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Problems Emerging in Transition to Digital Economy and Suggestions for Solutions

Dijital Ekonomiye Geçişte Ortaya Çıkan Sorunlar ve Çözüm Önerileri

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Abstract

In this study, it is aimed to address the problems that arise with the development of the digital economy thanks to the digital transformation experienced with the Fourth Industrial Revolution (Industry 4.0), and to explain what needs to be done by suggesting solutions in order to support the digital economy with a sustainable development model. Since 1996, when the concept of digital economy was first introduced in the literature, many studies have been carried out and the concept of digital economy has been used as a keyword in many scientific papers, along with articles published in databases such as ScienceDirect, Wiley, Taylor&Francis, Springer, SSRN, DergiPark. Due to the Covid-19 epidemic, which emerged in 2019 and was effective on a global scale, the fact that individuals meet their basic needs and many needs through digital platforms has led to the acceleration of digital transformation and entrepreneurship, the development of new production models, and the diversification of digital marketing and digital economy tools. With the acceleration of the digital transformation process, positive developments have been experienced in the context of the digital economy. However, this situation has brought along some problems such as unemployment concerns, digital security problems, tax, audit and financial reporting problems, problems in the supply of qualified personnel, difficulties in protecting intellectual property rights, and selling low quality or counterfeit products. The aim of this study is to examine the emerging problems and offer solutions, as well as the benefits of the digital economy that has developed with digital transformation.

Keywords: *Digital entrepreneurship, digital economy, digital transformation, digital security.*

Öz

Bu çalışmada, Dördüncü Sanayi Devrimi (Endüstri 4.0) ile birlikte dijital dönüşüm sayesinde dijital ekonominin gelişmesiyle ortaya çıkan sorunlara değinilmesi ve dijital ekonominin sürdürülebilir bir kalkınma modeli ile desteklenmesi amacıyla çözüm önerilerinde bulunularak yapılması gerekenlerin anlatılması amaçlanmaktadır. Dijital ekonomi kavramının literatürde ilk ortaya atıldığı 1996 yılından beri günümüze kadar pek çok çalışma

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yapılmış ve ScienceDirect, Wiley, Taylor&Francis, Springer, SSRN, DergiPark gibi veri tabanlarında yayımlanmış makalelerle beraber birçok bilimsel bildiri içerisinde dijital ekonomi kavramı anahtar kelime olarak kullanılmıştır. 2019 yılında ortaya çıkan ve küresel ölçekte etkili olan Covid-19 salgını nedeniyle uygulanan yasaklar ve sağlık endişeleri, bireylerin temel gereksinimleri ve birçok ihtiyacını dijital platformlar üzerinden karşılamasına, dijital dönüşüm ve girişimciliğin hızlanmasına, yeni üretim modellerinin gelişmesine, dijital pazarlama ve dijital ekonomi araçlarının çeşitlenmesine neden olmuştur. Dijital dönüşüm sürecinin ivme kazanmasıyla birlikte dijital ekonomi bağlamında olumlu gelişmeler yaşanmasına rağmen bu durum işsizlik endişesi, dijital güvenlik sorunları, vergi, denetim ve finansal raporlama problemleri, kalifiye eleman temini sorunları, fikri mülkiyet haklarının korunması güçlükleri, düşük kaliteli veya taklit ürünlerin satılması gibi birtakım problemleri de beraberinde getirmiştir. Bu çalışmanın amacı, dijital dönüşümle birlikte gelişen dijital ekonominin getirdiği faydaların yanı sıra ortaya çıkan sorunları incelemek ve çözüm önerileri sunmaktır.

Anahtar Kelimeler: Dijital girişimcilik, dijital ekonomi, dijital dönüşüm, dijital güvenlik.

Introduction

The Covid-19 epidemic, which has affected the whole world on a global scale, has caused individuals to meet many of their needs through digital marketing tools. This has contributed to the diversification of digital marketing tools and the development of digital entrepreneurship with digital transformation. The diversification of digital entrepreneurship marketing tools and the development of production methods have increased the importance of the digital economy for countries. Due to the restrictions imposed due to the pandemic and the emerging health concerns, consumers have had to use digital marketing tools to meet their needs. After the pandemic, it is seen that global e-commerce has reached approximately 5 trillion dollars by the end of 2021. In the next 5 years, this figure is expected to increase by half and reach 4.5 trillion dollars. In a study conducted with the participation of approximately 3000 people in Europe and China, especially the USA, it was observed that especially food-related expenditures increased by approximately 50% in China, approximately 30% in the UK and USA, and approximately 25% in Germany (Statista, 2022). In Turkey, 0.33 billion TL in food and supermarket expenditures from digital platforms in 2019 spent and this figure is 1.8 billion TL in 2020 with an increase of 545% (Ikas, 2022).

After the global epidemic that emerged in 2019, e-commerce on a global scale has grown more than twice in a short period of about a year. During the pandemic process, the average number of products purchased per order increased by 60%. 44% of consumers have tried new brands and 43% of first-time online shoppers stated that they think more positively about online shopping. In this process, 40% of consumers stated that they were more comfortable with digital technology and e-commerce than before the quarantine. Online gift shops reported an increase of approximately 490% in gross product value compared to previous years (Worldef, 2021). As in many principles, online shopping has increased approximately 3 times in Turkey after the pandemic. Compared to the previous year, this figure has increased significantly, reaching approximately 2.5 billion Turkish Liras. Here, it is seen that the highest demand is concentrated on food and market shopping (FinTech Istanbul, 2020). When March, April and May 2019, when the pandemic was first seen in Turkey, and the same period of 2020 are compared, it is known that especially online food and grocery shopping has increased by 528% from 246 million

TL to 1.3 billion TL. While the number of businesses operating in e-commerce in Turkey was 68.457 in 2019, this number reached 256,861 in 2020 (an increase of 375%), which had significant implications for the digital economy. In addition, the ratio of e-commerce expenditures in GDP in 2020 increased by 51.8% compared to the previous year and showed a great difference. Although the rapid and compulsory transformation process experienced by digital entrepreneurship has contributed to the development of the digital economy, it has brought some problems (E-ticaret, 2021).

The aim of this study is to examine the problems that arise with the development of the digital economy and to offer solutions. In order to achieve this aim, the content of the study is organized as follows: In the first part, digital entrepreneurship and digital transformation, in the second part, the digital economy, in the third part, the problems that arise in the digital economy are discussed. In the fourth and last part, the results obtained are presented and suggestions are made for the solution of the problems.

Digital Entrepreneurship and Digital Transformation

The concept of digital entrepreneurship, which emerged with the rapid adoption of developments in information technologies by entrepreneurs; It is accepted as an area where emerging information tools such as internet and cloud technology are used in the business world (Eyel and Sağlam, 2021: 8). A digital entrepreneur is defined as a person who can take risks by taking a constructive role in reaching innovative solutions and create economic activity or social benefit by integrating them into management effectively (Vural and Çavuş, 2017: 52). Digital entrepreneurship is expressed as the search for opportunity based on the use of digital media and other information and communication technologies (McAdam et al., 2020: 349-350). Digital entrepreneurship, which is the new form of entrepreneurship that develops with digitalization, requires that almost all of the activities carried out electronically. In this way, a new understanding emerges with digital marketing tools, digital media platforms, digital distribution channels and the digital workplace consisting of their combination. The extent to which any business can carry out its activities in a digital environment, this shows the level of digitalization of that business. For this reason, digitalization and digital transformation are important for businesses and the internet has an important place. It is possible for people in different physical environments to produce a new good or service at the same time (Younis et al., 2020: 57-58). The fact that seven of the ten most valuable companies in the world are technology companies is shown as an important result of digital commercial activities. The rapid digitalization of the goods and services offered after the global developments has brought the digital economy to a more important and effective position in global trade.

Most of the emerging technological innovations are used commercially by existing new businesses with digitalization. New technologies emerging thanks to digital transformation take place quite differently from the current traditional understanding of doing business (Aagaard, 2019: 18-19). In the first place, entrepreneurship starts with the individual's ability to see new business opportunities thanks to his/her competencies. The development and progress of this is possible by taking advantage of the emerging technological innovations and entering into new searches. Thus, a real competitive advantage can be achieved. New business models emerge with the adoption of new technologies developed with



digitalization by entrepreneurs. This situation allows digital entrepreneurship to be moved to a different dimension. Businesses gain the advantage of rejabet to the extent that they can realize digital transformation. However, in the context of entrepreneurship, turning new technological developments into opportunities depends on entrepreneurs acquiring new skills. Otherwise, it does not seem possible to fully realize digitalization (Young et al., 2020: 2).

There are different definitions and studies in the literature on digital entrepreneurship. For example; While Kollmann (2006) defines digital entrepreneurship as the establishment of a new business by offering products and services over a virtual platform, Davidson and Vaast (2010) describe it as the pursuit of opportunities based on the initiative of digital media, information and communication technologies. Hair et al. (2012) expressed it as a form of entrepreneurship realized on digital platforms instead of traditional entrepreneurship, while Yaghoubi et al., (2012) defined digital products or services as a form of entrepreneurship that includes digital distribution, a digital workplace, a digital marketplace or some combination of these. While Aulet and Murray (2013) defined it as entrepreneurship that aims to operate regionally or even globally, thanks to the use of technology, instead of operating locally, Rashidi et al., (2013) expressed digital entrepreneurship as the type of entrepreneurship in which business is carried out using the internet and information technologies. This form of entrepreneurship, which provides product development and income generation over the electronic network, is considered as the digital transformation of business activity based on initiatives that bring new digital products or services to the market (Welsum, 2016; Guthrie, 2014). Digital entrepreneurship, which is a value creation activity that develops products, processes and economic activities by using technology, can create significant differences in terms of production speed and spread, unlike traditional entrepreneurship, using digital technologies, thanks to the intersection of digital technologies and entrepreneurship (Giones and Brem, 2017; Sussan and Acs. , 2017; Parker et al., 2016; Nambisan, 2016; Bogdanowicz, 2015; Von Briel et al., 2018). Le Dinh et al., (2018) define digital entrepreneurship as a new way of doing business in the digital age as a result of the traditional entrepreneur following technological developments. Digital entrepreneurship (Sahut et al., 2019; Recker and Von Briel, 2019), which emerged as a result of the intersection of digital technologies with traditional entrepreneurship, thanks to the use of new digital technologies as well as the use of new digital technologies by creating transformation within themselves and directing economic and / or social value (Sahut et al., 2019; Recker and Von Briel, 2019) is an entrepreneurial activity (Wentrup et al., 2020). According to Satalkina and Steiner (2020b), it is an important driving force within the innovation system that changes the structure, objectives and networking mechanisms of the overall business system. Digital entrepreneurship is also defined as entrepreneurial opportunities created and pursued through the use of technological platforms and other information communication equipment. In short, digital entrepreneurship can be defined as the realization of entrepreneurs' new business ideas and ideas by shaping them with digital outputs. Therefore, digital entrepreneurship encompasses many business categories. As technology advances and evolves, these categories (eg, marketing, sales, products, distribution, stakeholder management, operations) and new categories can potentially be shaped.

Activities carried out in the context of entrepreneurship are easily controlled thanks to digital methods and tools and the data obtained is preserved. Social networks, digital platforms and digital tools strengthen the technological infrastructure of digital entrepreneurship. In this way, it becomes easier to use the information obtained in a commercial sense and the emergence of new business models (Naudé and Liebrechts, 2020: 2-4). With the ease of access to the Internet, the development of new ways of doing business and the ease of establishing a business, digital entrepreneurship and digital businesses have also increased. This form of entrepreneurship is positioned on the basis of producing, obtaining, processing, using and creating value. The decrease in the costs of accessing digital technology and the rapid and easy dissemination of information have led to an increase in digital entrepreneurship. Thus, establishing a business, doing business (producing goods and services) and being able to compete becomes easier. This form of entrepreneurship, which is based on the Internet-based information exchange as the main argument, is increasing day by day. Low market entry costs, low cost of doing business and production direct entrepreneurs to this field. In short, anyone who can produce goods or services using innovative technologies and do this using digital tools (marketing, distribution, promotion, sales) is a digital entrepreneur (Ratten, 2020: 93-94).

Deloitte (2018) defines digital transformation as a business's use of digital technologies to increase its current operations and profitability. It is stated that the “Digital Transformation” or the “Second Machine Age”, in other words, is more focused on producing added value, based on information, access, interaction and cooperation, rather than physical and industry-oriented production (Brynjolfsson and McAfee, 2014: 9- 13). Hess et al. (2016) defines digital transformation as the whole of the changes experienced in the products and services they offer together with the new changes they have created in the corporate structures of the enterprises with the new processes and business models that have emerged thanks to the developing digital technologies. Digital transformation is a comprehensive transformation that will affect all the functioning of businesses, supplier, customer and employee relations, business value chains, business processes, as well as business models, organizational structure, leadership understanding and working styles, which are ways of providing value and earning income. Businesses in the digital transformation process mostly talk about the difficulties of this process (Oswald and Krmar, 2018). Due to the developments in Information and Communication Technologies and changing social needs, the holistic process that businesses have realized between business processes, business models, human, capital and technology components in order to provide more effective and efficient service and to ensure satisfaction is called "digital transformation". For this reason, there is a need for a strategy and roadmap that will successfully manage this process of change and transformation. What is required to prepare a functional digital transformation roadmap is for businesses to know well what transformation strategy to adopt.

Digital transformation is based on the way businesses realize their business models and the ability to accurately and effectively manage the feedback obtained. Businesses need to align their existing infrastructure, business processes, organizational forms, data and application systems, new business models, with new customer needs requirements (Stepantseva, 2020: 15). Most digital transformation activities also involve the transformation and adaptation of innovation processes. While the focus on digital innovation has long been a reality for businesses in the information and communications sector,



it now applies to many businesses in traditional industrial sectors such as machinery, automotive, retail and logistics (Lichtenthaler, 2018: 499). It is accepted by scientists and researchers that significant changes have occurred in the social, structural and economic fields of social life with the rapid developments experienced. In the current conditions, where the world population exceeds 7 billion and the number of people using smartphones and mobile data is over 5 billion (Brahima, 2015:2), digital transformation has gained a great speed globally in individual, corporate and public spheres. Achieving development in terms of industry mostly depends on the development of electronic and information technologies. These developments in technology enable businesses to maintain their advantages in terms of efficiency and effectiveness (Davidson and Vaast, 2010: 2). Today, most of the businesses operating in different sectors have realized that digital transformation is important for the profitability and sustainability of businesses. Therefore, the transformation of business functions such as sales, marketing, human resources, operations, finance, research and development and customer support into digital environment has become inevitable. Gale and Aarons (2018), in their study on businesses that successfully realize digital transformation, revealed that operating costs decreased, innovation opportunities increased, they became an effective business by gaining a more systematic structure, and thus a competitive advantage was gained. In addition, businesses have realized that the way to specialize in supply chain activities is through digital transformation. For this reason, it is important for businesses to create new strategies and put them into practice so that they can implement digital transformation and be successful. One of the most important aspects to consider in digital transformation is to develop a corporate strategy that is designed, created and implemented by leveraging digital resources to create a new business strategy and create value. Therefore, digital transformation has a strong and growing relationship with digital entrepreneurship. However, sometimes this relationship is perceived differently and confused with each other. In order to explain the differences between digital transformation and digital entrepreneurship, the supply and demand aspects of entrepreneurship should be well expressed. Digital entrepreneurs can create digital transformation in their businesses by utilizing the opportunities that arise thanks to digital transformation.

In the digital economy era, digitalization is a strategic management issue for businesses. In current studies on digitalization and digital transformation, digital technology infrastructure, competitive advantages of enterprises are discussed and the digitalization process is examined (Wang et al., 2020: 442). The development of digitalization is accompanied by digital transformation. The success of digitalization depends on replacing existing technologies with new ones, developing new business models, and following processes with completely digital methods and tools (Sotnyk et al., 2020: 98). Businesses that have successfully completed the digitalization process not only show their presence in the market they compete in, but also globally. With digital transformation, businesses can reach more and different consumer groups (Matarazzo et al., 2020: 61-62). For this reason, the successful realization of digital transformation is important for businesses to maintain their existence and gain competitive advantage. However, this process is not only a process that businesses can perform holistically with their own means. The most important reason underlying this is that the digital

transformation ecosystem is not sufficiently developed for the realization of digital transformation. In terms of digitalization, necessary IT and network infrastructures need to be developed. The success of digitalization will enable the enterprise to develop business methods and tools and to completely digitize its business processes. Digital transformation requires a radical overhaul at all levels of the business. This inevitable change requires the adoption of a transformational general approach that addresses architecture from business model to business processes.

Countries implement many new applications in order to achieve success in digital transformation. The following examples can be given (BSTB, 2018b: 39): The European Union (EU) has prepared a 100 billion dollar grant program for Research, Development and innovation; The Netherlands has created a network of digital centers of excellence; With the concept of Japan Society 5.0, it foresees the impact of digital transformation on every aspect of life; South Korea trains an army of designers in the field of additive manufacturing. In Turkey, on the other hand, the subject attracts attention by government institutions, universities, development agencies and a wide range of individuals. Many strategic plans are being prepared and incentive systems are in operation. Turkish Employment Agency (İŞKUR) (2018) develops important projects and collaborations for young people to adapt to digital transformation.

Türkel and Bozağaç (2018: 422) have shown that businesses gain competitive advantage and are more successful in adapting to technological environmental conditions thanks to technological developments and new management production models that have emerged with information technologies. In another study, Pehlivanoglu (2014: 147) states that in the current market conditions, businesses should produce new technology and be open to innovations in order to maintain their existence and gain superiority over the businesses they compete in the market. In the study, which deals with the difficulties that businesses will face with the fourth industrial revolution, the analytical network process in the method where there is more than one alternative decision system and its importance for businesses are emphasized (Özkaya et al., 2019).

Digital transformation has some components. These components that make up the digital transformation roadmap are expressed as follows (Ministry of Industry and Technology and TÜBİTAK, 2018):

- ✓ Human: Raising a qualified workforce by improving the educational infrastructure.
- ✓ Technology: Developing innovation capacity with technology.
- ✓ Infrastructure: Strengthening the information technology foundation and data transfer infrastructure.
- ✓ Suppliers: Providing support to local and national technology producing enterprises.
- ✓ Users: Encouraging stakeholders to technology and digital transformation.
- ✓ Governance: Understanding the importance of branding and corporate governance.

It is important that these components are implemented in a coordinated way in order for businesses to carry out the digital transformation process successfully. Otherwise, failure of the transformation process to be realized at the desired level will prevent businesses from reaching their desired goals. In



addition, this situation will cause businesses to lose their competitive advantage and sustainability over time. For this reason, it is of great importance to fully realize the digital transformation in the transition to the digital economy.

Digital Economy

The term digital economy was first used by Dan Tapscott (1996). The concept of digital economy, which has constantly changing definitions and does not have a precise definition, is explained in the most comprehensive way in the report prepared by OECD (2015a). According to this report, the digital economy; It penetrates numerous aspects of the world economy, influencing sectors as diverse as banking, retail, energy, transportation, education, publishing, media or healthcare. The digital economy refers to all economic activities in these sectors in digital form. The concept of digital economy, which is often confused with e-commerce, is a concept that also includes e-commerce, as can be understood from the comprehensive explanation of the OECD. The digital economy encompasses all fields of information technology, communication and informatics.

This concept, which is also expressed with terms such as “knowledge economy”, “network economy” or “new economy” (Mastar Özcan, 2016: 74); It can be defined as the transformation process brought about by information and communication technology, which makes technology cheaper, more powerful and widespread, improves business processes and supports innovation in all sectors of the economy (OECD, 2015: 11). E-commerce and digital economy are often used synonymously. However, when viewed from a broad perspective, the digital economy includes e-commerce. For this reason, e-commerce is only one of the components within the concept of digital economy. In addition to electronic commerce, the digital economy includes all activities such as online advertising, online payment services, cloud computing, web-based advertising, three-dimensional printing, and the use of digital money (Mastar Özcan, 2016: 73). By definition, the digital economy encompasses information and communication technologies, including production and services, digital content, and everything from e-commerce to music. However, taking this standard definition as a basis while classifying also causes some important digital activities to be overlooked. As digital tools spread to a wider area and find use in more sectors, the number of digital companies is also increasing (Portes, 2015: 3).

Due to the development of information technologies, economic activities carried out in the digital environment have reached a significant volume in the international market. In 2021, retail e-commerce sales within the digital economy reached approximately US\$4.9 trillion worldwide. It is estimated that this figure will grow by about 50 percent in the next four years, reaching approximately \$7.4 trillion by 2025 (Statista, 2022).

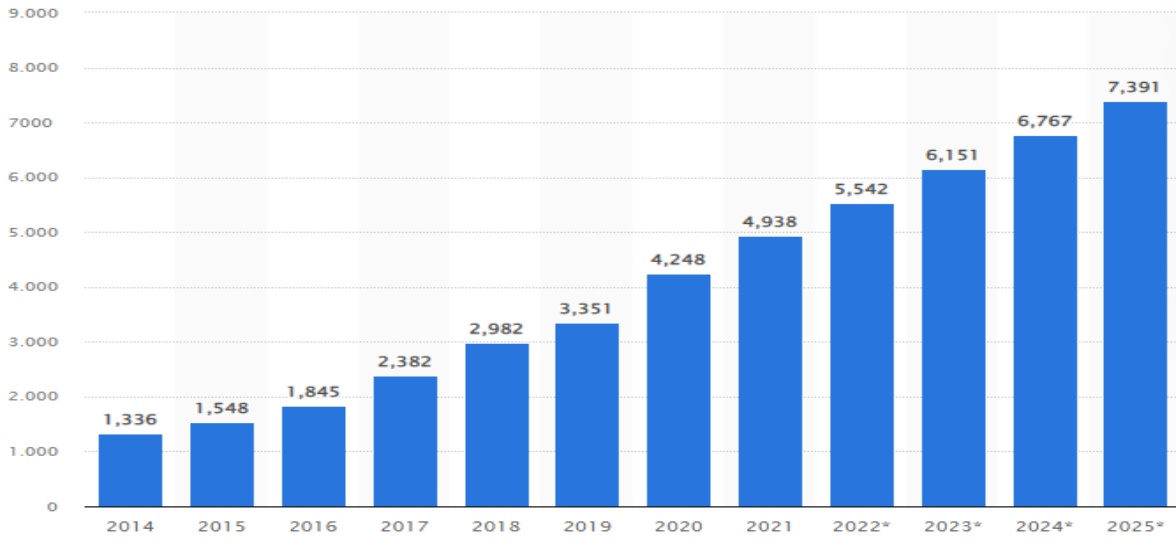


Figure 1. The Expectation of The Change and Development of E-Commerce Over The Years (Statista, 2022).

With the digital evolution of ways of doing business and commercial activities, it has become a necessity for businesses to follow the requirements of the digital economy. For this reason, businesses have had to determine new roadmaps for the transition to the digital economy. As a result of digitalization, businesses need to benefit from social networking tools, mobile technologies and smart systems in order to adapt the emerging new business models (Ungureanu, 2021: 28).

Mesenbourg (2001) stated that the digital economy should be considered as having three basic components. These; infrastructure, electronic business processes (how the business is carried out) and electronic commerce transactions (online sales of goods and services). The main features of the digital economy that increasingly characterize the modern economy, although not simultaneously present in any business; mobility, reliance on data (especially big data), network effects, versatile business model, monopoly or oligopoly tendency, low barriers to entry and volatility due to rapidly developing technology (OECD, 2015b: 73-74). Since the use of digital economy is becoming more and more widespread in the world, the EU Digital Economy and Society Index (DESI) has been published by the European Union Commission for the digital economy every year since 2014, and the digital performance of EU member countries is measured with this index.

In a study on the digital economy, Nagy (2017) evaluated the digital economy situation of Hungary by analyzing the digital economy and society situation of Hungary and Ukraine. Then, using secondary data published by the European Commission, Nagy (2017) found that Hungary, from the two countries he compared, was more developed and showed higher growth rates in terms of digital economy. Castellacci and Tveito (2018), in their study as a literature review, concluded that there are four channels through which the digital economy can shape welfare and development. This situation has also changed the concept of individuals' time management with digitalization. In this way, the emergence of new and different social environments, the rapid spread of information, its becoming a global power, and the easy and cost-effective access to information have made significant contributions to the living standards of individuals. Konu (2020) examined the impact of the digital economy on



sustainable development with the horizontal-section regression analysis method. According to the results of the econometric study conducted by EU countries using 2018 data, it was concluded that the innovation variable did not have a significant effect on the Sustainable Development Goals Index, however, the EU Digital Economy and Society Index (DESI) appears to have a statistically positive and significant effect on the SDGI (Sustainable Development Goals Index). Doğruel Anuşlu and Fırat (2020) used factor analysis and regression analysis in their studies investigating the effects of Industry 4.0 on sustainable development and environmental performance. In the study, Doğruel Anuşlu and Fırat (2020) used 2018 data from 116 countries. They preferred the GII for Industry 4.0, and the environmental performance index and sustainable development goals to represent sustainable development. In the results of the analysis, it has been determined that Industry 4.0, which has a very high relationship with innovation, has positive and significant effects on the concept of sustainable development.

Entrepreneurs in different geographical regions can create new and strong collaborations thanks to digital technologies. This gives them the opportunity to compete not only in the market they compete in, but also on a global scale. Thus, new opportunities and new collaborations emerge (Nobanee and Dilshad, 2020: 4807). In order to realize the digital transformation, which is the necessity of the transition to the digital economy, businesses need to acquire and use certain technologies. In this context, businesses need to allocate financial resources in order to benefit from new technologies and methods. The spread of digital entrepreneurship has increased the importance of the digital economy. However, Block et al., (2020: 397) stated that the digital economy may cause problems that may negatively affect social life in the industries and economies of developed countries. This indicates that the developing digital economy will have some negative feedback as well as positive effects on social life.

When the concept of digital economy is taken into consideration, it is understood that information technologies and information tools/systems are at the center of the concept of digital economy. Digital services, sharing economy and businesses constitute the digital economy in a narrow scope. Along with digitalization, electronic commerce, industry 4.0 and algorithmic economy explain the concept of digital economy on a large scale.

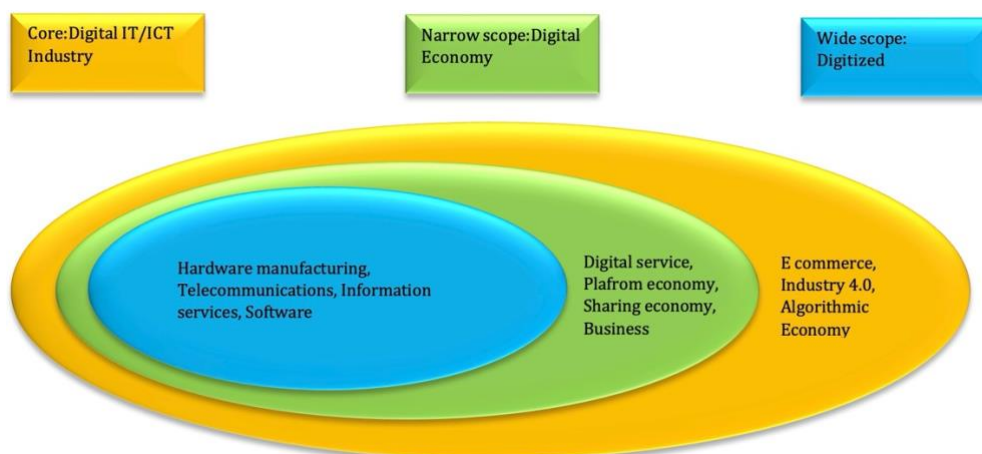


Figure 2. The Concept of Digital Economy in Narrow and Broad Sense (Bukht ve Heeks, 2017).

While software, hardware and telecommunication sectors are accepted as the core point of the digital economy in this template, the current and most comprehensive phase of the digital economy includes a process ranging from software and hardware to the sharing economy and from the sharing economy to industry 4.0.

Varian, (2016: 7) proposes five main ways in which digital technologies will transform economic activities and they explain these ways as follows:

Data Collection and Analysis: Production-related data can be stored in the computer environment and these stored data will be analyzed in order to prevent and minimize a possible production error in the future. Thus, failure points of automobiles, mobile phones, smart devices and other complex devices will be detected more easily and lower cost and quality products will be produced.

Personalization and Customization: Now businesses will be able to offer customized products and services. Customers will prefer the more experienced of these companies and will rely on vendors to store information about their purchase history, billing preferences, shipping addresses and other details.

Experience and Continuous Improvement: Companies will be able to use large data sets to improve their performance thanks to online systems. In this direction, they will be able to automate systems and use strong alternative algorithms for production and resource allocation.

Contract Innovations: Contracts are critical to economic transactions. But monitoring contractual performance without a computer is often difficult or costly. Therefore, businesses and consumers will be able to monitor the performance of production or products thanks to computers and contracts, and will eliminate the situation of encountering asymmetric information such as negative selection. For example, thanks to vehicle monitoring systems, it will be possible to obtain information about the usage history and vehicle health of the vehicles, thus eliminating the risk of purchasing a worn and defective vehicle.

Coordination and Communication: Even very small businesses today have access to communication services that only very large and multinational companies could afford 20 years ago. Now these small businesses can easily operate on a global scale. Because the cost of transport and communication has fallen dramatically, and mobile devices have enabled the global coordination of economic activities that was so difficult just a decade ago. For example, authors today can collaborate on documents at the same time, even if they are thousands of miles away. As video conferencing, internet and information communication technologies spread, a flexible structure emerges that will increase the productivity of organizations.

The digitized economy also represents a new economic model. Applications such as e-commerce, online advertising, cloud storage and online payment services, virtual application markets, social media platforms can be said as the business models created by the digital economy (European Parliament, 2016: 15). Apart from these, business models such as blockchain, sharing economy business models, internet of things, advanced robotic systems, 3-D printer business models, artificial intelligence are also developing rapidly. Among these business models, it can be said that e-commerce is the most widely



used business model, which includes "all kinds of online economic and commercial activities carried out in electronic environment without physical confrontation". According to Statista, (2020) forecasts, global e-commerce sales volume is expected to reach \$6.54 trillion in 2022. When the e-commerce volumes of the countries are examined, it is seen that China is the largest e-commerce player in the market. E-commerce accounts for 15.9% of China's annual retail sales, with total online sales of \$672 billion. The USA follows China. The share of US e-commerce volume in total retail sales is 7.5%, and annual online sales are at the level of 340 billion dollars. England is in third place. The UK's annual online sales are \$99 billion and its share of total retail sales is 14.5%. These countries are followed by Japan, Germany, France, South Korea, Canada, Russia and Brazil, respectively (The 10 Largest E-commerce Markets in the World by Country, 2020).

Problems Arising in The Transition to Digital Economy

Although the digitalization of economic life has positive effects on the welfare level of societies, it also brings with it many problems. Faster buying and selling procedure, ease of finding products, access to more customers thanks to 24/7 buying and selling processes, elimination of geographical borders, better service quality with lower operating costs, no need for a physical workplace, easier business management, digital are some advantages of the economy. There are also disadvantages such as everyone can easily start a business, it is easy to extort customers' money, product quality involves warranty risk, mechanical failures, there are many hackers, e-commerce and service sites and payment gateways are always prone to attacks.

With the pandemic process, the acceleration of digital transformation in terms of businesses has led to the rapid development of the digital economy. Of course, although this situation has a positive effect on the welfare of individuals, it has also brought some problems. People have lost their jobs, or because they are worried about losing their jobs, there is a lot of pressure on them. The innovations created by digitalization have led to problems called technostress on some working individuals. In addition, due to the restrictions and health concerns, consumers have had to shop online. Especially people who have not shopped through technology and digital platforms before have become the target of digital hackers, and this has led to an increase in digital security problems. As another problem, problems related to taxation have increased and informal economy problems have emerged. In terms of enterprises, the problems in the supply of qualified personnel have increased with the digitalization. With digitalization, difficulties have emerged regarding the protection of intellectual property rights of individuals. At the same time, the sale of low quality or counterfeit products has also shown an increasing trend with the development of the digital economy (Chernyakov and Chernyakova, 2018).

With the transition to the digital economy, positive developments have been experienced in many areas in the national economies. There have been many positive benefits such as the increase in employment, especially the welfare levels of individuals, the emergence of new business/occupational lines, the reduction of informal economy and unemployment, the realization of sustainable development, the development of business processes, the strengthening of national economies, the increase in competition levels, and the acceleration of digitalization of enterprises. However, the developments

have led to the emergence of some problems in the fields of taxation, financial reporting, auditing, employment and digital security. In this context, the problems that arise with the transition to the digital economy will be examined under four main headings and solutions will be presented.

Table 1. Problems Arising in The Transition to Digital Economy

Problem Area	Emerging Problems	Solution Offers
Taxation	Double taxation Determination of tax source Determination of tax rates Tax law deficiencies Determination of direct and indirect taxes Determination of tax liability	Accurate determination of the source of taxation and implementation of an applicable, auditable and fair international digital tax audit system, which will prevent double taxation in accordance with OECD standards.
Financial Reporting and Auditing	Legal validity and changeability of electronic records Creation of websites and qualifications of domain names Accounting for intangible company assets Accounting for the use of site scores and credit card scores Problems with ledger and record layout Financial reporting of websites, intangibles and client lists	Training of qualified accounting audit staff Ensuring the security of electronic books and records Classification of intangible assets as goods or services Identification of revenues as commercial or royalty earnings Determination of what depreciation is allocated Replacing traditional reporting programs Determination of book record order and audit principles Determining the way digital expenditures are shown in business accounting
Employment	Technostress Techno-Overload Techno-Invasion Techno-Complexity Techno-Insecurity Techno-Uncertainty	Developing technology and innovation perceptions of former employees Regulation of workplace conditions Imposing the digital workplace idea to employees and providing trainings Reducing the impact of the stress created by technological change on employees Training of well-equipped IT personnel in the field of information technologies
Security	Cyber attacks Malware Phishing Online scams and frauds Hacking attempts Weak password Shoulder surfing Social engineering IP address hiding Internal threats	Developing digital literacy The prevalence of strong encryption Employing personnel with IT security certificate Development of digital security strategies Addressing digital risk management practices within the framework of corporate risk management

Problems Related to Taxation in the Digital Economy

In environments where investments in digital economy activities flourish and capital can easily change hands and travel between countries rapidly (Yılmaz, 2015), some countries have started to attract capital by keeping their tax rates low. This situation has caused countries to compete with each other in the field of tax policies applied to attract domestic and foreign capital. Existing taxation rules have fallen short in many areas of the digital economy. Countries whose tax revenues are gradually decreasing and



which have constant budget deficits have started to question the existing rules and practices in order to compensate for their losses and to ensure the balance and fairness in the distribution of tax burdens among taxpayers around the world and the distribution of tax revenues between countries (Yılmaz, 2015).

According to the OECD classification, taxes consist of six main parts. These; Taxes on income, profit and capital gains, social security obligations, wage and employment taxes, taxes on property, taxes on goods and services, other taxes (OECD, 2016a: 35; OECD, 2018a: 18).

Challenges to taxing the digital economy; Determining the liability and determining the nature/type of the income obtained, determining the place where the income is obtained, determining the amount of income obtained and taxable income and determining the taxation method to be applied (Yılmaz and Akçura Değer, 2020). Determination of income type is the most important issue in terms of taxation. Because the tax to be applied will be evaluated within the scope of the purchase of goods or services. For this reason, the amount, method and base of the tax to be applied will change. Another issue is the determination of how direct and indirect taxes will be applied (Yılmaz and Akçura Değer, 2018). Due to the difficulties outlined above, a redesigned taxation regime is required to record the revenue from the digital economy (Yüce and Akbulut, 2018: 111). If necessary regulations are not made in the tax system, national economies may suffer from this and the removal of fair competition conditions will adversely affect businesses (Boccia, 2016: 3). For this reason, OECD, European Union, Turkey and other countries have started to discuss and develop fairer taxation methods that prioritize their own rights and prevent tax avoidance and tax planning (Oktay, 2020: 98).

According to Pehlivan and Öz (2015), the most common problem in taxation is the difficulties experienced in determining who will do the taxation. The income generated is taxable where it is generated and the type of tax obtained is called direct tax. If the income is goods or services, tax is recognized at the place where the goods or services are provided. In short, goods or services are subject to tax where they are offered (Organ and Çavdar, 2012: 70). Obtained direct taxes have three main problems in accounting. These; They are listed as Nexus (connection), nature of data and revenue (characterization). In terms of indirect taxes, it can be said that there are some problems arising from stamp duty, customs duty and Banking and Insurance Transactions Tax (BITT), but it can be said that the main problems arise from taxes.

Considering the cross-border aspect of the digital economy, it is seen that these one-way taxation practices of countries are insufficient to solve the current problem. Therefore, the necessity of finding a fair multilateral international solution at the OECD level has come to the fore in order to develop methods that protect the rights of countries and prevent tax avoidance. In other words, it is important that the steps to be taken in this direction are handled at the international level and the necessary consensus is achieved in order to protect and ensure equality among companies.

Since digital processes have privacy and virtualization features, determining the real identity of taxpayers is a challenge for national tax authorities (Budak, 2017: 298). The diversity of the digital economy also complicates the implementation of a single taxation regime (Tax Journal, 2018: 8). The

digital economy essentially facilitates Base Erosion and Profit Transfer (Birinci, 2019: 511-512), causing countries to be deprived of tax revenues that can be obtained in this area in terms of direct and indirect taxes. For these and similar reasons, some global organizations, especially the OECD, are developing comprehensive options to identify the difficulties in applying the digital economy to current international tax rules and to overcome these difficulties. In addition, there are studies on preventing companies that have a digital presence in a country from working without paying taxes by taking advantage of the gaps, deficiencies or flexibility in certain legal rules, defining the income obtained from new business models, and collecting Value Added Tax (VAT) effectively in the sales of international digital products. Existing tax laws are insufficient in determining the digital taxes that will be applied with the spread of the digital economy. Due to the fact that the concept of digital taxation is an abstract and constantly changing dynamic structure, there are difficulties in taxation. The rapid and continuous change of digital economic conditions causes taxation policies and practices to be slow. This situation reveals important problems such as tax avoidance (Ault et al., 2014: 276). The fact that the concept of digital market is quite broad causes the control of the transactions made, unfair gains and deprivation of tax income (Hadzhieva, 2016: 37). Emerging new digital economic business models have significantly reduced the need for a physical workplace. This situation causes serious problems in terms of taxation, which requires a physical asset.

Financial Reporting and Auditing Problems in the Digital Economy

The issue of how to account and report transactions related to digital economy activities is very important. Because, as in the taxation rules, it is seen that the current accounting rules are insufficient in many areas related to the digital economy. On the other hand, although the audit dimension of the digital economy is also very important, it is thought that studies on the subject can come to the agenda mainly if taxation and financial reporting problems are resolved. Problems of financial reporting in the digital economy; The legal validity of the records to be kept in the electronic environment, the changeability of the internet sites, the qualifications of the domain names, the accounting of intangible company assets, the site scores and the accounting of the use of credit card scores. Considering that there are many problems especially in terms of tax law and that some businesses open and operate websites located in different countries, it is seen that there are many legal problems that need to be resolved. Although it is thought that the methods to be used in the financial reporting of digital economy activities will not be different from the financial reporting methods in the old economy, there are also those who emphasize the necessity of making arrangements to ensure that these activities are kept as a separate item in the workplace accounting records. It is thought that these problems will be minimized when it is clarified how the digital economy activities will be recorded in the accounts in the current uniform accounting system. Problems of financial reporting in the digital economy; Bookkeeping and registry issues are related to the financial reporting of websites' intangible assets and customer lists. Other problems in terms of the control of the digital economy; Some other difficulties in recording digital transactions can be listed as the auditors' lack of adequate equipment for auditing digital transactions and the risk of manipulation of digital data.



Problems with the control of the digital economy mainly arise from taxation issues. Purchases of goods or services through digital platforms are difficult processes in terms of inspection and control principles. This situation makes an effective taxation audit difficult. Because, if a physical asset constitutes a certain leg of the transactions (for example; the delivery), there is no significant problem in taxation and auditing, while if the said transactions are carried out completely in the digital environment, significant problems arise in the taxation and auditing of the transaction. It is very difficult to determine the parties accurately in digital economy activities. The same difficulties are experienced in determining the place and nature of the activities in question. In addition to all these, uncertainties in payment information, difficulties in identifying digital products, security problems in digital transactions, international tax competition and tax havens cause important tax audit problems related to the digital economy (Çavdar, 2017: 17).

First of all, there are significant uncertainties about who carries out digital economy transactions today. In particular, the transactions between the parties working in harmony with the tax administrations of the bank, etc. If it is realized without intermediaries, it becomes difficult to determine the taxable event. In many transactions, the parties can easily hide their real identities, so it becomes difficult to conduct a sound tax audit. Because information such as real identity and address information of taxpayers is one of the basic elements that must exist for the realization of taxation and auditing. However, if the payments are made from abroad or even with digital money, it becomes almost impossible to identify the parties, and thus to tax and control the transactions. Therefore, considering that money movements are an important aid in tax auditing, the inability to track payments, especially in transactions made with digital money, prevents an effective tax audit. The difficulty of collecting tax from a person who has never entered any country is also an indication that the audit of the transaction cannot be carried out in a healthy way. On the other hand, the problems in determining the place where the digital economy activities take place mainly arise from the difficulty of creating a “nexus” with a fixed workplace or the presence of servers. The fact that there is no fixed workplace in the digital economy or it is technically very easy to change the location of the servers causes serious problems in the concept of fixed or connected workplace on which the international tax regime is based and the taxation regime attached to it. For all these reasons, it also invalidates the effective control of transactions (OECD, 2015g).

Employment Problems in the Digital Economy

With the transition to the digital economy, some problems have arisen that are closely related to working life and national economies. Digital economy, increasing the welfare level of individuals, emergence of new employment opportunities, meeting consumer demands/needs easily and quickly, emergence of new goods and services with high added value, cost-effective use of economic resources and providing savings, partially tracking economic activities, increasing digital literacy of consumers. It provides many more benefits such as increased However, it also brings with it some problems.

With the development of robotic technologies, many professions that require human capital are at great risk. Thanks to digitalization, most of the occupations that require physical activity, together with

autonomous and smart systems, are likely to disappear. For example, 47% of occupations in the US are at high risk. Some of those; secretarial and administrative assistant (e.g. order and supply clerk), assembly line worker, machine operator, logistics, cargo and shipping agency, travel clerk and agency, tour guide, accountant, bank clerk, office clerk (e.g. telephone operators, postal service)), cashier, driver, train driver, various professions in the service sector such as shops, restaurants, hotels, personal financial consultancy, personal insurance consultancy, retail salesperson, library technician, courier, farming, security guard, call center operator, laboratory technician, repairman (Lorenz et al., 2015; TÜBİSAD, 2020).

When the studies investigating the effect of the transformation experienced with the transition to the digital economy on professional competencies are examined, it is understood that the use of certain digital systems together with the digital transformation will require certain competencies and things will become more and more complex. It is estimated that the effective and widespread use of new technologies with digitalization will lead to an increase in employment in engineering and computer-based professions (Lorenz et al., 2015). As a result of the processes to be experienced, Industrial Data Science Specialist, Robot Coordinator, Autonomous Vehicle Fleet Manager, Cloud Computing Specialist, Industrial User Interface Designer, Information Technologies / Internet of Things Solution Architect, Industrial Computer Engineer / Software Developer, 3D Printer Engineer, Wearable Technology Designer, Data Security It is expected that new professions such as Specialist, Network Development Engineer, Smart City Planning Specialist, Edge Computing Specialist, Virtual Shopping Consultant will emerge. The importance of the digital economy with the digital transformation is important in terms of the adoption of new technologies and developments by businesses and employees. However, this situation brings with it some negative problems for the employees. Some of those; Technostress, Techno-Overloading, Techno-Invasion, Techno-Complexity, Techno-Insecurity and Techno-Uncertainty (Gökalp et al., 2019).

Security Problems in the Digital Economy

“Digital Security Risk” is used to describe the category of risk associated with the use, development and management of digital media in any activity. This risk may arise as a result of a combination of threats and vulnerabilities in the digital environment. It may impair the realization of economic and social objectives by impairing the confidentiality, integrity and availability of the relevant activity or environment. Digital security risk is dynamic in nature. Digital and physical environments contain components related to the individuals involved in the activity and the organizational processes that support the activity.

Cyber attacks against e-commerce sites increased by 56% in 2020. While 33% of e-commerce sites are attacked to obtain payment information, 27% are attacked to obtain personal data and 20% identity information (DHA, 2021). Chauhan and Panda (2015) categorize frequently encountered digital threats as malware, phishing, online fraud attack attempts, weak passwords, shoulder surfing, social engineering attacks. Among the most common digital security risks are problems such as malware, IP address hiding, piracy, and internal threats.



It is aimed to access and misuse the personal information and data of individuals using digital technologies with malicious software or types of aggression. Therefore, users need to have various knowledge and skills in order to use the Internet, which is an integral part of life, in the face of these threats, which are added every day. The increase in the number of internet users and their usage rates causes the electronic commerce market to grow day by day. Consumers can shop in the comfort of their homes, place their orders without effort, and their orders are delivered to their addresses in a short time. The online store or online service in any part of the world is within the address distance of an application or browser as long as it is connected to the network. While online shopping provides some benefits such as convenience, comfort and privacy, it also contains some risks related to the product and financial. While higher benefits for consumers increase the tendency to shop, higher risk perception may cause them to avoid shopping. As the rate of consumers connecting to the network, especially with mobile devices, begins to increase, the concept of time becomes more important (Kotler et al., 2017: 189). The advantages of online shopping seem to increase over time, with the inclusion of tools that allow shopping at any time and from anywhere, such as mobile devices, into the lives of consumers. However, not being in a physical shopping environment has risks in terms of product and time, while the digital environment can bring financial risks. The age of digital marketing requires brands to take some steps to adapt to these changes as consumers begin to change their purchasing habits. It has to make improvements to increase the benefit factors and reduce the risk factors by understanding the consumers who are trying to adapt to new shopping experiences. The volume and number of e-commerce is increasing day by day in Turkey as well as in the world. According to the E-Commerce 2018 Market Size Report of TÜBİSAD (2019:11) (Information Industrialists' Association) in Turkey, the e-commerce market has reached 59.9 Billion TL with an increase of 42% compared to the previous year. According to the same report, the ratio of online retail shopping to total retail shopping increased from 4.1% to 5.3% (TÜBİSAD, 2019: 15). As consumers' trust in e-commerce increases, shopping rates will also increase. It is natural that less trust in e-commerce compared to traditional commerce results from concerns such as the fact that the payment takes place before delivery, the seller does not face to face, and the seller will not fulfill his obligations (Kim et al., 2008: 544-545). Adaptation to internet technology will lead to more confidence of the consumer in e-commerce. Consumers who are more adapted to the Internet will be more aware of the benefits of e-commerce. With the arrival of the digital marketing era, the fact that brands do not take part in the growing e-commerce market and not adapting to changing customer preferences and purchasing behaviors will cause them to lag behind in the competition.

The increase in the use of virtual technologies has led to the transfer of many works done in the physical environment to the digital environment. This situation has led to the emergence of many new job opportunities and new professions. Along with these business opportunities, the necessity of making these trading transactions securely hinders the development of electronic commerce. Due to emerging digital security problems, consumers are more distant towards online shopping. On the other hand, digital entrepreneurs implement some new applications in order to convince consumers that online shopping is safe and easy. In this context, financial risks related to digital security, misuse of personal

information and data, physical risks, security risks of websites, political and cultural effects on security are the main problems that arise in the context of digital security.

Conclusion and Recommendations

Considering the cross-border aspect of the digital economy, it is seen that one-way taxation practices of countries are insufficient to solve the current problem. For this reason, it is essential to regulate and implement new practices within the framework of transparent, impartial and auditable OECD standards, which guarantee the rights of national economies in terms of taxation and auditing. In other words, it is important that the steps to be taken in this direction are handled at the international level and the necessary consensus is achieved in order to protect and ensure equality among companies.

In the regulations to be made in the Tax Procedure Law (TPL), it has been proposed to introduce a provision that a workplace will be formed if services are provided for a certain period of time. Thus, it is thought that artificial avoidance of tax avoidance status can be prevented. Necessary measures can be taken by making a regulation based on the concept of "significant economic asset" similar to the regulations in Israel, Slovakia and India, or by making similar regulations to the "directed income tax" and Multinational Anti-Avoidance Law in the UK and Australia. Thus, digital transactions will be taxable. In order to increase the efficiency of VAT collection on low value imports, it has been proposed to apply the models determined by the OECD individually or in combination.

The difficulties experienced in determining the taxpayer or tax base for taxation in the digital economy and the tax regulations regarding the status of payment instruments will also eliminate the problems related to the registration order in financial reporting. Updating the legislation on the subject by following the subject dynamically will in some cases prevent problems even before they arise. Planning and operating costs of websites should be considered as period expenses, while costs at other stages should be capitalized. Costs incurred in creating a website should be capitalized as assets where the relationship between expenditure and future economic benefit is sufficiently evident. The rapid changes and developments in ICT should be taken into account when determining the amortization period and method to be applied for the capitalized website costs. If the website is established for promotional purposes, the fees paid should be accounted for as an expense, and if it has a revenue-generating function, it should be recorded as an asset. Components such as audio, video recordings and images in a website with a revenue-generating function should be considered as intangibles within the framework of the entirety of the website, rather than a fixture, and depreciation should be set aside at a rate accordingly. Components such as audio, video recordings and images in a website established for promotional purposes only can be directly eliminated. The said expenditures made during the establishment phase of the enterprise are optionally capitalized or expensed by the enterprise, and the expenditures made during the activity period will be capitalized. The provisions of Article 12 of the OECD Model Tax Agreement should be applied globally, regarding whether the earnings from digital products such as program downloads, audio, video recordings, images, e-books, etc., are commercial or copyright earnings.



It is seen that the problems related to financial reporting and auditing in the digital economy are mainly caused by taxation problems. Problems of financial reporting in the digital economy; It emerges in the financial reporting of intangible assets and customer lists of websites, especially regarding the book and record order. The legality and authenticity of the transactions carried out in the electronic environment, the security of the books and records kept in the electronic environment, the absence of organizations that will confirm their accuracy and the lack of auditors with sufficient equipment, the lack of adequate training of accountants and financial advisors to keep the records of digital activities in electronic environment, the inadequacy of traditional reporting programs in document and record order and the lack of digital some problems related to taxation in the economy constitute the most important problems related to book and record order. The financial reporting problems of the websites are as follows: What components will the websites that the businesses will have? Will the costs paid for the installation stages and the costs incurred during these stages be recorded as assets or expenses? How will the records be made in case the content is improved, such as updating the websites or adding a new feature to the site? Whether components such as audio, video recordings and images within the website can be qualified as fixtures and whether they can be depreciated? Whether a website domain name qualifies as a company title? These are the issues regarding whether the value of the domain name will be considered an establishment and organization expense, a period expense, or a depreciable asset rather than these. It is stated that one of the important problems encountered in the taxation phase of the digital economy is “audit” (Yüce and Akbulut, 2018: 113). Because the revenues arising from distance sales cannot be audited at the desired and expected level with the current classical audit technique and approach. In addition, considering that the parties (buyer and seller) in the digital economy are often located in different countries, there may be difficulties in jurisdiction. In summary, considering the cross-border aspect of the digital economy, it is seen that these one-way taxation practices of countries are insufficient to solve the current problem.

It is important in terms of effectiveness and efficiency to make the recommendations specified within the scope of the audit related to the digital economy: Ensuring that the information regarding the parties engaged in digital economy activities is recorded accurately and precisely by establishing an international consensus. With the agreements to be made between countries, digital transactions must be made compulsory by banks, etc. ensuring that it is carried out through intermediary institutions. With some incentives or discounts to be provided by international agreement, ensuring that the other party of the digital transaction, as responsible, transfers the information about the transaction to the tax office and makes the necessary tax payment. To prevent harmful tax competition, to impose international sanctions on tax haven countries or to sign protocols between countries on compulsory international exchange of information. Ensuring compulsory use of electronic applications such as e-ledger, e-invoice, e-declaration, e-archive, e-signature for taxpayers. Ensuring that both the country's own auditors and the auditors to be assigned in possible international platforms to be established within the framework of international cooperation are equipped to understand complex ICT, with the trainings to be provided. Implementation of regulations and practices, such as minimizing the risk by establishing

national and international security units against the manipulation of digital data, will enable more effective and efficient audits of the digital economy.

While innovations such as smart systems, autonomous vehicles and artificial intelligence applications allow the development of new business models, the commercial existence of businesses using classical business models is at risk (Burmeister et al., 2016). It is necessary to analyze what can be done to minimize the negative effects of the Digital Transformation Revolution in economic and social areas. It is stated that with these developments, many new professions will emerge, but some occupational groups may disappear. Keeping up with the developments, involving employees in the process and acquiring new competencies are of vital importance for existing businesses. Otherwise it will have to perish. This will lead to increased unemployment problems. For this reason, it is important to implement the recommendations stated in order to eliminate the negative effects on employment and working life in the transition to the digital economy: Establishing an institutional structure to ensure the continuity of the activities of monitoring, evaluating, managing and directing technologies in order to review the changes in existing professions and new professions that will emerge in the light of developments in technology. Developing professional competencies of human capital and ensuring their adaptation to new professional competencies in order to achieve a sustainable, inclusive and competitive digital economy by developing digital products and services. Updating the curricula of Educational institutions, including the national occupational standard of new professions and national qualifications, by making the necessary coordination with the Higher Education Institution, the Ministry of National Education, relevant NGOs within the framework of the relevant legislation. Creating an inventory to be associated with the employment of qualified personnel required by the digital economy. Determining the training needs in advance by creating a structure authorized by the state, established and supported by the law, in order to raise innovative, productive, critical thinking and technology development individuals in order to increase the relationship between technology, profession, education and employment, taking into account new professions and competencies. Making necessary changes in the education curriculum and administrative regulations in order to ensure that technology education starts at an early age. Creating an inventory that includes disadvantaged groups and individuals who have been excluded from the digital economy and the regions, gender, age and education levels across the country that can be associated with the areas in which these individuals can be trained and employed. Educating and employing individuals who are out of the digital economy by establishing “specialized vocational training centers” in the necessary regions for the new professions created by the digital economy. Establishing an education and training structure that is suitable for the digital economy at every education level and in which education at all levels is compatible with each other. Promoting lifelong learning opportunities that will support the new competencies required by the digital economy and thus new professions, harmonize existing professions, enable individuals to improve themselves after school, and create certificate programs that are valid at national and international level. It is necessary to create a fund and ecosystem to support new professions that include digital competencies that can develop advanced technology products/services in global competition.



The digital economy contributes to the development of sustainable development with its features such as the development of information and communication technologies, the increase in the volume and structure of information, the rapid transmission of information and the provision of information (Tocan and Duduman, 2010). The digital economy is generally accepted as an important tool of social transformation in achieving both high and sustainable economic growth (Rezny et al., 2019: 1). Today, the information society is a source of sustainable development and therefore plays a fundamental role in building sustainable societies (Hegyes et al., 2017: 40). It is very important to create and implement digital security strategies in order to eliminate the digital security risks that consumers, other stakeholders and businesses are in, to create a reliable digital atmosphere and to establish a digital economic life. In this context, high security keys and encryption methods are the most effective tools. It is inevitable to take necessary precautions such as training digital control and security personnel and information security gate. International digital security cooperation protocols need to be established. It is necessary to create a detailed work program that includes what needs to be done in order to create enterprise risk management maps, develop alternative contingency plans and eliminate possible risks. According to these results, the production of policies for the development of the digital economy and investments in information and communication technologies in this sense will enable the sustainable development goals to be achieved more easily. The integration of digital technology, especially in businesses, is very important in achieving sustainable development goals. As it is known, since digital technology integration means digital transformation, in other words, digitalization, it will reduce the physical burden (paper, printing, archive costs and their damage to the environment) in every field and increase sustainability. In this way, a business's full integration into the digital world will be a pioneer in achieving the world's sustainable development goals.

Author Contribution

The author 100 % contributed to the study.

Conflict of Interest Statement

My article titled "Problems Emerging in Transition to Digital Economy and Suggestions for Solutions" does not have any financial conflict of interest with any institution, organization or person.

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Genişletilmiş Özet

Bu çalışmanın amacı, dijital ekonominin gelişmesiyle birlikte ortaya çıkan sorunları incelemek ve çözüm önerileri sunmaktır. Bu amaca ulaşmak için çalışmanın içeriği şu şekilde düzenlenmiştir: Birinci bölümde dijital girişimcilik ve dijital dönüşüm, ikinci bölümde dijital ekonomi, üçüncü bölümde dijital ekonomide ortaya çıkan sorunlar tartışılmıştır. Dördüncü ve son bölümde ise elde edilen sonuçlar sunulmakta ve sorunların çözümüne yönelik önerilerde bulunmaktadır.

Ekonomik hayatın dijitalleşmesi toplumların refah düzeyi üzerinde olumlu etkiler yaratsa da birçok sorunu da beraberinde getirmiştir. Daha hızlı alım satım prosedürü, ürün bulma kolaylığı, 7/24 alım satım süreçleri sayesinde daha fazla müşteriye erişim, coğrafi sınırların ortadan kalkması, daha düşük işletme maliyetleri ile daha iyi hizmet kalitesi, fiziksel bir işyerine ihtiyaç duymama, daha kolay iş yönetimi, dijital ekonominin sağladığı bazı avantajlardandır. Herkesin kolayca iş kurabilmesi, müşterilerin parasını gasp etmenin kolay olması, ürün kalitesinin garanti riski içermesi, mekanik arızalar, bilgisayar korsanlarının çok olması, e-ticaret ve hizmet sitelerinin olması ve ödeme ağ geçitlerinin her zaman saldırılara açık olması gibi dezavantajları da bulunmaktadır.

Dijital ekonominin sınır ötesi boyutuna bakıldığında ülkelerin tek yönlü vergilendirme uygulamalarının mevcut sorunu çözmeye yetersiz kaldığı görülmektedir. Bu nedenle ulusal ekonomilerin vergilendirme ve denetim açısından haklarını güvence altına alan şeffaf, tarafsız ve denetlenebilir OECD standartları çerçevesinde



düzenlenmesi ve yeni uygulamaların hayata geçirilmesi elzemdir. Diğer bir deyişle, bu yönde atılacak adımların uluslararası düzeyde ele alınması ve şirketler arasında eşitliğin korunması ve sağlanması için gerekli görüş birliğinin sağlanması önemlidir.

Dijital ekonomide finansal raporlama ve denetime ilişkin sorunların ağırlıklı olarak vergilendirme sorunlarından kaynaklandığı görülmektedir. Dijital ekonomide finansal raporlama sorunları; Özellikle defter ve kayıt düzenine ilişkin olarak internet sitelerinin maddi olmayan duran varlıklarının ve müşteri listelerinin finansal raporlamasında karşımıza çıkmaktadır. Elektronik ortamda gerçekleştirilen işlemlerin hukuka ve gerçeğe uygunluğu, elektronik ortamda tutulan defter ve kayıtların güvenliği, bunların doğruluğunu teyit edecek kuruluşların ve yeterli donanımına sahip denetçilerin bulunmaması, yeterli eğitimin olmaması muhasebecilerin ve mali müşavirlerin dijital ortamda gerçekleşen faaliyetlerin kayıtlarını elektronik ortamda tutması, geleneksel raporlama programlarının belge ve kayıt düzeninde yetersiz kalması ve ekonomide vergilendirme ile ilgili bazı sorunların dijital ortamda olmaması defter ve kayıtla ilgili en önemli sorunları oluşturmaktadır. Web sitelerinin finansal raporlama sorunları şu şekildedir: İşletmelerin sahip olacağı web siteleri hangi bileşenlere sahip olacak? Kurulum aşamaları için ödenen maliyetler ve bu aşamalarda yapılan maliyetler aktif veya gider olarak kaydedilecek mi? Web sitelerinin güncellenmesi veya siteye yeni bir özellik eklenmesi gibi içeriğin iyileştirilmesi durumunda kayıtlar nasıl yapılacak? İnternet sitesinde yer alan ses, görüntü kaydı ve görüntü gibi unsurlar demirbaş sayılır mı ve amortismanına tabi tutulabilir mi? Bir web sitesi alan adı şirket unvanı olarak nitelendirilebilir mi? Bunlardan daha çok alan adı değerinin kuruluş ve organizasyon gideri mi, dönem gideri mi yoksa amortismanına tabi varlık olarak mı değerlendirileceği konularındır.

Akıllı sistemler, otonom araçlar ve yapay zeka uygulamaları gibi yenilikler yeni iş modellerinin geliştirilmesine olanak sağlarken, klasik iş modellerini kullanan işletmelerin ticari varlığı risk altındadır. Dijital Dönüşüm Devrimi'nin ekonomik ve sosyal alanlardaki olumsuz etkilerini en aza indirmek için neler yapılabileceğinin analiz edilmesi gerekmektedir. Bu gelişmelerle birlikte birçok yeni mesleğin ortaya çıkacağı ancak bazı meslek gruplarının ortadan kalkabileceği belirtilmektedir. Gelişmeleri takip etmek, çalışanları sürece dahil etmek ve yeni yetkinlikler kazanmak mevcut işletmeler için hayati önem taşımaktadır. Aksi takdirde yok olmak zorunda kalacaktır. Bu da işsizlik sorunlarının artmasına neden olacaktır. Bu nedenle dijital ekonomiye geçişte istihdam ve çalışma hayatı üzerindeki olumsuz etkilerin ortadan kaldırılması için belirtilen tavsiyelerin hayata geçirilmesi önem arz etmektedir: İzleme, değerlendirme, yönetme ve denetleme faaliyetlerinin sürekliliğini sağlayacak mevcut mesleklerdeki değişimleri ve teknolojiye gelişmeler ışığında ortaya çıkaracak yeni meslekleri gözden geçirmek amacıyla teknolojilere yön vermek için kurumsal yapının oluşturulması gerekmektedir. Dijital ürün ve hizmetler geliştirerek sürdürülebilir, kapsayıcı ve rekabetçi bir dijital ekonomiye ulaşmak için beşeri sermayenin mesleki yeterliliklerini geliştirmek ve yeni mesleki yeterliliklere adaptasyonunu sağlamak oldukça önemlidir. İlgili mevzuat çerçevesinde Yükseköğretim Kurumu, Milli Eğitim Bakanlığı, ilgili STK'lar ile gerekli koordinasyonu yaparak yeni mesleklerin ulusal meslek standartları ve ulusal yeterlilikler de dahil olmak üzere eğitim kurumlarının müfredatlarının yeniden düzenlenmesi öncelikli konulardandır. Teknoloji eğitiminin erken yaşta başlamasını sağlamak için eğitim müfredatında ve idari düzenlemelerde gerekli değişikliklerin yapılması önem arz etmektedir. Dezavantajlı gruplar ve dijital ekonominin dışında kalmış bireyler ile bu bireylerin yetiştirilebileceği ve istihdam edilebileceği alanlarla ilişkilendirilebilecek ülke genelinde bölgeler, cinsiyet, yaş ve eğitim düzeylerini içeren bir envanter oluşturulması ve dijital ekonominin yarattığı yeni meslekler için gerekli bölgelerde "uzmanlaşmış mesleki eğitim merkezleri" kurarak dijital ekonominin dışında kalan bireyleri eğitmek ve istihdam edilmesi gerekmektedir. Her eğitim kademesinde dijital ekonomiye uygun ve her kademedeki eğitimin birbiriyle uyumlu olduğu bir eğitim ve öğretim yapısı oluşturmak, dijital ekonominin gerektirdiği yeni yetkinlikleri ve dolayısıyla yeni meslekleri destekleyecek, mevcut meslekleri uyumlaştıracak, bireylerin okul



sonrası kendilerini geliştirmelerini sağlayacak, ulusal ve uluslararası düzeyde geçerliliği olan sertifika programları oluşturacak yaşam boyu öğrenme fırsatlarını teşvik etmek, küresel rekabette ileri teknoloji ürün/hizmet geliştirebilecek dijital yetkinlikleri içeren yeni meslekleri destekleyecek bir fon ve ekosistem oluşturulması önceliklidir.

