

## Digital FDI and economic recovery post-covid-19 pandemic: the case of the United Kingdom

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### **Abstract:**

The objective of this research is to analyze trends of Digital FDI in the United Kingdom, and its role in post-COVID-19 pandemic economic recovery. The results of this research suggest that digital FDI will be a key driver of economic growth after the pandemic. Therefore governments must adopt policies and measures to create a favorable environment for digital FDI. Following a resilient success in 2019 in attracting FDI, and with investors seeing the country as likely to recover its attractiveness faster than the European average post-COVID-19 crisis, the UK starts from a strong base.

**Keywords:** Digital foreign direct investment; COVID-19 pandemic; United Kingdom.

**(JEL) Classification :** O330 ; F210; I150.

### **1. Introduction:**

The global economy is in the middle of a serious crisis created by the pandemic of COVID-19. The obvious impact of this is severe on international production (Zhan, Bolwijn, Santos-Paulino, & Tüselmann, 2020). As projected in the World Investment Report (2020), a sharp decline in foreign direct investment (FDI) would be caused by the COVID-19 pandemic. Global FDI flows are expected to fall by up to 40% in 2020 from \$1.54 trillion in 2019. This would for the first time since 2005, bring FDI below \$1 trillion. In 2021, FDI is expected to fall by an additional 5 to 10 percent and to begin a recovery in 2022. FDI flows to Europe are expected to decrease by 30 to 45 per cent, considerably more than those to North America and other developed economies (with a decline of 20 to 35 per cent on average), as the region has joined the crisis on a comparatively more vulnerable basis (UNCTAD, 2020).

The digital economy – the application of internet-based digital technologies to the production and trade of goods and services – is becoming an increasingly significant aspect of the global economy (UNCTAD, 2017). Digital economy is no longer about the technology sector and digital companies, but also the digitalization of supply chains in all sectors (Götz, 2019). More recently, digital transformation is one of the technology drivers of modern industrial policies (UNCTAD, 2018). Digital transformation involves the rise of digital multinational companies (MNEs) and is one of the main "winds of change" that are shattering and replacing traditional foreign direct investment (FDI) (Götz, 2019). Promoting such digital competitiveness would be crucial to policymakers trying to drive economic recovery after the pandemic. One way is to invest in the digital economy through foreign direct investment (FDI), in other words, "Digital FDI" (Stephenson & Sen, 2020).

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In attracting foreign direct investment, the United Kingdom has long been one of the best performers in the world (FDI). Between January 2015 and January 2018, there were 3,900 FDI projects in the UK, generating approximately 267,000 jobs (Deloitte, 2019). In the UK, which mirrors the trend globally, key FDI sectors, including software and IT services, as well as communications, are continuing to expand. Thanks to the increasing number of technology hubs outside London, the UK continues to attract a significant number of IT companies (fDi Intelligence, 2020). Foreign direct investment (FDI) accounted for 8.6 percent of the overall outward investment position of the UK in digital industries and 10.4 percent of the total inward position in 2018. Between 2014 and 2018, the telecommunications sub-industry typically accounted for the highest value for both outward and inward FDI positions in all digital sub-industries; it accounted for 76.6 percent of the outward position and 49.0 percent of the inward position in 2018 (ONS, 2020b).

### **1.1. The purpose of the study**

The objective of the study is to analyze trends of digital foreign direct investment in the United Kingdom and to examine its role in post-COVID-19 pandemic economic recovery.

### **1.2. Research Problematic:**

**Can digital FDI be an important driver of post-COVID-19 pandemic economic recovery in UK?**

### **1.3. Research hypothesis**

Creating a favorable climate for digital FDI by encouraging investment in digital companies, promoting the digital transformation of traditional companies, and encouraging investment in digital infrastructure would be a new driver of economic growth. This will help UK to drive economic recovery after the pandemic.

### **1.4. Importance of the study**

This research paper shows the importance of digital foreign direct investment and the important policies to be implemented to promote digital FDI. Supporting such investment will be essential to policymakers seeking to stimulate economic growth after the Covid-19 pandemic. Digital transformation requires policymakers to adapt to changing trends of foreign investment and to changing investment determinants. The attractiveness of foreign investment in the digital economy needs different competitive advantages.

## **2. Multinational companies in the digital economy**

The world is undergoing a significant digital transformation. Before COVID-19 struck, this was already taking place. But this trend was accelerated by COVID-19 pandemic (Stephenson, 2020). The fourth industrial revolution (Industry 4.0) is expected to transform global production, to change governance of global value chains (GVCs), to shift business policies and policy practices (Götz, 2019).

Robotics, analytics, artificial intelligence, cognitive technologies, nanotechnology, quantum computing, wearables, the Internet of Things, additive manufacturing, and advanced materials will be the main technologies that will advance in Industry 4.0 (Schilirò, 2020). Three primary technological developments in Industry 4.0 will shape the future of international production: robotics-and artificial intelligence (AI)-enabled automation, improved supply chain digitalisation and additive manufacturing (3D printing) (UNCTAD, 2020).

Additive manufacturing is growing as a technique with the ability to significantly change foreign

trade and FDI (Abeliansky, Martínez-zarzoso, & Prettner, 2019). Artificial Intelligence has evolved to allow decision-making robots and machine learning systems, have given way to deep learning systems (Cebola, Sa, Martins, & Ramalho, 2020). The new basic resources, reflecting the "new oil," are data and information. The more data and information is obtained, the more solutions that implement artificial intelligence are improved. Investment decisions are also influenced by inflows and outflows of data, ideas, technology, expertise, and best practices around the world (Schilirò, 2020).

The digital economy is now an increasingly significant component of the global economy (UNCTAD, 2017). Over the last decade, the spread of digital technologies in goods and manufacturing in technology has resulted in a rise in trade in services, an increase in intangibles in global value chains and a rapid growth of digital and tech companies among the world's largest Multinational companies (MNEs) (UNCTAD, 2020). UNCTAD has mapped the digital economy by classifying related MNEs into two categories (Digital MNEs and ICT MNEs):

- **Digital MNEs:** In their operating and distribution model, they are distinguished by the central role of the internet. They include mainly digital players (internet platforms and digital solution providers) primarily working in a digital environment, and mixed players (e-commerce and digital content) combining a physical and a prominent digital dimension.

**a. Internet platforms:** digital businesses that are operated and distributed via the internet, e.g. search engines, social networks and other networking platforms, such as for sharing.

**b. Digital solutions:** other internet-based players and digital enablers, such as operators of electronic and digital payments, cloud players and other providers of services.

**c. E-commerce:** online platforms that allow commercial purchases, including internet retailers and online travel agencies. Delivery either be digital (if the transaction content is digital) or physical (if the content is tangible).

**d. Digital content:** suppliers and providers of digital products and services, including digital media (such as video and television, music, e-books) and games, as well as data and analytics. Digital content can be accessed via the internet but also via other platforms (e.g. cable TV).

- **ICT MNEs** provide individuals and companies with the supporting infrastructure that makes the internet available. These include IT firms that offer hardware and software, as well as telecommunication companies.

**a. IT:** device and component manufacturers (hardware), software developers and IT service providers.

**b. Telecom:** telecommunication infrastructure and connectivity providers (UNCTAD, 2017).

Digital MNEs have a foreign presence that is lighter. They directly create fewer jobs in host countries, but their effect is largely indirect, due to productivity advantages in all other industries (Götz, 2019). In all sectors, the growth of digital companies and the digitalization of MNEs have consequences for funding decisions, asset profiles, jobs and tax contributions. It also has consequences for businesses in host countries, including small and medium-sized enterprises, who seek to develop ties with MNEs and gain access to international markets (UNCTAD, 2017).

### 3. Digital Foreign direct investment in United Kingdom

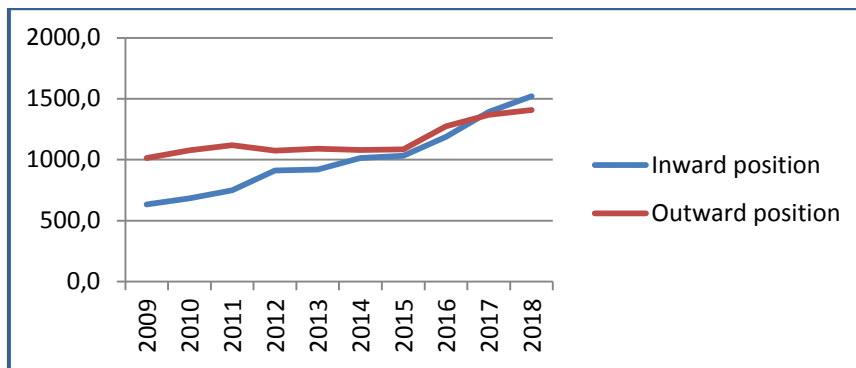
#### 3.1. Foreign direct investment in UK

Inward FDI is from a UK perspective, an investment from a foreign investor into an UK

enterprise. The UK entity then becomes what is known as an affiliate company, which is the foreign investor, either a subsidiary, branch, or an affiliate company of the parent company. At least 10 percent of the shares or voting power of the UK entity must be owned by the parent company to be classified as FDI (UK Government, 2020).

The (inward) stock of FDI controlled by foreign companies in the United Kingdom grew by £ 128.1 billion, from £ 1,392.5 billion in 2017 to £ 1,520.6 billion in 2018; this was more than the £ 39.6 billion growth in the (outward) stock of investment controlled by UK-based companies overseas, from £ 1,369.1 billion to £ 1,408.7 billion (ONS, 2019).

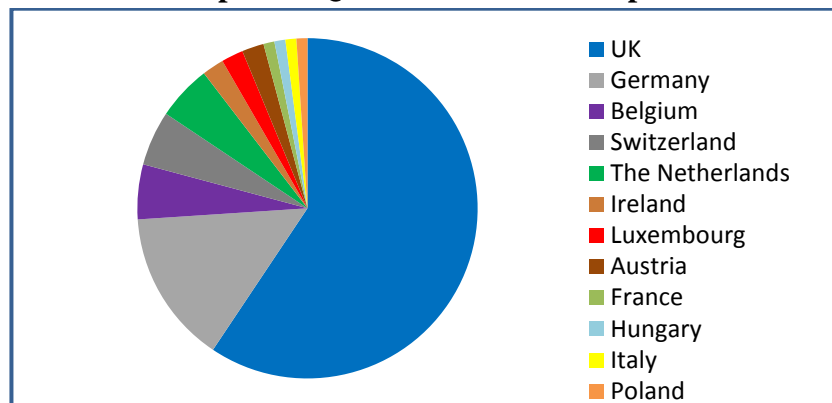
**Fig.(01): Positions of UK foreign direct investment, 2009 to 2018 (£ billion)**



**Source:** the authors calculation based on Office for National Statistics of UK

One way to evaluate the performance of the UK is where the major organizations in the world chose to base their headquarters. According to the Deloitte report, for those organizations with a European headquarters, the UK appears to be by far the most popular destination. More than half of those with a European headquarters (European HQ) in the UK in 2018 (114 out of 201) (Deloitte, 2019).

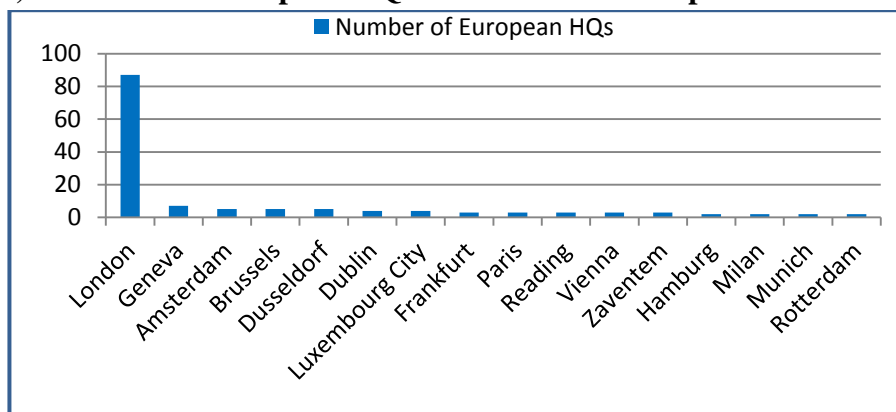
**Fig.(2): Location of European HQs of Fortune 500 companies in 2018 by country**



**Source:** The authors calculation based on the statistics of the Deloitte report (Deloitte, 2019)

The attractiveness of London as a global city is obvious in Figure (3). London is home to 43% of the Fortune 500 companies' European headquarters in 2018, compared to just 4% in Geneva and 2% in Amsterdam, Brussels and Dusseldorf, respectively (Deloitte, 2019)

**Fig.(3): Location of European HQs of Fortune 500 companies in 2018 by city**



**Source:** The authors calculation based on the statistics of the Deloitte report (Deloitte, 2019)

The UK, with a total of 1271 projects in 2019, an overall regional market share of 20% and a 1% decline in the number of projects in 2018, was the top destination for FDI in Europe (fDi Intelligence, 2020). In attracting foreign direct investment (FDI), the UK has long been one of the world's best performers. The UK is continuously outperforming its closest European competitors. The UK recorded a 6.7 percent share of global FDI between January 2015 and January 2018, ahead of Germany at 5.7 percent and France at 3.6 percent. 3,900 FDI projects were registered in the UK between January 2015 and January 2018, generating almost 267,000 jobs. The UK reported over \$140 billion in capital investment during this period, more than Germany and France combined, with \$50 billion in Germany and \$43.9 billion in France (Deloitte, 2019).

Following a 12 percent rise, the UK was the top source country for FDI projects from Europe in 2019. That accounted for 19% of regional FDI projects. In the UK, which parallels the trend globally, key FDI sectors, including tech and IT services, as well as communications, continue to expand. The UK continues to draw significant numbers of IT businesses, due to the increasing number of technology hubs outside London (fDi Intelligence, 2020).

### 3.2. Digital Foreign direct investment in UK

Digital industries are those that either have digital operation, supply or enable it. Such industries promote innovation, technical advancement and economic growth. In modern economies, digital industries are becoming more popular, therefore interest in these trends is growing (ONS, 2020b).

Since 2014, the values of both inward and outward FDI have remained largely constant in digital industries. In the digital industries, the inward FDI position rose to £ 158.0 billion in 2018, from £ 120.0 billion in 2017 and from £ 89.6 billion in 2016. This was in contrast to changes in the value of outward FDI in the digital industry, which fell from £ 147.0 billion in 2016 to £ 135.9 billion in 2017 and £ 120.8 billion in 2018, respectively (ONS, 2020b)

Digital industries include both the production of digital products and the distribution of digital services. These can be classified by the UK Foreign Direct Investment (FDI) Survey into six sub-industries. More information about these sub-industries can be found in Table 1 below (ONS, 2020b).

Table (1): Details of the UK FDI Survey industries for each digital sub-industry

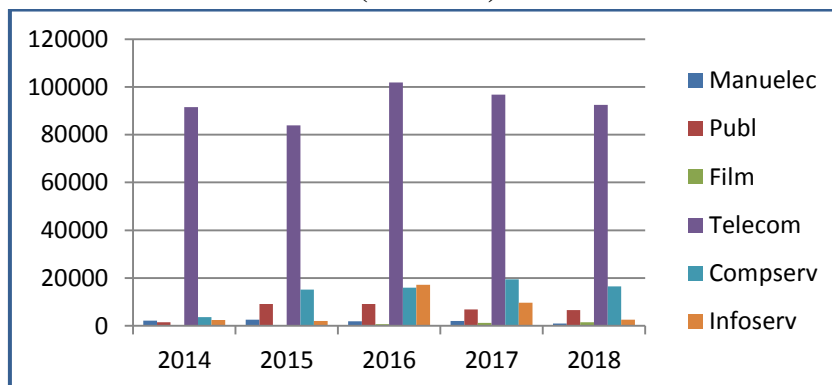
Digital sub-industry	FDI Survey industry
Manufacture of electronics and computers	Manufacture of electronic components and boards
	Manufacture of computers and peripheral equipment
	Manufacture of communication equipment
	Manufacture of consumer electronics
	Manufacture of magnetic and optical media
Publishing	Publishing activities (books, newspapers, periodicals, directories, software)
Film, TV, video, radio and music	Motion picture, video and TV production, sound recording, and publishing activities
	Programming and broadcasting activities of radio and TV (over air or via satellite, cable or internet)
Telecommunications	Telecommunications activities (wired, wireless, satellite and other telecommunications activities)
Computer services	Computer programming, consultancy and related activities (games, software development, programming, computer facilities management)
Information services.	Information services activities (data processing and hosting, web portals, news agencies, other information activities)

Source: Office for National Statistics of UK- FDI Survey

Of all digital FDI positions, the highest value of outward FDI positions was in the telecommunication sector. The sub-industry accounted for 76.6 percent of the overall digital position in 2018 (£92,538 million) (See Figure 4). Computer services followed, the value of which increased from £ 3,656 million in 2014 to £ 16,521 million in 2018. Compared to 2014, a rise in the number of foreign affiliates in computer services associated with some very large outward positions led to these trends in 2018.

While much lower, between 2014 and 2018, the value of outward FDI in the film, TV, video, radio and music industries have grown year-on-year. The value of the outward FDI position in computer and electronics production, on the other hand, was lower in 2018 than in any previous year since 2014 (ONS, 2020a).

**Fig.(4): Outward foreign direct investment positions with digital sub-industries, 2014 to 2018 (£ million)**

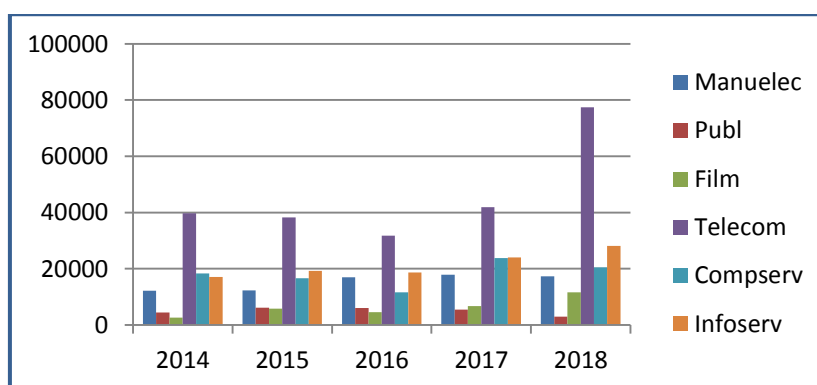


**Source:** the authors calculation based on Office for National Statistics of UK

Notes: Manuelec is the manufacture of computers and electronics; Publ is publishing activities; Film is film, TV, video, radio and music; Telecom is telecommunications; Compserv is computer services; and Infoserv is information services.

For each year between 2014 and 2018, the inward FDI position for telecommunications was the largest (See Figure 5). The significant increase in the value of the inward FDI position in 2018 largely reflects the acquisition of Sky PLC by Comcast Incorporated. Without that transaction, the trend in the inward FDI position is more equivalent to the trend in telecommunications for the outward FDI position (ONS, 2020a).

**Fig.(5): Inward foreign direct investment positions with digital sub-industries, 2014 to 2018 (£ million)**



**Source:** the authors calculation based on Office for National Statistics of UK

In 2018, the inward FDI positions in information services and data services were second and third largest, respectively; the inward value was close to that of the outward FDI position for computer services. However, in contrast to having the lowest value in the outward FDI position, the inward FDI position in the manufacture of computers and electronics was the fourth highest in 2018 (ONS, 2020a).

• **FDI in digital industries by continent**

The highest outward FDI position for digital sub-industry by continent is usually held by the EU in 2018. The EU accounted for the largest proportion of telecommunications and film, TV, video, radio and music industries; for both sub-industries, FDI accounted for more than 80 per cent of the respective outward positions in EU countries (See Figure 6). Information services were one of the sectors where the outward position with the EU was not the largest. The outward position with the North Americas was the largest, but all were just over 40% of the overall position in 2018 (ONS, 2020a).

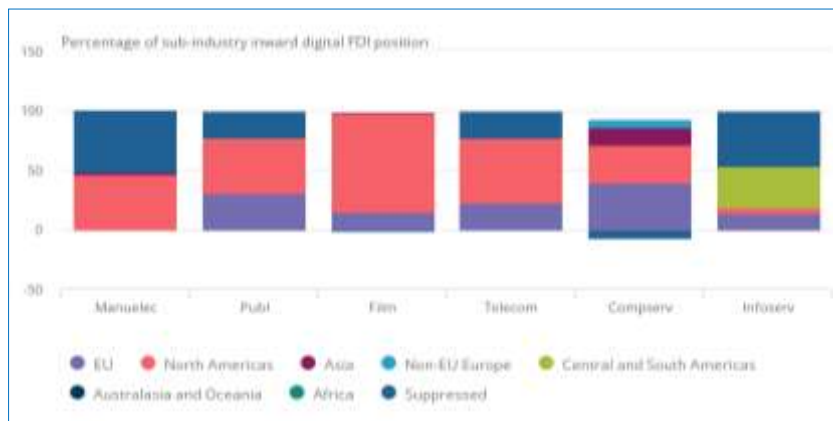
**Fig.(6): Outward FDI positions with digital sub-industries, 2018**



Source: Office for National Statistics of UK –FDI Survey

The highest position percentage of most digital sub-industry totals was dominated by the North Americas in 2018. This was most noticeable in film, TV, video, radio and music, where North America accounted for 83.0% of those industries' overall inward FDI position (Figure 7). The proportion was still above 50 percent for telecommunications and only below 50 percent for electronics and computer manufacturing and sub-industry publishing in 2018 (ONS, 2020a).

**Fig.(7): Inward FDI positions with digital sub-industries, 2018**



Source: Office for National Statistics of UK- Foreign Direct Investment Survey



In comparison, inward FDI positions for digital sub-industries with the EU typically accounted for a much lower proportion of the overall inward digital FDI position relative to the outward FDI position of those digital industries (ONS, 2020a).

#### **4. The role of Digital Foreign direct investment in post-pandemic economic recovery**

The 2019 novel coronavirus disease (COVID-19) was first identified in China as an infectious upper respiratory disease. Since then the virus has spread widely, posing one of the most severe public health problems with high socio-economic costs in history. While the health consequences are directly caused by contamination, the economic implications are primarily due to the prevention steps taken by the respective governments to avoid its spread (Grace, 2020). The global economy is in the middle of a serious crisis caused by the pandemic of COVID-19. The direct effect on international production is severe (Zhan et al., 2020). According to the IMF World Economic Outlook, the global economic growth rate is expected to fall from 2.9 percent to -3 percent this year, and according to a pessimistic scenario, global trade is projected to decrease by 32 percent (Choi, 2020).

A sharp decline in FDI would be caused by the COVID-19 crisis. In 2020, global FDI flows are expected to decline by up to 40 per cent, from their \$1.54 trillion value in 2019. For the first time since 2005, this will push FDI below \$ 1 trillion. In 2021, FDI is expected to fall by an additional 5 to 10 percent and to begin a rebound in 2022. A recovery in 2022, with the return of FDI to the underlying pre-pandemic trend, is likely, but only at the upper limit of expectations.

FDI flows to Europe among developed countries are predicted to decline by 30 to 45 per cent, considerably more than flows to North America and other developed economies (20 to 35 per cent on average), as the region has joined the crisis on a comparatively more vulnerable basis. In 2019, flows as a group to developed economies rise by 5% to \$800 billion (UNCTAD, 2020).

FDI inflows are diminishing, and economic growth may decline (Ciobanu, Şova, & Popa, 2020). During the COVID-19 crisis, global supply chains became hard-hit. It is important to get them started again as soon as possible after the pandemic is under control in order to minimize the damage and the depth of the recession that the world is facing. International production, however, is not only impacted by the immediate effects of the crisis of COVID-19. More fundamental improvements to the system of international production can be seen in the coming years and the decade to 2030. Over the past decade, the slowdown of trade and investment has been a consequence of a decade of transformation ahead (UNCTAD, 2020).

In perspective of the post-COVID economic recovery, the key features are expected to be automation and digitization, for three reasons:

- First, in the global community's fight against COVID-19, digital infrastructure and automation have played a key role.
- Second, some sectors have already expanded steadily since the pandemic due to growing demand, and also some "new" sectors, such as the online provision of different services.
- Third, lessons from the pandemic and trade war will drive business to create more robust supply chains and manufacturing processes. For enterprises in both the manufacturing and service sectors, digital transformation of industries and production processes would be a common option (Fu, 2020).

With more than 50 percent of enterprises pivoting to the digital economy, digitization has

become a major trend globally, but with the advent of the Covid-19 pandemic this has accelerated multiple due to the demands of market sustainability, end-to-end customer journey, cost savings and risk management, making an even greater case for Industry 4.0 (Khan, 2020).

New drivers for economic growth would be creating a favorable environment for digital FDI by encouraging investment in digital companies, supporting the digital transformation of traditional companies, and promoting investment in digital infrastructure (Fu, 2020).

The shock caused by COVID-19 would mean that the economic climate will be very competitive in the future and that the competitiveness for FDI will be high, with investors suggesting a decrease in FDI activity. Following a resilient success in 2019 in attracting FDI, especially in high-value, fast-growth industries such as technology and R&D, and with investors seeing the country as likely to recover its attractiveness faster than the European average after the COVID-19 crisis has passed, the UK starts from a strong base (Ernst & Young, 2020a).

Investment in technology is expected to accelerate post-COVID-19. In a matter of a few weeks, COVID-19 altered the relationship between consumers and businesses with digital technologies. More than half of companies (55%) are aiming to boost digital customer access, virtualize business-to-consumer (B2C) experiences and in the short term, invest in more e-commerce. At the same time, companies are expected to accelerate investment in intelligent automation and robotization of production and transaction services such as IT, HR and finance. In brief, while digitalization was a "can" prior to the pandemic, it is now a "must." This is strongly recognized by businesses: (82 percent) expect technological adoption to grow as a result of COVID-19 in the next three years (Ernst & Young, 2020b).

### **5. Attracting Digital Foreign direct investment**

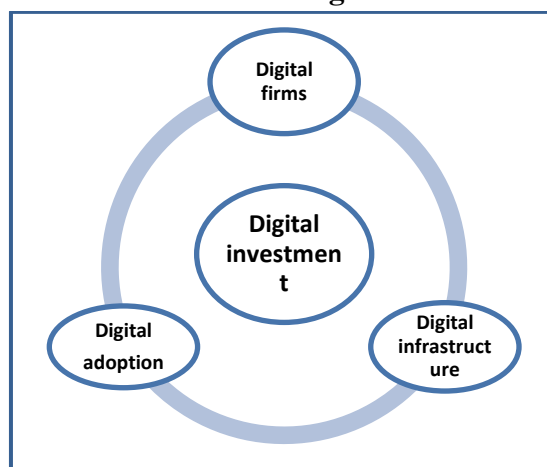
It is totally logical to expect that any economic policy, even one directed at FDI, will have to take into account the consequences of the digital transformation of any national and regional growth plan. In general, attracting FDI can come in two ways - in a narrow and wide sense. In a wide sense, investment promotion relies on the competitiveness of the country and the region and its clearly defined economic policies, as well as the favorable business climate. Among other fiscal concessions, financial incentives or investment advantages are investment incentives in a narrow sense (Götz, 2019).

Industry 4.0 is transforming the structures of MNE investment strategy, with major consequences for cross-border investment trends (UNCTAD, 2018). Industry 4.0 and the digital economy are altering the traditional factors and determinants of investment. New innovations are pushing policymakers to adapt to evolving international investment trends and to changing determinants of investment. It requires different strategic advantages to attract foreign investment in a digital economy that depends less on some variables, such as low-cost labor, and more on others such as technology, skills and low-cost energy (UNCTAD, 2020). A recent Digital FDI initiative has been initiated by the World Economic Forum to identify policies, regulations and initiatives that policymakers should follow to encourage such investment (Stephenson, 2020).

In its 2017 World Investment Report, the work builds on a conceptual framework set out by UNCTAD. It shows that enabling policies, regulations and measures fell into three pillars (Enabling investment in digital companies (e.g. Uber); Enabling digital adoption (e.g. telemedicine or mobile banking) by traditionally non-digital companies; Enabling digital infrastructure investment (e.g.

5G)) (Stephenson, 2020).

**Fig.(8): World Economic Forum Digital Investment Framework**



Source: (Stephenson, 2020)

**- Enabling investment in digital companies**

A host of new business models have been created by the digital economy. Governments who adopt these new business models, create an encouraging climate for the prosperity of digital businesses, and successfully encourage their digital economy are likely to be more effective in attracting investment.

Southeast Asia is a notable example where investment has been promoted by policies and measures, such as the billions being invested in Gojek and Grab, ridesharing and delivery companies competing in this region for market share.

**- Enabling digital adoption by companies that are traditionally non-digital.**

The digital revolution has the power to transform traditional forms of business, beyond new business models. Policies and initiatives, including telemedicine, mobile banking and online sales, that promote the adoption of digital features in order to conduct business are a precursor to achieving such investment.

For example, the Polish telemedicine company MedApp has invested in the Baltic States, enabling telemedicine to provide cardiovascular diagnostics (Stephenson & Sen, 2020).

**- Enabling digital infrastructure investment.**

Investments in infrastructure are no longer the exclusive domain of telecommunications operators; a variety of digital companies are starting to invest in nearly any form of infrastructure (UNCTAD, 2017). The stable underlying digital infrastructure is essential to the digital economy's development and growth. A favorable regulatory environment, such as policies and measures that promote investment in payment processors, is needed to drive investment in digital infrastructure. Local companies, especially small and medium-sized enterprises, will benefit greatly from success in attracting foreign investment in digital infrastructure.

For example, Visa invested in Interswitch, a payment switch and processing company in Nigeria, making Interswitch an overnight phenomenon (Stephenson & Sen, 2020). Another example, Google's Project Link is to supply fibre to the metro in African cities, beginning in Kampala, Uganda (UNCTAD, 2017).

## 6. Conclusion

The purpose of the research was to examine trends of digital foreign direct investment (Digital FDI) in the United Kingdom. In attracting foreign direct investment (FDI), the UK has long been one of the best performers in the world.

In 2019, the UK was the largest source country for European FDI projects. Analysis of UK digital FDI reveals that the value of the inward digital FDI position increased to £ 158.0 billion in 2018, whereas the value of the outward digital FDI position was £ 120.8 billion. Between 2014 and 2018, inward and outward digital FDI position values for telecommunications were the highest.

This research also examined the role of digital FDI the economic recovery after the COVID-19 pandemic. The results of this study suggest that investment in technology is expected to accelerate, and the digital FDI will be a key driver of economic growth after the pandemic. The shock caused by COVID-19 would mean that the economic climate will be very competitive in the future and that the competitiveness for FDI will be high, with investors suggesting a decrease in FDI activity. Therefore governments must adopt policies and measures to create a favorable environment for digital FDI by encouraging investment in digital companies, supporting the digital transformation of traditional companies, and promoting investment in digital infrastructure. Following a resilient success in 2019 in attracting FDI, especially in high-value, fast-growth industries such as technology and R&D, and with investors seeing the country as likely to recover its attractiveness faster than the European average after the COVID-19 crisis has passed, the UK starts from a strong base.

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