

**A difficult time for global manufacturing  
and its implications for FDI site selection**

A globális gyártás nehéz időszaka  
és annak hatása az FDI projektek helyszínválasztására

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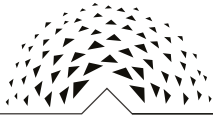
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**Abstract:** Global manufacturing industries and supply chains have been hit by a number of turbulences, some of which will also have an impact on the site selection of FDI projects. Rising geopolitical tensions, recurring lockdowns due to the COVID-pandemic, turmoil in maritime logistics, or the global semiconductor shortage all increase the necessity of reshoring and in-house manufacturing, although relocating production to the homeland is facing serious headwinds in many cases. Experience shows that most multinational companies are considering different scenarios of decentralising production, through which they are seeking a balance of scale, proximity of markets, and flexibility. Overall, the main task of countries competing for FDI remains unchanged: securing attractive conditions and a supportive environment for corporate value creation in the long run. Beyond the current spectacular turbulences of supply chains, the future of the manufacturing industries and the site selection of the related FDI projects will mostly be determined by the rollout of Industry 4.0 and the digital transformation, and this is what national investment promotion must prepare for.

**Keywords:** FDI, foreign direct investment, COVID-19, supply chain, investment promotion, global manufacturing

**Összefoglalás:** *A gyártó iparágak és ellátási láncok globális működését napjainkban számos zavaró tényező nehezíti, amelyek egy része hatással van az FDI projektek helyszínválasztására is. A geopolitikai feszültségek, a COVID-járvány miatti újabb korlátozások, a tengeri szállítmányozás problémái vagy a globális mikrochip hiány is felveti a reshoring és a vállalaton belüli gyártás szükségességét, ám a termelés hazaköltöztetése sok esetben nehézségekbe ütközik. A tapasztalatok azt mutatják, hogy a multinacionális vállalatok többsége inkább olyan forgatókönyveket vizsgál, amelyek révén decentralizálhatják gyártási tevékenységüket, egyfajta egyensúlyt keresve a méretgazdaságosság, illetve a piac közelsége és a rugalmasság között. Ezzel együtt az FDI projektek elnyeréséért versengő országok feladata alapvetően nem változik: hosszú távon vonzó feltételeket és támogató környezetet biztosítani a vállalati értékrementéshez. Az ellátási láncok működését látványosan nehezítő zavarokon túl a gyártó iparágak jövőjét és az azt biztosító FDI projektek helyszínválasztását leginkább az Ipar 4.0 kibontakozása és a digitális átalakulás határozza meg, így a nemzeti befektetésösztönzésnek is elsősorban erre kell felkészülnie.*

**Kulcsszavak:** FDI, COVID-19, közvetlen külföldi tőkebefektetés, befektetésösztönzés, globális gyártás, ellátási lánc

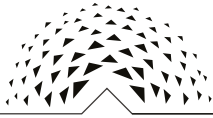
## INTRODUCTION

When reading the headlines, it may seem that since the beginning of the COVID-19 outbreak, the global manufacturing industries have been having a never-ending series of misfortunes. Naturally, turmoil in global production and logistics networks also occurred before the current crisis from time to time. A good example is the earthquake in Taiwan in 1999, which disrupted the production of computer chips, or the tsunami in Japan in 2011, which resulted in the shutdown of plants, faltering maritime transportation, and a slowdown in automotive parts supply. In the same year, flooding in Thailand substantially hampered the manufacturing of computer hard drives. Following each disaster, global manufacturers put redesigning inventory management and supplier cooperation on the agenda; however, few introduced real changes at the end of the day. The current crisis differs from previous ones in the sense that we are seeing a series of turbulences that are hitting several regions and countries at the same time.

For economies relying heavily on foreign direct investments it is a key question how disruptions of global manufacturing affect the site selection of FDI projects, as well as their own ability to attract new investments. [Forecasts](#) on the global level of FDI are optimistic, especially for 2022, when FDI flows may approach pre-pandemic levels. Based on an [EY survey](#), Europe will be the most attractive region in the coming years for multinational companies with new FDI projects in the pipeline. Nevertheless, some of the turbulences that have hit the manufacturing industries and the related supply chains since the outbreak of the pandemic would most likely affect the site selection of FDI projects, which should be considered by national investment promotion agencies as well. This policy brief first enumerates the difficulties encountered by global manufacturing and the related supply chains both during the immediate pre-COVID period, as well as following the outbreak, then exploring the potential impact of these tendencies on FDI site selection in the future.

## A BAD RUN FOR GLOBAL MANUFACTURING

Although the COVID-19 outbreak may seem like a watershed event, the bumpy period of the global manufacturing industries already started before the crisis. Due to the US-China tariff war and other international trade disputes, a number of companies started to build inventories, which threw demand and supply out of balance. The introduction of new tariffs generated a shift in trade that put stress on global logistics. Economic self-reliance and the restriction of foreign investments in some sectors was high on political agendas already in the pre-COVID era, which also manifested in launching new national FDI



screening mechanisms. Geopolitics was quickly gaining importance among the factors influencing location selection in manufacturing, most notably in the case of the US and the EU. The pandemic outbreak has further amplified these trends. The [extension of the Buy American policy](#), and the new [dual circulation economic strategy of China](#), which primarily builds on domestic production and consumption, both represent this tendency. The same applies to the discourse in the EU about securing strategic autonomy, where the need for reshoring is a frequently recurring argument.

The impact of the COVID pandemic on the manufacturing industries and the related supply chains is well known: production was halted or slowed down in factories around the world, the supply of raw materials and freight transport faltered due to lockdowns and other problems in maritime logistics. However, the reboot of production was followed by further unexpected difficulties. As a result of governmental fiscal stimulus packages, especially in the US, global demand rebounded sharply, and the volume of goods that started the journey on the global conveyor belt increased drastically, resulting in port congestions and a container shortage. The traffic jam is partly due to the drop of employment level in port terminals, which could not be restored quickly enough. Another cause of port congestions is the shortage of truck drivers, who play a major role in forwarding the containers inland. The shortage of drivers is the most severe in the US and the UK, where a substantial part of the driver pool has left the industry due to the COVID lockdowns. Rail cargo transport is hit by the same difficulties. Unloading the containers is also delayed due to a shortage of warehouse space, which is caused by growing e-commerce demand after the first wave of the pandemic. This is also reflected well in warehouse pricing. In July 2021 the warehousing price component of the [Logistics Manager's Index](#) reached an all-time high. In March 2021 the Ever Given container ship blocked the Suez Canal for six days, which further increased the turmoil of maritime transportation and the headache for manufacturing companies that rely heavily on it. Local flare-ups of the pandemic are also contributing to the continued stress on supply chains. An example is the [shutdown of a major port in Southern China](#) in May and June 2021, which blocked the transport of some 350,000 containers for some time. Even the weather seems to hinder the recovery of the global conveyor belt, since [key ports from the US to China had to be closed temporarily](#) during 2021 due to extreme storms.

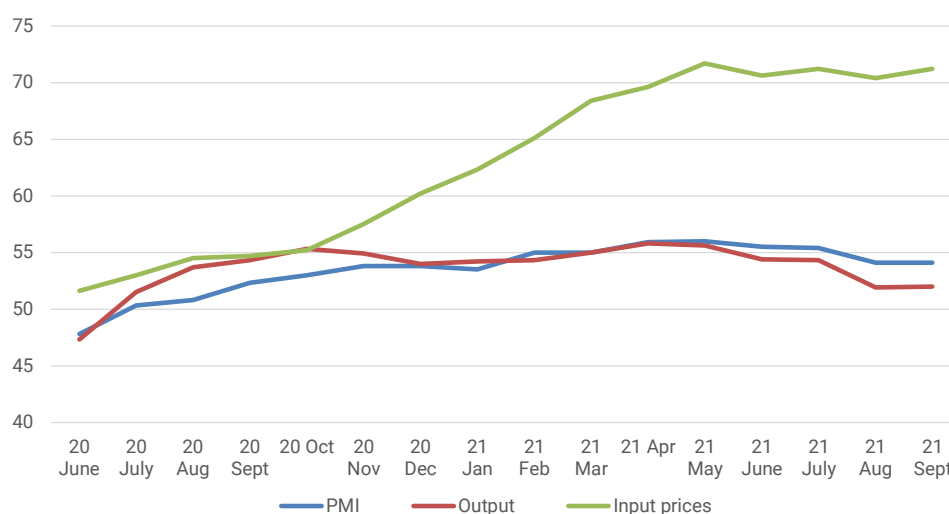
The manufacturers of electronic products and automotive companies had to face further headwinds as the shortage of microchips escalated to a global scale in 2021. The causes of the turmoil are manifold, from the effects of trade disputes in the pre-COVID period, through natural disasters and fire hitting production sites, to the sharp increase in demand after the first wave of the pandemic. Most recently, the normal operations of the manufacturing sector have been disrupted by the energy crisis that extends to a growing number of major economies. Energy is the most important input of production, the shortage of which will halt factories even if the supply chain operations recover and become more predictable. UK manufacturers

in the most energy-intensive sectors have already indicated that [they would be forced to shut down facilities](#) or pass on rising costs to consumers unless the government provides some emergency relief for them. Similarly to the capacity shortage in the semiconductor industry, the record-high level of energy prices is also an imbalance that will prevail in the months ahead.

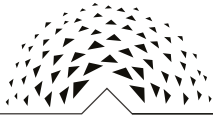
An obvious consequence of the difficulties listed above is that the input prices of the manufacturing industries are soaring at a scale not seen for a long time. Providing an indication of world manufacturing business conditions, the J.P. Morgan Global Manufacturing PMI [in June 2020 registered a mark exceeding 50](#) for the first time since the outbreak of the pandemic. (This globally acknowledged index reflects the positive or negative direction of economic trends. A value of 50 refers to unchanged conditions, a higher mark indicates improvement, while a lower mark highlights deterioration. The difference to 50 reflects the magnitude of the change.) The input prices of manufacturing had already started to rise a month earlier, in June 2021, and the growth accelerated consistently until May 2021. Figure 1 shows the J.P. Morgan Global Manufacturing PMI between June 2020 and September 2021, as well as two of its components, output, and the input prices of the manufacturing industries. Based on the trendline, two findings are worth noting. First, as of October 2020, the growth rate of input prices spectacularly exceeded the expansion rate of the manufacturing sector and its output, perfectly reflecting the distorting effect of the turbulences mentioned above. Second, despite the various imbalances, the PMI did not slip back to a mark under 50, indicating that the recovery of the global manufacturing sector has been continuous.

[Figure 1](#)

The J.P. Morgan Global Manufacturing PMI, output and input prices (June 2020 - October 2021)



*Note: Compiled by the author based on J.P. Morgan Manufacturing PMI reports*



Finally, when analysing the conditions of global manufacturing, it should be emphasized that the fundamental transformation of industrial production and supply chains already started before the pandemic. In a different way than the turbulences mentioned above, but the switch to new operation models induced by technologies related to Industry 4.0 is also creating basic challenges for global manufacturing companies today.

## POSSIBLE EFFECTS ON FDI SITE SELECTION

Each of the imbalances listed above influence the operations of the global manufacturing industries, although not all of them affect the selection of future corporate manufacturing sites: the question is which turbulences and challenges are also shaping corporate strategies in the long run. It is the trends that change production and logistics processes that are expected to influence FDI flows permanently, thus national investment promotion organisations should get prepared accordingly.

Reports on global climate change mostly predict the increasing frequency of extreme weather patterns and natural disasters. The flooding in Thailand in 2011 is a good example of such an event motivating a manufacturing company to seek an alternative production site. Following the disaster, Hoya, a Japanese optical lens manufacturing company, decided to create a back-up production site in Europe. [Its Hungarian factory was selected](#), which has resulted in a number of new FDI projects at its Mátészalka site. Naturally, this does not mean that Thailand is no longer a popular location of global manufacturing companies, but the example highlights that the risk of natural disasters is a factor that may generate new FDI projects.

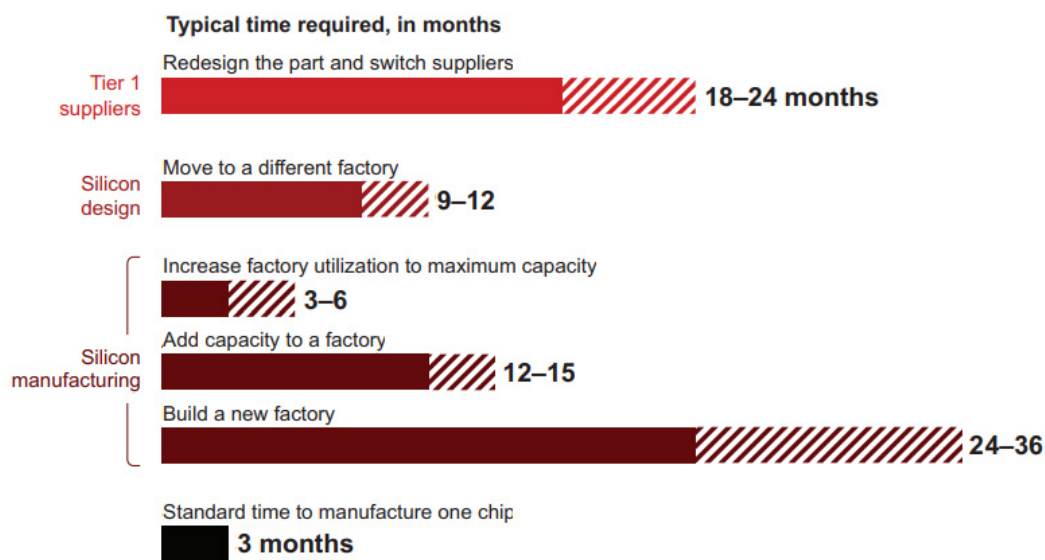
It is also worth noting how the fluctuation of energy prices affects FDI flows. According to [research focusing on EU countries](#), a 10% increase in electricity prices leads to a decrease in net FDI inflows as a share of GDP by 0.33-0.4 percentage points, depending on the region. This corresponds with [the opinion of IDA Ireland](#), the country's national investment promotion agency, who warned that the current energy crisis might damage how Ireland is perceived among investors and might negatively affect its ability to attract foreign direct investment. [According to some reports](#), US-based tech company Intel had concerns about locating the facility in Ireland due to the potential energy shortages.

Geopolitical tensions have also induced an upheaval in international trade and the technology sector, which influences supply chains, and as a result, the investment site selection of manufacturing companies. Economic strategies seeking self-sufficiency and reduced exposure will surely generate new FDI projects in the future. At the same time, substantial disparities can be expected among different sectors, as new FDI projects targeting the reduction of exposure may mostly affect the technology sector and related industries, like microchip

manufacturing. Nevertheless, the semiconductor shortage is not expected to end within a few months, as every possible scenario requires a longer time frame (Figure 2).

Figure 2

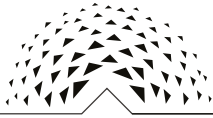
Possible solutions for microchip shortage and the necessary time frames



Reshoring seems to be an obvious solution for managing the turmoil in international logistics, and it has accordingly become a frequently cited phrase in discussions of the topic since the outbreak of the pandemic. However, the temporary imbalances of global logistics, such as the shortage of containers or truck drivers, are not expected to prevail for a length of time that would induce global companies to relocate manufacturing. On the other hand, it has become apparent that reshoring is not a magic cure-all for the many difficulties listed above. Due to the high concentration of manufacturing clusters, a number of multinational manufacturers rely on China to an extent that does not allow for relocating their entire supply chain within a few years. In many cases relocating production close to the local distribution centre would undermine profitability, not to mention that due to the repeated flare-ups of COVID-19, a factory could just as easily be closed in the US as in China. Finally, low-cost sourcing from Asia may remain a competitive advantage in an era of growing input price pressure in developed economies.

These considerations are also confirmed in [a report published by the advisory firm BCI Global](#), which explains that global companies are evaluating different scenarios of decentralising their manufacturing activity. Moving from centralised towards more decentralised manufacturing, the first model is global large-scale manufacturing concentrated in the location with the lowest labour cost. The next scenario is creating geo hubs, which means selecting one production site per





continent or global region. The next level of decentralisation would be dispersed manufacturing in all the main markets, while the list ends with the scenario of loosely coupled production ecosystems that focus on collaboration and manufacturing in specific, talent-rich hotspots. These models aim to create some sort of balance between economy of scale and market proximity, as well as reaching a balance of costs, control, and flexibility for supply chains. The possible extent of the decentralisation of production is limited by factors such as the availability of labour pool and talent, or the supplier network. The BCI report also explains that due to the global challenges mentioned above, producers are increasingly looking for an ideal mix of in-house and outsourced manufacturing instead of choosing one of these strategies. This phenomenon even [seems to have reached technology companies](#), which are typically not engaged in in-house manufacturing.

## WHAT DOES ALL THIS MEAN FROM THE PERSPECTIVE OF INVESTMENT PROMOTION?

Based on the findings above, it can be concluded that in the coming era there will be no new norm that would apply to all industries and manufacturers, instead companies will have to find their own response and optimal manufacturing footprint to tackle the challenges. As for FDI attraction, this may require a more flexible and more tailor-made investment promotion strategy in the future.

Nevertheless, the basic task of countries competing for FDI projects remains mostly unchanged: ensuring attractive conditions and a supportive environment for corporate value creation in the long run. Multinational companies will continue to prefer countries and cities that can offer the ideal combination of key location factors despite the turbulent conditions of the global economy. Among these factors the availability of skilled labour is still high on corporate wish lists, while as a result of current trends, the need for flexibility and diversified manpower skillsets is expected to increase in the future. It could also be a requirement that national labour regulations should flexibly support companies in restructuring human resources in the case of unexpected disruptions. Geographic location will continue to be of key importance in investment decisions, and the attractiveness of a given country will be determined by how it fits into the new location strategies of investor companies seeking an adequate response to the crisis. The proximity of key markets is a factor that will undoubtedly gain importance due to the current turmoil. According to the [already mentioned EY survey](#), Europe is in a relatively favourable position in this respect. In 2020, the number of announced new FDI projects fell by only 13%, while 62% of investor companies anticipated that the attractiveness of the continent would increase further in the coming three years. It is good news for Hungary that Central and Eastern Europe is considered to be the second most attractive investment region of the future, behind Western Europe. The size of the

market, political stability, and a developed infrastructure seems to be gaining further importance from the perspective of investors – a basis that investment promotion should build on.

Considering the business climate in general, for potential investors it is becoming a crucial factor whether the government of a country can effectively address the repeated flare-ups of the COVID pandemic and support companies in maintaining normal business operations in case of sudden disruptions. Due to supply chain shocks, the existing supplier network in a given country or region is also gaining significance, just like environmental factors and the probability of extreme climate events.

The various problems of supply chains show that the era of just-in-time manufacturing is most probably coming to an end. New inventory strategies will likely require extended warehousing capacity, while developed industrial infrastructure that supports the flexible changes of production is also expected to become even more valued when talking about new FDI projects.

Some of the challenges and difficulties analysed in this policy brief are expected to soften or cease to be a problem in time, while other disruptions will return periodically with COVID flare-ups, and there will undoubtedly be new, unexpected turbulences as well. Beyond the evident turmoil that hinders the normal operations of supply chains, it is worth focusing on the transformation that already started to shape manufacturing industries in the pre-COVID era and will surely continue and even accelerate independently of what would be the next headwind for global manufacturing. The extent and time frame of this may differ by industry, but future-proof manufacturing and site selection of FDI projects will first and foremost be determined by the rollout of Industry 4.0 and the digital transformation, which should be the prime focus of national investment promotion organisations.