

Article

## The Impact of Foreign Direct Investment in the High-Tech Sector Economy

Olga Nosova<sup>1,2\*</sup>

<sup>1</sup> Department of Business, Vilnius Business College, Kalvarijų g. 129-401, LT-08221 Vilnius, Lithuania

<sup>2</sup> Department of Marketing, Management and Entrepreneurship, V. N. Karazin Kharkiv National University, Svobody Square, 4, Kharkiv, 61000 Ukraina

\* Corresponding author, e-mail: [olgano59@gmail.com](mailto:olgano59@gmail.com)

Received: 01 May 2022

Accepted: 11 June 2022

Online: 31 August 2022

**JEL:** M20, M21, M29.

**Abstract.** The article is aimed at studying the impact of FDI on the development of the high-tech sector of the economy. R&D effects are analyzed through the location of branches of foreign enterprises. The positive and negative technological spillover effects and FDI inflow consequences are considered. Foreign investment is assessed as a factor of economic development, modernization, income, and employment growth. The radical innovations' implementation by the innovative TNCs have been highlighted. The assessment of the success of the most innovative companies confirms the usage of artificial intelligence, platforms, and ecosystems.

**Keywords:** high-tech sector; innovations; transnational corporation; foreign direct investment.

**Citation:** Olga Nosova (2022) The Impact of Foreign Direct Investment in the High-Tech Sector Economy. – *Applied Business: Issues & Solutions* 1(2022)3–9 – ISSN 2783-6967. <https://doi.org/10.57005/ab.2022.1.1>

### Introduction

The modern development of the world economy is accompanied by processes of internationalization and transnationalization of capital, transfer of new technologies, digitalization, and increasing the use of skilled labor. Factors that stimulate the development of globalization include progress in the field of communications, cultural exchange and equalization of values, development of transport infrastructure, interstate competition for resources, and development of the global financial and stock market.

Foreign direct investment (FDI) is seen as an important tool for attracting foreign capital to the country, contributing to structural reforms and the development of scientific and technological capacity in the country. Direct investment is used by transnational corporations (TNCs) to accommodate knowledge-intensive production and apply modern technology. Companies maximize the benefits of attracting FDI under favorable investment policies.

Factors that negatively affect the inflow of foreign capital into the country include consumer uncertainty, exchange rate volatility, the impact of inflation expectations, and geopolitical instability in the world. The trend of TNC development, which is accompanied by increasing the economic potential of the company by increasing mergers and acquisitions, was positively assessed.

Recent studies have highlighted the considerable research efforts in developing an understanding of the subject of the investment motivation of FDI spillover effects, its impact on economic growth, competitive advantages inside the developed economies, and draw attention to short-term adjustment problems rather than to the long-term possibilities. Empirical studies of FDI spillover effects on domestic firms reflect various factors, conditions, and characteristics of the firm, at industry and national levels. The COVID-19 crisis negatively affected the movement of international capital. In the first half of 2020, global FDI flows fell by 50% compared with the last half of 2019, to \$364 billion, because of the pandemic and the resulting supply disruptions, demand contractions, and pessimistic outlook of economic actors [1].

Although the COVID-19 pandemic has led to severe restrictions in developed countries, the economic turmoil is now entirely global. However, although developed countries use the full range

of macroeconomic instruments to mitigate the effects, developing countries have a lack of money or fiscal capacity to reduce the effects of the pandemic. Countries' export earnings are declining and access to external sources of finance is declining, while the internal response to health threats will lead to a reduction in tax revenues, which are generally insufficient. The decline in commodity prices, in the market of iron ore, ferrous metals, and grain market is seen as a factor in reducing Ukrainian exports.

To rebuild the economy after COVID-19, the world will need a significant influx of investment resources. Governments need to be provided with favorable conditions for attracting and retaining productive investment and, more importantly, ensuring that the benefits of their use are maximized. To increase the inflow of foreign capital, countries need to reconsider approaches to creating attractive conditions for TNCs to locate new innovative branches, as well as to develop new strategies to attract foreign investors.

The purpose of the article is to study the FDI influence on the high-tech sector economy, R&D effects through the placement of branches of foreign enterprises, advanced technologies application, the spread of new forms of management organization, and increase of the welfare state.

The methodology of the research is the use of the Comparative Economics approach. It allows making comparisons of the main research methods and strategies of FDI attraction in stimulating innovation-science-intensive branches development, analysis of forms, strategies of TNCs activity, and foreign affiliates branches allocation.

### 1. Literature review

The study of the considerable amount of works devoted to the study of FDI impact on economic development in countries indicates the existence of a variety of theories and approaches. Technology transfer is an important aspect of the TNC's presence manifested through vertical connections. Technology transfer and dissemination and deployment are carried out in four interconnected channels: through vertical links with suppliers or buyers in recipient countries, through horizontal links with competing or complementary compa-

nies within the same industry, through migration of skilled workers, and the internationalization of R&D.

The study of the overall effect of technology transfer through FDI attraction, the influence of FDI inflow on the economic growth of the state, international investments, technologies in the conditions of a dynamic environment, innovations as a factor of competitiveness of TNCs are devoted to the significant number of scientific works.

Barell & Pain [2] investigate the role of FDI in the diffusion and assimilation of technologies and ideas across borders. They determine the consequences of FDI inflow on the host country's technical progress and export performances.

Kathuria [3] points out that domestic firms will not benefit from a foreign presence if it is measured by the share of sales at the same time, they get access to foreign capital reserves. Additional research shows that domestic firms that belong to the R&D subgroup have a positive impact and ensure the transfer of new technical knowledge.

The impact of foreign technology on growth depends on the degree of compliance of these technologies with local conditions, as well as on the basic technological level recipient country [4].

Assessment of foreign capital stocks helps increase the efficiency of domestic firms specializing in R&D. Firms that do not belong to the subgroup engaged in the creation of new knowledge do not benefit from the transfer of new technical information. The work of Acharya & Keller [5] is devoted to determining the effects of technology transfers in the US manufacturing sector from attracting FDI and imports of finished products. The study aimed to determine the impact of FDI and import growth on productivity growth in domestic firms receiving investment. The foreign presence can be measured as the share of employment in foreign affiliates compared with total employment in the industry. The study results indicate that FDI creates conditions for obtaining significant production benefits for domestic firms. External effects were assessed on a large scale compared with other studies. External effects accounted for 8–19% of the production growth of American firms in the period from 1987 to 1996. Effects differ and depend on the size and productivity of the firm. Acharya & Keller [5] hypothesized that a strong external effect is due to the influx of FDI into high-tech sectors. Small firms with low productivity receive a greater external effect of FDI compared with large firms with high productivity. The smaller external effect of imports of finished products compared with the effect of FDI can complement the positive feedback to sustain growth in the long run.

FDI has a more positive impact on labor productivity than domestic investment, the technological gap between local enterprises and foreign investors should be relatively small. Boghean and State [6] estimate the relationship between FDI and labor productivity in the European Union and confirm the existence of a strong connection between the volume of FDI outflows and productivity zones. The impact of FDI on the economies of host countries is mainly due to increased productivity through technology transfer, and management and marketing skills, which allows for long-term technological progress and economic growth. The authors argue that FDI depends on additional factors to exert a significant effect on growth, i.e. a significant level of domestic investment or export orientation is necessary.

Clark et al. [7] developed and substantiated an approach to determining the FDI effect, which is associated with positive technological spillovers, economic growth, and increasing income inequality. Floyd [8] used firm-level data from manufacturing industries for the period of 2000–2005 in Central and Eastern European countries and found that vertical effects tend to be higher and thus economically more important than horizontal ones. In many cases, spillovers

are negative and thus the foreign presence might also have some adverse impact on local firms' productivity.

The study of the above-mentioned approaches allows identifying the factors and consequences of FDI inflow, through the placement of branches of foreign firms, the technology transfer effects, the development of competition of foreign affiliates and domestic firms, and increasing productivity by attracting FDI [9].

Empirical studies of FDI spillover effects on domestic firms across countries confirm the existence of direct and indirect effects and reflect different technologies, products, and characteristics at micro to macro levels. The reported results do not reproduce different effects of economic sectors, labor productivity, or under-valued labor costs per worker, and do not take into account the role of the shadow economy. Moreover, if internal and external effects act in the same direction, reducing labor costs per unit of output, they act as a factor stimulating the growth of productive efficiency, increasing output, increasing labor intensity, and improving a product's quality and competitiveness.

The external effect of technologies transfer by FDI inflow to the country occurs in horizontal or vertical directions. It depends on the nature of the investments that are invested in the country. Labor-intensive and market-oriented FDI creates a significant external effect for home firms compared to joint-stock firms. The research demonstrates the contradictory results of the external effect of technology transfer in developing countries and East European countries. Don Clarke argues that there is a foreign effect from encouraging FDI inflows policy. The effect is significant in industrially developed countries, which have a high share of high-tech sectors in GDP. The study of the FDI impact on the country's economic growth has found that the external effect of technology transfer is the main factor of long-term economic growth. The FDI effect increases income inequality, even though capital attraction contributes to the growth of prosperity in the country. FDI inflows are positively correlated with the external effect of technology transfer [7].

Diffusion of the acquired advanced technologies promotes their wider use in the process of exchanging ideas. The involvement of these technologies depends on the labor productivity of the labor force involved in the creation of R&D. GDP, the size of the country are significant factors in determining the level of welfare in the country [10].

Petrikova proposed a mechanism for determining the FDI influence on GDP [11]. The author has revealed the algorithm of FDI quantitative estimation and contribution to GDP growth and has estimated the macroeconomic indicators of foreign investments. Osano and Koine [12] confirm that trade competition is accelerating the process of transferring new technologies to local investors in the energy sector through the exchange of knowledge, and application of innovations in production, and R&D.

Radosevich identifies the institutional capabilities of the firm, branch, or economy to combine appropriate market and non-market incentives with the need to upgrade technological and additional prospects [13].

TNCs play an important role in technology transfer. The economic activity of companies is characterized by high labor productivity indicators and significant expenses on research and development in comparison with national companies. Foreign firms use the external effect of technology transfer, applying different approaches. The transfer of new knowledge occurs as a result of the movement of the labor force, which has passed training in TNCs. The obtained new knowledge of workers can be considered as potential for future development of human capital in the country. Workers use the knowledge, skills, and experience gained in Western compa-

nies and in national companies. Local entrepreneurs imitate the production, management, and marketing of foreign branches. The acceleration of competition forces national companies to use resources and advanced technologies more effectively, which ensures that the appropriate effect of the use of skilled labor, as well as profit, is obtained. The growing competition is aggravated by the contradictions between local producers and international companies [14].

Local entrepreneurs import technologies from TNCs through the acquisition of production equipment, specialized capacities, and differentiated products. The external effect of the interaction of foreign affiliates and national companies at horizontal or vertical levels contributes to the increase of labor productivity in the country. Growing demand for intermediate products makes national companies take advantage of the economy [14:111].

Additional research shows that home firms, which belong to the sub-group dealing with NDCD positively influence and ensure the transfer of new technical knowledge. Access to foreign capital stocks contributes to the increase of efficiency of domestic firms specializing in NDRRs. Firms that do not belong to a sub-group that creates new knowledge do not get an external effect from the transfer of new technical knowledge.

Acharya and Keller is dedicated to identifying the impact of technology transfer in the US manufacturing sector from FDI and finished product imports. The study aims to determine the impact of FDI and import growth on labor productivity in home firms, where investments have been made. The authors put forward a hypothesis that a strong external effect takes place in connection with the influx of FDI into high-tech sectors. Small firms with low labor productivity receive a greater external effect of FDI than large firms with high labor productivity. The external effect of the import of finished products is much less compared to the effect of FDI [5].

The study of the considered approaches of influence of direct investments of TNC allows allocating as the main factors of stimulation of economic growth transfer of technologies using the placement of branches of foreign firms, development of competition with national companies. If the technologies are implemented in the format of creation of branches of foreign companies, it stimulates an increase in labor productivity, as well as the transfer of new methods of management, production skills, and business culture to national producers in the country.

## 2. Global strategies of TNCs in high-tech technologies

The activities of global TNCs are aimed at attracting investment, transferring new production and management technologies, stimulating GDP growth, and improving the balance of payments by increasing export revenues or reducing imports. These changes contribute to strengthening the country's economy and raising the living standards of the population. Under the conditions of the Covid-19 pandemic, according to UNCTAD's forecast, the impact of the 5000 largest TNCs is declining, with FDI falling from 30% to 40% in 2020-2021. The profit estimate for 2020 will decrease by an average of 30%, a maximum of 39%. The main affected sectors will be marked by a significant drop in production volumes: energy – 208% and automotive – by 47% [15].

The consequences of the pandemic are a halt to production, supply chain disruptions, and a reduction in capital investment, which can help to prolong the shock to global value chains, as well as to local suppliers and small businesses. Physical closure of businesses, manufacturing plants and construction caused delays in the implementation of global investment projects. In the first part of 2020,

there was a 50-70% drop in mergers and acquisitions (M&A) [16].

An innovative policy of TNCs includes the development and promotion of R&D, expansion of technological links, organization of global value-added chains, use of incentives, and creation of industrial, technological, and scientific parks. The increased interest of scientists in this policy, which focuses on technological aspects, allows to significantly increase scientific potential due to technological external effects of FDI. Domestic firms use the results of new knowledge to create a scientific product. The coordination of policy in the field of FDI, combined with the use of research results, innovations, and regional political instruments, is considered a promising direction for the development of technologies. In the countries of the transition economy, FDI inflows are considered a financial source, for the transformation of the national innovation system following the requirements of the global knowledge system, as well as the dissemination of new knowledge. FDI in technology sector saw a 336% rise in Apr-Sep 2020 [17].

On average, the top 5000 multinational enterprises (MNEs), which account for a significant share of global FDI, have seen downward revisions of 2020 earnings estimates of 9% due to COVID-19. The hardest hit is the automotive industry (-44%), airlines (-42%), and energy and basic materials industries (-13%). Profits of MNEs based in emerging economies are more at risk than those of MNEs in developed countries; profit guidance for the latter has been revised downwards by 16% [18].

In the conditions of the worsening international situation, the number of "aggressive" and "hostile" acquisitions and, consequently, the reduction of "friendly". At the "aggressive" acquisitions, TNCs initially buy shares of a foreign company on the stock market and then enter interaction with the general shareholders' meeting. The result of "aggressive" absorption is a complete change in the heads of the consuming company. In the case of a "friendly" acquisition, the agreement is reached between the managers of TNC and shareholders of the consuming company for the purchase and sale of shares. Then shares of this company are exchanged for shares of TNC. Another option of "friendly" acquisition is acquisition in the form of transfer of the controlling stake of TNC to trust or trust management [5].

The participation of TNC branches in international operations to attract FDI through the creation of their foreign firms and joint ventures is aimed at increasing the control of the company. Examples of successful competitive global innovation companies are *Apple*, *Google*, *Samsung Group*, *Toyota*, and *BMW*.

Consider the top 50 of the most innovative Companies 2020 [19] published by Boston Consulting Group. It is an international company specializing in management consulting and is a leading business strategy consultant - see Table 1.

Among the leading companies, are five companies in the field of technology, car manufacturers – *Tesla*, *Toyota*, *Volvo*, and the electrical engineering company *Siemens*. As four factors contributing to the success of innovative companies, the specialists of the Boston Consulting Group have noted the ability of these companies to provide high speed of innovation development, improvement of processes efficiency in the field of research and development, maximum effective use of technological platforms, and systematic study of related markets.

The success of the top 50 - the most innovative companies is based on scientific research and new technologies, which are becoming increasingly important as factors of innovation development, because they promote the development of innovative products, such as those that give impetus to the creation of science-intensive industries of the economy. All ten top rating companies use AI (Artificial Intelligence), platforms, and ecosystems to allow themselves

Table 1. The largest innovation companies in 2021. Constructed on the data of Refs. [19-20]

Rank	Corporation	Industry	Headquarter	Rank change over 2020
1	<i>Apple</i>	Technology	USA	-
2	<i>Alphabet</i>	Technology	USA	-
3	<i>Amazon</i>	Consumer goods	USA	-
4	<i>Microsoft Corp.</i>	Technology	USA	-
5	<i>Tesla</i>	Automobile	USA	6
6	<i>Samsung</i>	Technology	South Korea	-1
7	<i>IBM</i>	Technology	USA	1
8	<i>Huawei</i>	Telecommunications	China	-2
9	<i>Sony</i>	Consumer goods	Japan	-
10	<i>Pfizer</i>	Pharmaceutical	USA	return
11	<i>Siemens</i>	Technology	Germany	10
12	<i>LG Electronics</i>	Electronics	South Korea	6
13	<i>Facebook</i>	Technology	USA	-3
14	<i>Alibaba Group</i>	Consumer goods	China	-7
15	<i>Oracle</i>	Technology	USA	10

and others to search for new products, services, and ways of working. There was little change in the ranks of top-ten innovators. *Apple* and *Google* parent *Alphabet* retain the top two spots. But in addition to 33 holdovers from last year (whose continued presence shows the enduring qualities of serial innovators), the 2021 list contains 12 companies that have returned to the top 50 after an absence of at least one year, and 5 firms that are new to the rankings [19].

The leading companies in 2020 included companies from the USA, Europe, Asia, China, and India. Among the leading companies - Chinese Internet company *Tencent* and the American corporation is a manufacturer of personal computers *Dell*, as well as the British-Dutch oil and gas company *Royal Dutch Shell*. It should be noted that the position of *Facebook* has deteriorated. The Japanese company *Sony* returned to the rating this year. Most companies consider AI as well as strong innovations to be positive in business development. Nine out of ten respondents in the current top 50 survey believe that their companies invest in AI, and more than 30% expect investment, point to AI, which will have the greatest impact on its industry over the next three to five years.

Platforms are technologies and technological services that provide the basis for the development of other business processes. Numerous industrial goods companies, including *Siemens* (21) and

*Boeing* (11), have created a significant business platform for predictable service to complement their traditional engineering and production facilities. *Amazon*, *Microsoft*, and *IBM*, among others, offer a full range of software and services from their cloud platforms.

Analysis of data of top-100 companies investing in R&Ds shows the growth of total volume of global investments. In total, the Top 1000 Companies spent at least a combined US \$858 billion on R&D in 2018, reflecting R&D spending increases in all regions and nearly all industries - see Fig. 1.

According to Strategy Stanley Black & Decker [23], their list of the Top 1000 companies accounted for approximately 40% of all R&D spending worldwide if we extrapolate that total R&D spending worldwide is in the region of \$2 trillion annually. By spending money on R&D, the innovation company develops new technologies and research to create new products and services. R&D allows companies like *Amazon* to outcompete and work in the future. The largest share of R&D spending worldwide is on computing and electronics, and the USA is the leading country in R&D spending worldwide. Five large TNCs with the highest costs of R&D include mainly technology companies [21] - see Table 2 .

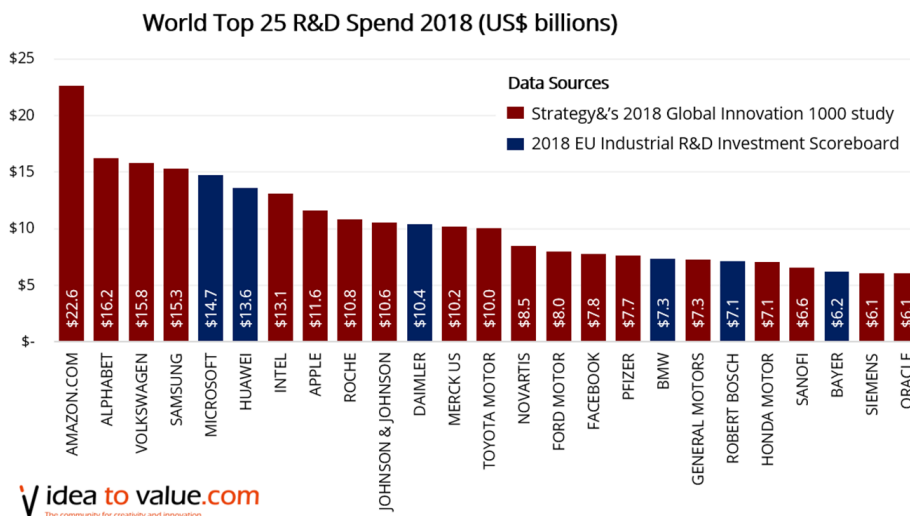


Fig. 1. Top 1000 companies that spend the most on R&amp;D. Adapted according to Ref. [22].

Table 2. Top 100 R&amp;D Spenders. Constructed on the data of Refs. [21,24-27]

Rank	Company Name	Country	2018 Revenue (US\$ billions)	Max 2018 R&D spend (US\$ billions)	R&D intensity 2018 %	Data Source Used
1	<i>Amazon.Com</i>	USA	177.87	22.62	12.72	[25]
2	<i>Alphabet</i>	USA	110.86	16.23	14.64	[25]
3	<i>Volkswagen</i>	Germany	277.00	15.77	5.69	[25]
4	<i>Samsung</i>	South Korea	224.27	15.31	6.83	[25]
5	<i>Microsoft</i>	USA	110.42	14.74	13.34	[26]
6	<i>Huawei</i>	China	92.75	13.60	14.66	[26]
7	<i>Intel</i>	USA	62.76	13.10	20.87	[25]
8	<i>Apple</i>	USA	229.23	11.58	5.05	[25]
9	<i>Roche</i>	Switzerland	57.20	10.80	18.89	[25]
10	<i>Johnson &amp; Johnson</i>	USA	76.45	10.55	13.81	[25]
11	<i>Daimler</i>	Germany	197.20	10.40	5.27	[26]
12	<i>Merck USA</i>	USA	40.12	10.21	25.44	[25]
13	<i>Toyota Motor</i>	Japan	259.85	10.02	3.86	[25]
14	<i>Novartis</i>	Switzerland	50.14	8.51	16.97	[25]
15	<i>Ford Motor</i>	USA	156.78	8.00	5.10	[25]

According to the analysis by Stanley Black and Decker [23], R&D Spending overall in their list of the Top 1000 spenders on R&D has continued to rise over the past decade, even following the recession. The top innovators were *AAC Technologies*, *Adidas*, *Altria*, *Amadeus IT*, *Ammer Sports*, *Ametek*, and *Apple* companies.

The most attractive sectors of financing of top-20 companies include automotive, computing and electronics, Software and Internet, telecommunications, chemicals and energy, industries, and health care. Statistics show that investments in R&D health care are the largest and make up \$61,7 billion and grow rapidly. The automotive industry ranks second among the investment sectors with a value of \$43,7 billion. Investments in computers and electronics make up \$37,9 billion, software makes up \$30,5 billion [28].

The main trends in the field of innovations that influence the TNC's competitiveness are the large openness of companies within the framework of firm cooperation in the field of science and technology, as well as the transfer of a significant part of research in the branch of foreign countries. Increasingly, the acquisition practices of the largest TNCs that create an innovative product or technology are becoming more common. Parent companies make a decisive contribution to the provision of innovative TNCs. U.S. parent TNCs are the first in the world to provide investment in R&D, which accounts for 52% of all revenues of 20 companies, followed by Germany and Switzerland [28].

The rate of production process speed is becoming an important competitive advantage of TNCs. To accelerate the production process and increase pressure on competitors, international companies reduce bureaucratic restrictions and procedures, create a step-by-step functional working group, restructure and organize production, and introduce new technologies. The technological competitive advantages of TNCs are largely due to the formation of close long-term partnerships with suppliers. Optimization of supply chain management, in particular efficient logistics organization and after-sales service, plays an important role in ensuring the competitiveness of the production system of TNCs [29].

Global TNCs are widely used in cross-border transactions in international mergers and acquisitions (M&A). The knowledge and technology transfer affect leading companies and provide changes in a competitive position in global markets. M&A is one of the indicators of the intensity of the world economy's progress. Due to M&A, as well as the implementation of the corporate strategy, market concentration and economic efficiency rise. Immediate FDI impact on a specific company-investment object is expressed in the new knowledge absorption in the process of joint work organiza-

tion, cost reduction, and new forms of activities within a company formation.

In 2019, the financial industry became the leader – it accounted for up to 35% of all international agreements.

The global M&A market activity continued to grow. In the conditions of globalization and internationalization M&As become the main source of obtaining competitive advantages for corporations regarding the possibility of rapid formation of investment portfolios due to the attraction of local assets of different countries, reception of new sources of raw materials, integration of stages of the production process, development of new markets, application of new markets.

With the help of M&A, global TNCs can obtain the most efficient and effective access to markets, maintain greater stability, and attract financial resources on better terms.

M&A is primarily cross-border, aimed at gaining competitive advantage by combining financial, scientific, technical and labor resources of firms-participants and obtaining on this basis synergistic effect; achievement of economy effect at the expense of scale of production; access to new markets; diversification of production; use of new assets, especially intangible (such as know-how, know-how, trademarks, organizational knowledge).

The ability of TNCs to use a flexible mechanism of investment activity, organizational methods, and means for global economy change is reflected in the merger of national capital into the global asset network. They have developed a well-developed marketing system and modern advertising methods that allow them to manipulate consumers' tastes and preferences all over the world.

Among the factors that contributed to the high rating of these companies, the following should be highlighted: a) flexible policy in the conditions of economic crisis; b) active production location on the territory of other countries; c) large scale activity and information technologies application.

Most TNCs apply a comprehensive integration strategy, within which firms transform their geographically distributed branches and fragmented production systems into production and distribution networks that are carried out globally or regionally on the global market. By the number of transactions, M&A is leading the technology sector, especially the software sector. In total, 10 thousand transactions were concluded in this sector with a total volume of 808 billion dollars. In 2018, the second place was taken by the sphere of health care with 2.9 thousand transactions and a volume of \$580 billion [18]. According to China's strategic needs, three Gorges' cash acquisitions amounted to \$3.6 billion, 84% of shares of Peruvian

electric company *Luz del Sur*, the acquisition of Beijing Auto 5% of shares of German car manufacturer *Daimler* and *Jiangsu Shagan Steel Group*, Acquisition of Global Switch Holdings makes up the amount of \$2.2 billion located in London Global Switch Holdings in 2019 [30].

Instability in the global financial markets and the current challenges of the global pandemic COVID-19 create uncertainty, and high risks of international agreements that affect the behavior of major TNCs and force them to apply an adaptive strategy, adapting to the new international environment.

In a transformed economy, the prerequisites for economic growth can be achieved by increasing the development and use of science-intensive technologies and increasing their production efficiency because of the application of the advantages of direct investment by TNCs. Separation of priority investment sectors depending on their level of development, and importance for the needs of the national economy. Regional need in FDI will facilitate the development of international business inflow in the innovation sector.

## Conclusions

The study of a variety of modern approaches to foreign direct investment effects on TNCs allowed us to define the main factors stimulating economic growth. The technologies' transfer by the location of foreign affiliates, competition development with local firms, labor productivity increase FDI inflow. TNC's comprehensive integra-

tion strategy, within which firms transform their geographically distributed branches and fragmented dedicated production systems into production and distribution networks, global-integrated or regional in the world, is based on the advantages of its application.

The high-tech sector's development of the most innovative TNCs intensifies technologies' creation and efficiency increases because of the usage of international capital movement advantages and new innovative branch's location. R&D investment is the main factor in radical innovation development. The basis for the success of innovative companies in the world has been highlighted. The role of the usage of scientific-intensive technologies and the enhancement of their efficiency of TNCs production by application of the advantages of global value-added chains have been determined. The key factors for achieving TNC's technological leadership by using global production systems are well-grounded.

## Abbreviations

AI	-	Artificial Intelligence
BGC	-	Boston Consulting Group
FDI	-	Foreign Direct Investment
M&A	-	Merges and Acquisitions
MNEs	-	Multinational Enterprises
OECD	-	Organisation for Economic Cooperation and Development
R&D	-	Research and Development
TNC	-	Transnational Corporation
UNCTAD	-	United Nations Conference on Trade and Development

## References

1. OECD (2020).
2. Barell R., Pain N. (1997) Foreign Direct Investment, Technological Change, and Economic Growth Within Europe. – *The Economic Journal* Vol. 107, No. 445.
3. Kathuria V. (2000) Productivity spillovers from technology transfer to Indian manufacturing firms. – *Journal of International Development* April. No 2(3) – P.343-369.
4. Foreign Direct Investment for Development. Maximising Benefits, minimizing costs (2002). OECD. URL: <https://www.oecd-ilibrary.org/docserver/9789264199286-en.pdf?expires=1655060530&id=id&accname=ocid49016910&checksum=166DDA7200D0AD78DDA772EDE8C8245C>
5. Acharya P., Keller W. (2007). Technology transfer through imports. NBER working paper series. Working paper 13086. URL: <http://www.nber.org/papers/w13086>
6. Boghean C., State M. (2015) The Relation between FDI and Labour Productivity in the European Union Countries. – *Procedia Economics and Finance* 32, 278-285. – URL: [https://doi.org/10.1016/S2212-5671\(15\)01392-1](https://doi.org/10.1016/S2212-5671(15)01392-1)
7. Don Clark P., Hihgfill J., De O. Campino J., Rehman, S. S. (2011) FDI, technology spillovers, growth, and income inequality: a selective survey. – *Global economy journal* Vol. 11. Issue 2. Article 1.
8. Floyd D. Foreign Direct Investment in Poland: Is Low-Cost Labour Really the Sole Determinant? – *Economic Issues* 1996. vol. 1, Part 2, September, 69.
9. Nosova O. (2016) Effect of Attracting FDI to Economic Growth of TNCs. – *Bulletin of the Research Center of Corporate Law, Management and Venture Capital of Syktyvkar State University*. No. 4: 13-23.
10. Eaton J., Kortum S. (2001) Technology, trade, and growth: a unified framework. – *European Economic Review* Vol. 45. No. 4-6. P. 754.
11. Petrikova E.P. (2009). Foreign direct investment and economic growth. – *Statistical issues: scientific and informational journal* No 9. 14-21.
12. Osano H.M., Koine P., W. (2016) Role of Foreign Direct Investment on Technology Transfer and Economic Growth in Kenya: a Case of the Energy Sector. – *Journal of Innovation and Entrepreneurship* No. 5(1). November. Retrieved from DOI: 10.1186/s13731-016-0059-3
13. Radosevic S. (1995) Science and technology capabilities in economies in transition: effects and prospects. – *Economics of Transition* Vol. 3, No 4, 472.
14. Nosova O., Lypov V. (2021) Transforming Competitiveness by Introducing Digital Platforms. – *The Journal of World Economy: Transformations & Transitions* No. 3.
15. UNCTAD (2020) Investment Trends Monitor. Impact of the Coronavirus outbreak on global FDI. United Nations, New York, and Geneva, accessed March 2020. URL: [https://unctad.org/system/files/information\\_document/diae\\_gitm34\\_coronavirus\\_8march2020.pdf](https://unctad.org/system/files/information_document/diae_gitm34_coronavirus_8march2020.pdf).
16. UNCTAD (2020) World Investment Report: International Production Beyond the Pandemic, United Nations, New York, and Geneva, accessed June 2020. URL: [https://unctad.org/system/files/official\\_document/wir2020\\_en.pdf](https://unctad.org/system/files/official_document/wir2020_en.pdf).
17. Economic Survey (2020). URL: [https://economictimes.indiatimes.com/tech/technology/fdi-in-technology-sector-saw-a-336-rise-in-apr-sep-2020-economic-survey/articleshow/80586966.cms?utm\\_source=contentofinterest&utm\\_medium=text&utm\\_campaign=cppst](https://economictimes.indiatimes.com/tech/technology/fdi-in-technology-sector-saw-a-336-rise-in-apr-sep-2020-economic-survey/articleshow/80586966.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst)
18. UNCTAD (2020) Trade and development report 2020 from global pandemic to prosperity for all: avoiding another lost decade. United Nations, New York and Geneva, accessed June 2020. URL:
19. 50 Most Innovative Companies (2021) The serial innovation imperative. <https://www.visualcapitalist.com/ranked-the-most-innovative-companies-in-2021>.
20. Overcoming the Innovation Readiness Gap. Most Innovative Companies 2021 (2021). BGC. April. URL: <https://www.bcg.com/publications/2021/most-innovative-companies-overview>

21. The Global Innovation 1000 Study (2018) Investigating trends at the world's largest corporate R&D spenders. URL:<https://www.strategyand.pwc.com/gx/en/insights/innovation1000.html>
22. Top 1000 companies that spend the most on R&D, <https://www.ideatovalue.com/inno/nickskillicorn/2019/08/top-1000-companies-that-spend-the-most-on-research-development-charts-and-analysis>
23. Stanley Black and Decker Company Profile (2021) Fortune 500. – <https://fortune.com/company/stanley-black-decker/fortune500>
24. Fortune Global 500. – URL: <https://fortune.com/global500/>
25. Strategy& 2018 Top 1000. – URL:<https://www.strategyand.pwc.com/gx/en/insights/innovation1000/2018-global-innovation-1000-fact-pack.pdf>
26. The 2018 EU Industrial R&D Investment Scoreboard. – URL: <https://iri.jrc.ec.europa.eu/scoreboard/2018-eu-industrial-rd-investment-scoreboard>
27. 2018 Industrial R&D Scoreboard: EU companies increase research investment amidst a global technological race. (2018). European Commission. 17 December. <https://ec.europa.eu/info/news/2018-industrial-rd-scoreboard-eu-companies-increase-research-investment-amidst-global->
28. Ang C. (2020) Ranked The 50 Most Innovative Companies. – URL: <https://www.visualcapitalist.com/top-50-most-innovative-companies-2020>
29. Nosova O. (2021) Effects of Foreign Direct Investment on Labour Productivity. In the book: Productivity of Contemporary Economics. Theory and Evidence. – Eds. O.M. Moskalenko, A.S. Filipenko, Y.K. Zaitsev. Cambridge Scholar Publishing. – Chapter 7.
30. 2020 Global M&A Outlook (2020) Published by J.P. Morgan's M&A team. – URL: <https://www.jpmorgan.com/content/dam/jpm/cib/complex/content/investment-banking/2020-global-ma-outlook/pdf-0.pdf>