

The 4th International Conference on Economics and Social Sciences
Resilience and economic intelligence through digitalization
and big data analytics
June 10-11, 2021
Bucharest University of Economic Studies, Romania

Digitalisation and Competition in the European Union

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DOI: 10.2478/9788366675704-027

Abstract

The new paradigm existing in the current economic systems generated in the context of processes defined as digitalisation transforms the way the competition processes take place and influence their legal framework. The preference for the study of these transformations in the EU is justified by approaching the processes of economic transformation through the concept of digitalisation, which defines the European strategy of adaptation to the conditions imposed by the new economies and the evolution of economic relations in cross linked system. Technological progress has always been in history not only the basis of economic growth, but also determined the transformation of the competition space. The adaptation to the new technologies involved both the reconsideration of the sources of competitiveness at company level and the transformation of the competition acts from a procedural and legal aspect. The digital information in these processes is crucial for the potential to bring huge benefits in terms of productivity, jobs and living standards. Consumers will gain access to new, innovative, and cheaper products. We need to build a healthy competitive environment that allows for the diffusion of innovation and brings gains from technology to individual prosperity. In our research we will analyse and propose solutions in the growing debates on how competition will work in digital markets with an emphasis on market power, concentration and data protection.

Keywords: digitalisation, competition, new economies, digital market, market power.

JEL Classification: A10, A11, A12, A13, D01, D04, D11, D40, D43, D47, D62, D85, D90, F02, F23, F44, F60, K20, K21, L10, L13, L40, L50, L51, O30.

1. Introduction

The New Economy based on technology is a key development of the recent years in our society. The related changes have to be taken into consideration, as the

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development of digitalisation has consequences on business and economics. Business models have to be adapted and economic models have to consider the new paradigm. Competition has to take into consideration the new concept of digital markets. Markets have to be newly defined, as the classic definition of markets in terms of competition might no longer be reflecting the developments of digital markets. Market power assessment needs as well to be reconsidered from the new perspectives of increased digitalisation. Concentration of markets in the light of the digitalisation process has to be assessed in a new perspective. Legal aspects will as well be of major importance in ensuring the appropriate legal and regulatory framework for digital markets and enhanced digitalisation. This research hypothesis is reflected in the present paper, trying to evaluate novelty elements when defining markets and market power in the context of enhanced digitalisation.

The acceptance of consumers regarding the digital change is as well an element that needs to be assessed in order to figure out the impact of digitalisation on business and on our society. Acceptance towards digitalisation can be increased if consumers are aware of its advantages. Benefits for consumers as well as challenges related to adapting to the digital environment have to be considered in order to gain a correct picture of this market phenomenon. The present research is also dedicated to these aspects of behavioural economics related to changes brought by digitalisation and their impact on the behaviour of market participants.

The present research analyses competition in digital markets, focusing on market power, concentration and data protection in the context of digitalisation. In order to assess the impact of digitalisation and to provide solutions, the present paper uses qualitative and quantitative research methods in an international perspective, evaluating the researched aspects at European Union level. The research methods include metadata, such as reports provided by specific journals, as Harvard Business Review on the topic of digitalisation and its impact in society. Furthermore, the relevant literature is reviewed in order to find previous approaches to this research subject, such as scientific articles (Science Direct, Elsevier) and books on this topic.

The Digital Economy and Society Index is proposed in the present research paper as an index measuring the impact of digitalisation on business and competition. This index is provided by the European Union, by Eurostat. The data assessed in the present research is provided by Eurostat, as this source of data ensures the possibility to assess reliable data in a comparative manner at European Union level.

Case studies related to the changes caused by digitalisation are assessed, for example the changes in the Romanian society, which occurred in this context. The changes are reflected by the analysis of the Digital Economy and Society Index, as provided by the European Commission. European Union Law, which is relevant for the sector, is as well considered, with case studies regarding important actors of the IT sector.

The research approach of the present paper considers aspects of business, economics as well as legal aspects and the social impact of the analysed topics, a

view that brings elements of novelty and an of in-depth understanding of the researched economic topics.

2. Problem Statement

2.1. The Impact of Digitalisation

As identified in the studied literature, digitalisation has a tremendous impact on defining business cycles, as it relies on technological development that becomes part of the society (Vogelsang, 2010). Simultaneously with the development of digitalisation, competition develops as well, so innovation is needed in order to face these challenges (Carlsson, 2018). The conceptual basis for studying digitalisation in the context of business cycles is represented by the Kondratiev cycle, which is related to inventions that change people's lives. The economic cycle based on the use of technology began in the 1990s, when the internet began to be used as a tool by users in the whole world. The digitalisation process is linked with both microeconomic aspects, such as new business plans or new business ideas to be operationalized, and with macroeconomic aspects, such as the impact on economic growth and employment (Vogelsang, 2010).

The European Commission has studied the impact of digitalisation since 2014 and publishes the newest developments in this sector, including country reports (European Commission, 2021a, 2021b). Data is made comparable and published by Eurostat (2021a, 2021b), ensuring a comparable view of the developments in digitalisation at European Union level. This very accurate observation is performed, as digitalisation proves to affect all business sectors, the behaviour of market participants and the daily life of consumers (Harvard Business Review Report, 2017).

2.2. Main Characteristics of a Digital Economy and Competition-Related Challenges

The relevant researched literature identifies the following characteristics of the digital economy: the network as an important element of the economy (e.g., the internet as a network), the use of IT services and technology, and the existence of digital goods (Vogelsang, 2010). As networks are part of the digital economy, network effects have to be taken into consideration when assessing this concept. Every additional participant to the network will raise the utility of all network participants. This explains as well the increased willingness to pay the network participants, considering the network effect. Network effects may occur as well by the fact that a customer buys complementary goods suggested by the platform he or she uses. Network effects lead to a market of a high degree of concentration (Calvano, Polo, 2021) in the context of platform economies.

The theoretical economic model illustrating transactions on markets with digital goods is the model of two-sided markets. In these markets, the utility of sellers increases when the number of buyers increases. On the other hand, the utility of

buyers increases if the number of sellers is high. Digital goods are subject to price discrimination, as they are featured according to the consumer. This is an important aspect to be considered from the point of view of competition. Concrete forms of this price discrimination might be customisation, versioning and selling different versions of a product at different groups for different prices. Bundling is as well possible as a commercial practice in digital economies, and this as well is an anti-competitive behaviour. The market structure of digital economies may allow a tendency to market power, which is an important competition aspect to be considered in the process of digitalisation and of network-based economies. The fact that strong market dominance or even monopolies may occur in the IT sector is proven by the development of Microsoft to a position of super-dominance, with a market share of 96% in former times (end of 1990s). Market power may be assessed by means of the Hirschman-Herfindahl-Index (Shepherd, 2018). According to the studied literature and given the structure of markets in digital economies, the theories applying to these markets are the Monopolistic advantage theory, the Oligopolistic reaction theory, the Network approach and Coase's Theory of internalisation (Vogelsang, 2010). The relevance of network effects related to the new platform economy is confirmed in the specific literature (Copenhagen Economics, 2021).

2.3. Tools for Measuring Digitalisation

An index used in order to measure aspects related to digitalisation is indicated in the literature to be the Digital Opportunity Index, focusing on modern services such as mobile telephony and the use of the internet (Vogelsang, 2010). The European Commission nowadays measures the Digital Economy and Society Index (DESI) in order to reflect aspects related to digitalisation in a concrete manner (European Commission, 2021b). This index is provided by Eurostat (Eurostat, 2021a) and will be described in the Methodology section of the present paper.

3. Research Questions/Aims of the Research

The present research analyses competition in digital markets, focusing on market power, concentration and data protection in the context of digitalisation. Concentration of markets in the light of the digitalisation process has to be assessed in a new perspective in order to ensure the appropriate legal and regulatory framework for digital markets and enhanced digitalisation. This research hypothesis is reflected in the present paper, trying to evaluate novelty elements when defining markets and market power in the context of enhanced digitalisation. The acceptance of consumers regarding the digital change is as well an element that needs to be assessed in order to figure out the impact of digitalisation on business and in our society. Acceptance towards digitalisation can be increased if consumers are aware of their advantages. Benefits for consumers as well as challenges related to adapting to the digital environment have to be considered in order to gain a correct picture of this market phenomenon. The present research is

also dedicated to these aspects of behavioural economics related to changes brought by digitalisation and their impact on the behaviour of market participants.

4. Research Methods

Social sciences, to which economics belong, express the tendency to rather use quantitative methods in research. According to the newest developments, in current times the researched literature argues that quantitative methods are really the most appropriate to reflect economic issues. This is why nowadays qualitative research methods in economics are encouraged (Carlsson, 2018, p. 432). Based on this judgement, the present paper emphasizes on the use of qualitative research methods in its assessment.

The specific literature is reviewed in this perspective of qualitative research methods. Books on this topic as well as scientific articles (Science Direct, Elsevier) have been reviewed. Results of metadata regarding the impact of digitalisation in society are being assessed in the current paper. The results of the consulted report “Competing in 2020: Winners and Losers in the Digital Economy” published by Harvard Business Review based on a survey with 783 respondents were used. The respondents were senior managers, executives and board members with a role in decision making related to digitalisation from industries like manufacturing, technology and financial services around the world.

In order to provide a complementary quantitative perspective too, the Digital Economy and Society Index is analysed in the present research paper in order to measure the impact of digitalisation on business and competition. The index is provided by the European Union and the analysed data is provided by Eurostat, in order to ensure reliability and a comparable view at European Union level. This indicator provides information about the change caused by digitalisation in the European Union at the level of households and the level of business sectors (Eurostat, 2021a). The indicator reflects the access to digital technology, the use of this technology and the impact of the use of technology from an economic point of view. DESI Country reports provided by the European Commission are as well analysed in order to prove the research hypothesis by case studies, such as the case of digitalisation in Romania.

The proposed research approach of the present paper combines aspects of various relevant fields, such as business, economics, European Union policy and European Union law in order to emphasize the wide range of consequences of digitalisation. The cross-disciplinary view ensures novelty, of an in-depth understanding of the researched economic topics and a valuable contribution to research, given the current international context of digitalisation and its increasing importance.

5. Findings

5.1. Results of Metadata Regarding the Impact of Digitalisation in Society

The results of the consulted report “Competing in 2020: Winners and Losers in the Digital Economy” published by Harvard Business Review are based on a survey with 783 respondents. The digital aspect is important for many companies, as 61% of the respondents indicated hybrid structures of the company, including a digital element. Given this structure, digitalisation has an impact in business and economics, as it influences the business model and the structure of the company (Harvard Business Review Report, 2017).

Competition aspects have to be considered given this development. Markets need to be defined in a new manner, as the geographical component becomes less important. The access to customers from around the world is going to be more facile. Access to customers means as well that the customer has a higher number of alternatives, so the company has to face more competition than in the former era. Another important research result is related to the subject of big data. For companies being active in a digital manner, big data is an important issue. They use big data and make it possible to use big data. Interpreting big data is difficult without the use of artificial intelligence, as it would be difficult to assess a huge amount of data with human resources. The increased use of artificial intelligence brings as well challenges related to job losses or to unemployment as a consequence of replacing human workforce with automation and artificial intelligence, for example in customer services or in financial services (Carlsson, 2018). On the other hand, the use of technology has a positive impact on productivity (Vogelsang, 2010) and is thus profitable for business owners.

5.2. Solutions for Platform Economies

Companies acting in the digital economy have to adapt their business models to this new type of international business or to create new business models. In order to be successful on the digital market, companies try to minimize their costs in the market-entry-phase and to achieve growth based on network effects. In this case, the business owner calculates and accepts negative registration fees for his or her platform in these phases. This business strategy may be used when financial resources for the business are limited. Another option would be to try to achieve as much profit as possible in the market-entry-phase and in the growth phase, by having positive registration fees, to balance the initial costs that were high and that were paid in advance by the business owner. This decision is a typical example of trade-off that has to be considered (Vogelsang, 2010).

5.3. Digitalisation as a Component of European Union Policies

The European Commission has a focus on digitalisation in its current policies, as it a field with strong, cross-sectional impact. This focus in digitalisation gets a concrete expression in the initiative of the European Union to promote the Digital

Single Market as a priority of European Union policy (European Commission, 2021c). Since 2014, the European Commission has performed a monitoring of digitalisation by calculating the Digital Economy and Society Index, which is presented in Figure 1. Digital Economy and Society Index.

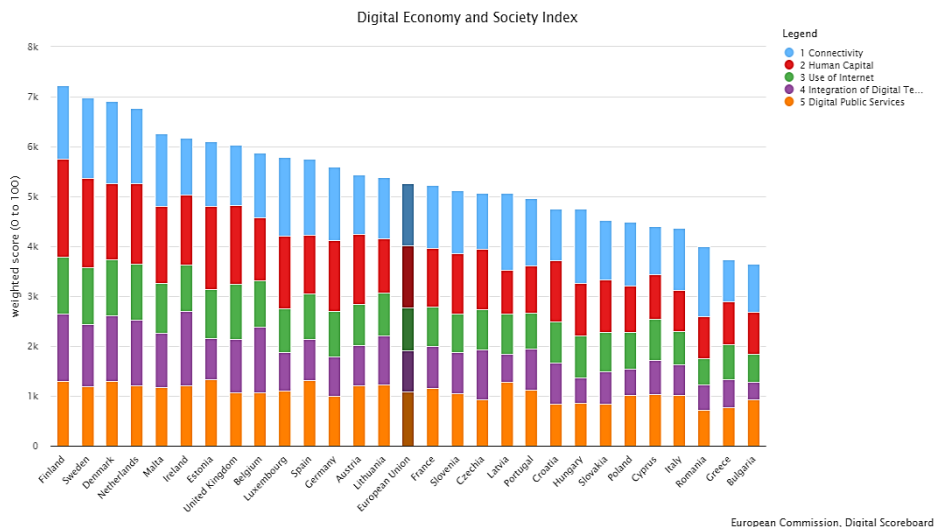


Figure 1. Digital Economy and Society Index

Source: European Commission website, European Commission (2021b).

Digitalisation transforms the behaviour of people, of consumers but as well of businesses in the European Union. Communication becomes more facile. By offering various communication alternatives to the consumer, competition increases in the digital sector and in the digital economy (Vogelsang, 2010).

The monitoring performed by the European Commission allows an analysis of the case of Romania regarding digitalisation. Although Romania has a high connectivity, the digitalisation process is not very developed in Romania. It would be a progress if small and medium-sized enterprises used digitalisation in an enhanced manner. The digitalisation of the public administration would as well contribute to better results regarding digitalisation in Romania. Although Romania has a high number of well-educated IT professionals (place 5 in the European Union according to the DESI Report for Romania), the practical use of the internet is not as high as expected. Romania is on the 27th in the European Union regarding the use of technology in small and medium-sized enterprises, and this represents a field where improvement is needed (DESI, 2021).

The current focus of the European Union on the issue of digitalisation is related to the fact that this field has a high impact from the perspective of data privacy and data protection. The owner of data is becoming more and more powerful. Big data may be used and interpreted with the help of artificial intelligence. The single choice of each user might not be of high importance, but owning all this data related to consumers around the world becomes important. It might help to analyse

and predict consumer behaviour on a large scale. This is why legal, economic and policy aspects have to be assessed together in order to figure out the big picture of this topic. Data protection becomes very important in the current context of the Internet of Things and of a world connected by devices, in which the choices performed by users via the internet can be monitored without even knowing it.

By its network effects, a digital economy is an economy allowing concentration and thus a certain degree of market power (Calvano, Polo, 2021). Platform economies may lead to platforms having a certain degree of market power given by the fact that they become dominant on the digital market. The views regarding market power are different in European Union competition law and in American Antitrust law (Vogelsang, 2019). These differences are important when assessing competition issues on digital markets, as this sector is dominated by American IT giants. In the ruling of the European Union Court of Justice these different approaches as well became obvious. At European Union level there is a common view regarding the definition of market power and of concentration. These aspects are established in the provisions of European Union competition law, with the European Commission as a supranational competition authority of the European Union, ensuring the monitoring of this sector.

The role of the European Union in establishing an appropriate framework for the digital market becomes obvious in the principles of European Union policy and of European Union law regarding data protection, which is a very important aspect that must be considered in the context of digital markets and big data. This policy direction shows that data protection is an important aspect that must be considered by actors of the digital markets.

Market power can be measured by using the Hirschman-Herfindahl-Index (HHI) (Shepherd, 2018). Classical approaches regarding the assessment of market power are still valid when assessing digital markets. Nevertheless, possible limits using this index as an expression of market power in digital markets might be given by the fact that in order to calculate the Hirschman-Herfindahl-Index, it is necessary to know all the market shares of the involved actors of the market. This might be a problem when assessing digital markets. Furthermore, innovation on this type of market is very rapid. It is possible that companies having a relatively small market share become powerful in the sector by developing new ideas and new technologies in a short time.

In order to have control over market power, competition law ensures an ex-post control while the ex-ante control is possible due to regulatory affairs. An ex-ante control of market power is as well ensured by competition law in the field of mergers and acquisitions. All these measures can be seen as solutions for providing a fair business environment for the digital economy. Competition policy and regulatory affairs should be used complementarily as tools for ensuring competition in the digital market. A proper regulation of the digital economy sector might be a solution, as it proved to be in regulating markets such as telecommunication, broadband and mobile services. A solution to deal with the challenges related to the new digital economy and the platform economy that

defines the current times would be ensured by a proper regulation of the Digital Single Market of the European Union.

6. Conclusions

As the Single Market of the European Union was an important step in consolidating the European Union, the currently promoted Digital Single Market marks the new era of new economy based on technology and digitalisation. This transformation comes with new challenges for the business environment but also with opportunities for new business ideas and innovation. Consumers benefit from these new business models. Consumer behaviour is subject to these transformations. New dimensions like data protection, market power in the digital era and concentration in platform economies have to be considered. A solution for having control on market power in these circumstances is that of competition policies and regulation that work together in ensuring a fair digital environment. The research results of the present paper are of high interest given the newest developments in the field of digitalisation in the European Union, so that they can be further developed in future research projects.

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