2G communication systems before the pandemic era, in the COVID-19 pandemic period and the post-COVID-19 pandemic era;
- highlighting the importance of digital reliance within B2C and B2G communication systems as a result of a systematic review of studies published in this field.

The research conducted on digital reliance within B2C and B2G communication systems in the post-COVID-19 pandemic era aims to answer the following questions:

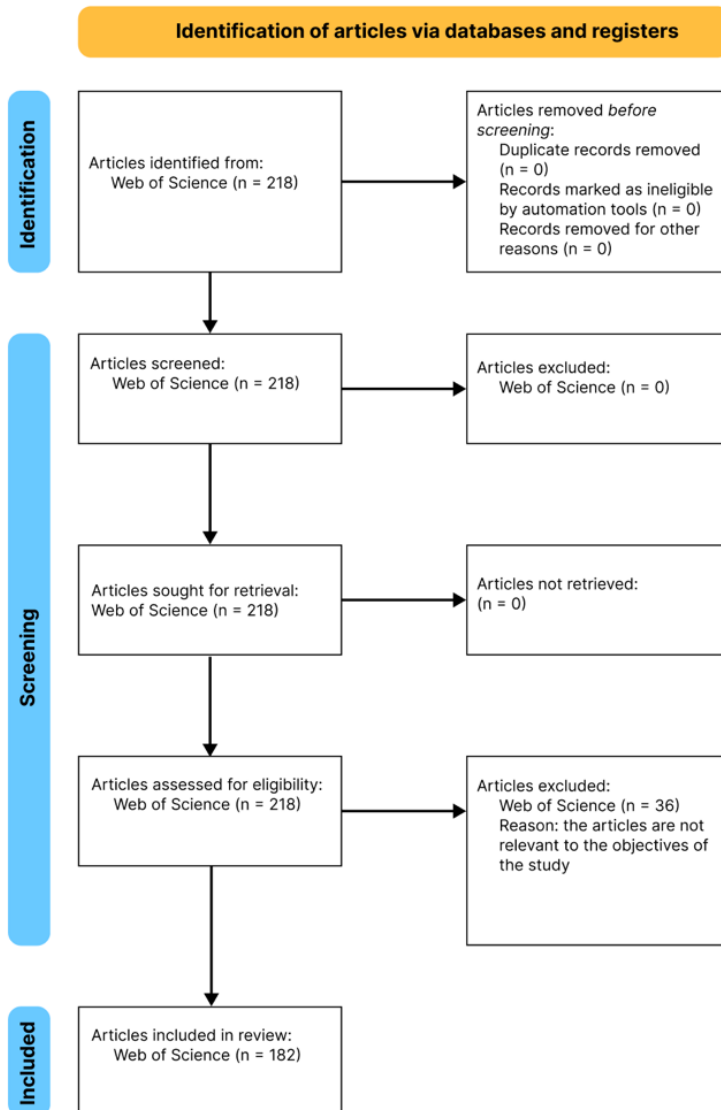
- What are the main approaches regarding digital reliance within B2C and B2G communication systems?
- How has scientific interest in these approaches evolved in the pre-pandemic period? But during the COVID-19 pandemic?
- What are the main communication systems used in the context of B2C and B2G?
- What are the effects (advantages and risks) of digital reliance within B2C and B2G communication systems?

Carrying out the literature review regarding digital reliance within B2C and B2G communication systems provides adequate answers to these questions, taking into account the breadth of topics covered in the specialised literature and the interest of publications/researchers in this topic to reveal essential trends and mutations in the post-COVID pandemic era.

4. Research Methods

The literature review was carried out using the PRISMA 2020 flow diagram to take into account all the studies and researches published in the Web of Science databases on the subject of digital reliance within B2C and B2G communication systems in the post-COVID-19 pandemic era. The main stages of the systematic review of the literature are presented in Figure 3.

Figure 3. The main stages of the systematic literature review



Source: Own data processing according to PRISMA 2020 flow diagram for new systematic reviews, including searches in databases.

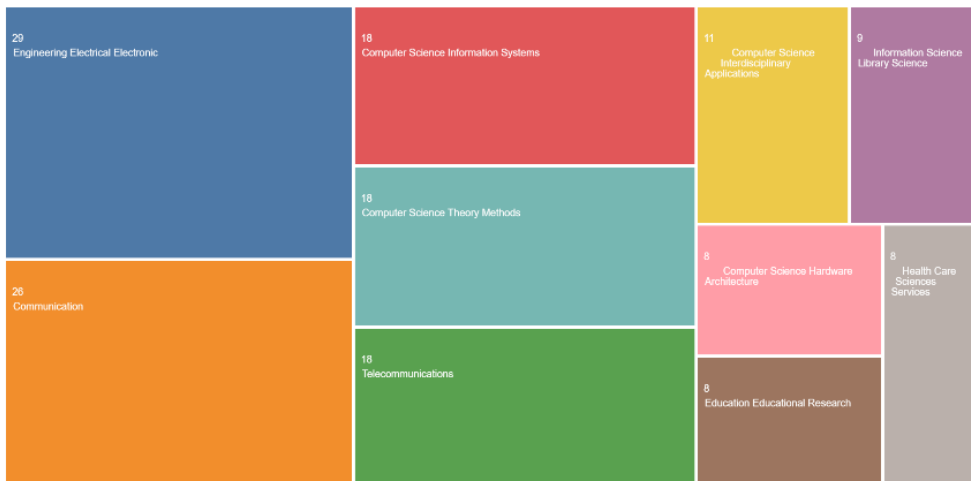
From a methodological point of view, in the first stage, all important databases on the subject of the literature review were identified and analysed. The Web of Science database was selected because it indexes the most relevant articles on the subject of digital reliance within the B2C and B2G communication systems in the post-COVID-19 pandemic era. The Web of Science database search was conducted using the terms digital reliance (Topic) and communication (Topic) and initially generated 218 results. No double entries were identified at this stage, nor were articles flagged as ineligible by the automated search tools used. In the screening stage, 36 articles were excluded because the analysis showed that they are not relevant to the objectives of the study. Finally, 182 articles indexed in the Web of Science databases were included in the literature review.

5. Findings

The results of the research carried out mainly concerned the following elements, the fields and areas of research in which the articles were published, the communication systems used for B2C and B2G, and the effects of digital reliance within the B2C and B2G communication systems in the post-COVID-19 pandemic era.

From the perspective of the Web of Science domains in which they were published, most studies on digital reliance within B2C and B2G communication systems were published in the fields of electrical electronic engineering, followed by communication, computer science, and telecommunications. Publications in fields such as Information Science, Education-Educational Research, or Health Care Sciences Services are represented in small proportions.

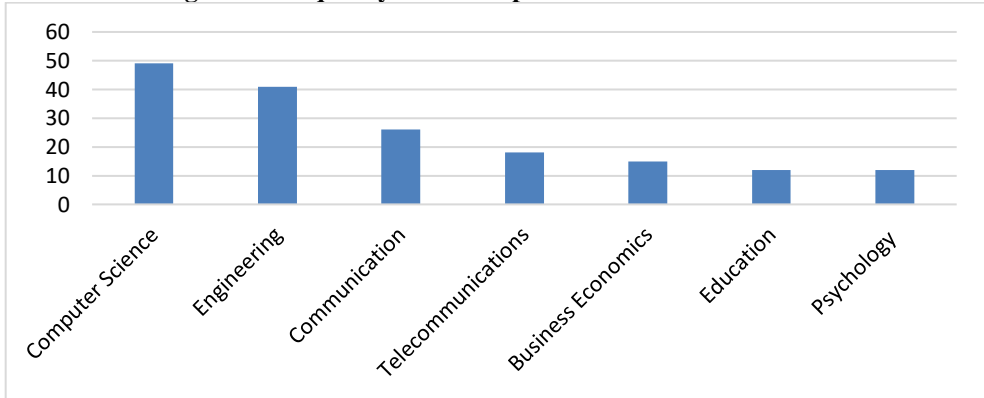
Figure 4. Frequency of studies published on Web of Science domains



Source: Web of Science.

Depending on the research area targeted by the content of the published studies and research, most articles were published in computer science, followed by engineering, communication, telecommunications, business economics, education, and psychology. The results are shown in the following graph.

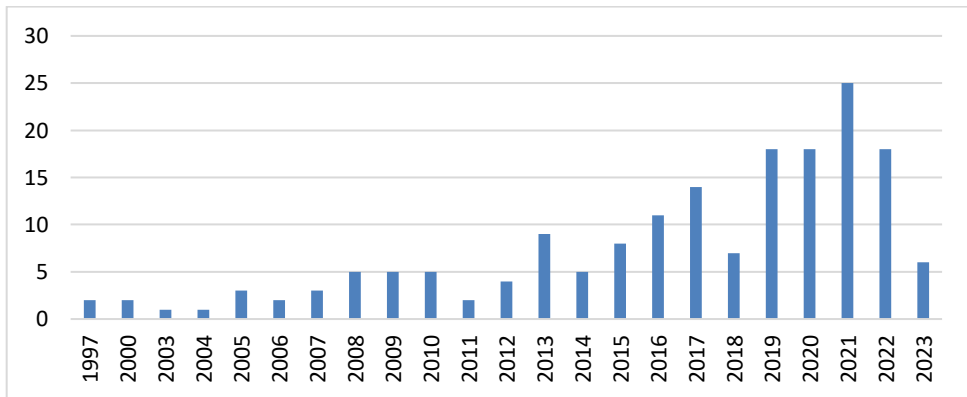
Figure 5. Frequency of studies published on research areas



Source: Own calculations using Web of Science data.

From the perspective of the dynamics over time of the studies carried out, it can be noted an increase in the interest of researchers for on the subject of digital reliance within B2C and B2G communication systems (Figure 6).

Figure 6. Evolution of studies published/year



Source: Own calculations using Web of Science data.

Figure 6 shows that the number of studies published during the COVID-19 pandemic is much higher than in the period before the pandemic. In the post-pandemic period (2022 and 2023) the number of studies began to decrease. However, the trend still cannot be considered relevant because there are only two years analysed, one of which is not yet completed.

Analysing the data in Table 1 regarding the frequency of publications regarding the communication systems used in the context of B2B and B2G, it can be seen that the interest of researchers is rather directed toward the study of remote communication methods, social media & social networks, secure online connections than towards digital signatures and E-portals.

Table 1. Number of studies focused on communications systems

Communication systems	Number of studies in Web of Science
Remote communication methods	30
Digital signatures	5
Digitally encrypted documents	10
Secure online connections	14
E-portals	2
Online meetings	9
Virtual public spaces	5
Social media & social networks	15
Other forms of digital communications	16

Source: Own calculations based on.

Many studies consider the advantages and risks/adverse effects of using specific B2C and B2G communication systems. Among the most important advantages identified are:improving access to information and knowledge; facilitating communication and collaboration; boosting creativity and innovation; increasing convenience and efficiency. Among the most important adverse effects are:affecting mental health and well-being; disturbing attention and focus; reducing social skills and empathy; creating ethical and social dilemmas (Allcott et al., 2022). Some of these problems, identified in studies published during the pandemic, appear to persist in the post-pandemic period.

6. Conclusions

The study presented in this article aimed to carry out a literature review on the subject of digital reliance within B2C and B2G communication systems in the post-COVID-19 pandemic era. To carry out the literature review, information was used regarding the studies published on this subject and indexed in Web of Science (both for the period before the pandemic and for the period during the COVID-19 pandemic and after it).

The analysis carried out revealed that this topic is addressed more frequently by the authors of studies focused on technical aspects than those of a socio-economic nature. The frequency of publications devoted to digital reliance and specific B2C and B2G communication systems was much higher during the pandemic than in the period prior to it. In the post-pandemic period, a reduction in interest in the subject of digitisation can be observed. The use of B2C and B2G has, according to the analysed publications, obvious positive effects, but also possible risks that are not specific to the pandemic, but rather seem to persist in the post-pandemic period.

References

- [1] Al-Shareeda, M.A., Manickam, S., Laghari, S.A., Jaisan, A. (2022). Replay-Attack Detection and Prevention Mechanism in Industry 4.0 Landscape for Secure SECS/GEM Communications, *Sustainability*, 14, 15900.
- [2] Allcott, H., Gentzkow, M., Song, L. (2022). Digital addiction, *American Economic Review*, 112(7), 2424-63.
- [3] European Commission (2023). €1.3 billion from the Digital Europe Programme for Europe's digital transition and cybersecurity, retrieved April 26, 2023, from <https://digital-strategy.ec.europa.eu/en/news/eu13-billion-digital-europe-programme-europes-digital-transition-and-cybersecurity>.
- [4] European Commission (2022). Europe's Digital Decade: Digital targets for 2030, retrieved April 26, 2023, from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en.
- [5] European Commission (2023). The DIGITAL Europe Programme – Work Programmes, retrieved April 26, 2023, from <https://digital-strategy.ec.europa.eu/en/activities/work-programmes-digital>.
- [6] Gössling, S. (2021). Technology, ICT and tourism: from big data to the big picture, *Journal of Sustainable Tourism*, 29(5), 849-858.
- [7] Kysh, L. (2020). Adaptation of B2C E-Commerce to The Conditions of The COVID-19 Pandemic, *East European Scientific Journal*, 4(12 (64)), 14-19.
- [8] Litchfield, I., Shukla, D., Greenfield, S. (2021). Impact of COVID-19 on the digital divide: a rapid review, *BMJ Open.*, 11(10), e053440.
- [9] Mitchell, C., Strubberg, B.C. (2022). Convergent Design: Assessing B2C Video Content in Response to the COVID-19 Pandemic. In *Proceedings of the 40th ACM International Conference on Design of Communication*, 161-162.
- [10] Nicolescu, O., Nicolescu, C. (2014). The specificity and typology of dynamic management studies, *Journal of Organizational Change Management*, 27(2), 299-313.
- [11] Pavelle, S., Wilkinson, C. (2020). Into the Digital Wild: Utilizing Twitter, Instagram, YouTube, and Facebook for Effective Science and Environmental Communication, *Frontiers in Communication*, 5, 1-8.
- [12] Simion, C.-P., Verdeş, C.-A., Mironescu, A.-A., Anghel, F.-G. (2023). Digitalization in Energy Production, Distribution, and Consumption: A Systematic Literature Review, *Energies*, 16, 1960.
- [13] Tharshini, N.K., Hassan, Z., Mas'ud, F. (2021). Cybercrime Threat Landscape Amid the Movement Control Order in Malaysia, *International Journal of Business and Society*, 22, 1589-1601.
- [14] Vespe, M., Iacus, S.M., Santamaria, C., Sermi, F., Spyratos, S. (2021). On the use of data from multiple mobile network operators in Europe to fight COVID-19, *Data & Policy*, 3, e8.