

# **Global supply chain: balancing security and efficiency**

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## ***Introduction***

All at once the world came to a standstill. And with it, trade and the global economy. The immediate impact was not the same everywhere but, bit by bit, every continent was affected. Since the beginning of 2020 the coronavirus has determined our public and private lives as well as the measures required to keep it under control. Even today, nobody can say how much longer the pandemic will last. It quickly became evident that the virus would result in major economic damage. The coronavirus has had a huge effect on the global economy and has led to a massive decline in world trade. At the same time, it has brought into clear focus the interlinking of society, economy and environment. For the last 40 years, the lion's share of global production has been organized through global value chains, which make up two thirds of global trade. Raw materials and intermediate products from various countries are shipped around the world and processed in other countries. The finished products are then exported again to the end consumers. The outbreak of the pandemic has had a major impact on this international division of labor.

The pandemic has demonstrated how fragile the economic cycles in a globalized world really are. It began in China and spread to Europe and then North and South America and Africa. Nearly all the countries affected introduced restrictions in order to contain the spread of the virus. These included production stops in many economic sectors. Production chains and supply chains were unsustainable and have been disrupted ever since. There is no doubt that the worldwide lockdown has given us an insight into the downside of globalization. Governments have closed off their economies and are relying increasingly on protectionist measures. Around the world, tariffs and other trade barriers impeded the international exchange of goods. One thing became very clear: We are dependent on supply chains and when these are interrupted, production facilities come to a stop. This begs the question: Just how stable are our global production structures? Do companies need to rethink their existing business model? Will our supply chains be different after the pandemic has ended?

“If we look at the economic conditions for industry and also at the priorities of national politics in the different countries, we estimate that between 16 and 26 percent of global exports, worth between 2.9 and 4.6 billion euros, could be transferred to new destination countries over the next five years if companies make an effort to restructure their supplier networks,” says McKinsey Global Institute (MGI). Since the turn of the century, companies have increasingly outsourced their production to Asia, for example, to take advantage of much more favorable conditions. In the future, however, pure production costs may become less critical as security, planning certainty, and resilience become more important. This could result in a return of outsourced production to the original country or a transfer to physically closer manufacturing countries – for German companies, this might be from China to other European countries. “Corona seems to be accelerating some of the trends already affecting global supply chains, including regionalization of trading and manufacturing networks. Rising levels of automation in manufacturing is reducing the significance of lower labor costs,” according to MGI. Researchers point out that, over a ten-year period, companies will lose at least 42 percent of a typical year’s net profits before tax due to disruptions in their supply chain.

### ***International supply chains were declining or stagnating even before corona***

This trend is especially apparent in Germany in the chemical industry. Between 2011 and 2014, the global supply chains in this sector have shrunk by approximately 2.5 percent. This decline affects primarily precursor products that are delivered to Europe or to the USA. The financial crisis of 2008 led to many companies reevaluating their global supply chains. According to WTO calculations, in the period from 2014 to 2017, trade via short value chains in which a precursor only crossed one international border, declined significantly. One reason could be that higher wages in the newly industrialized countries are reducing labor cost differentials compared to the already industrialized nations. Trade via complex value chains, in which precursor products cross several international borders and are subject to several processing steps, was relatively stable until 2017. But since 2018 and the outbreak of trade disputes between the USA and China, there has been a sharp increase in protectionist trade barriers. These barriers have a major impact on value chains.

### ***The trade war and protectionism measures have clearly put the resilience of supply chains to the test***

Even before the current pandemic broke out, there were increasing signs of change in global trade. The USA with its “America first” campaign was shifting toward protectionism. Trump’s government had a nationalist focus with regard to external trade, the country’s trade policy focus was no longer free trade but reciprocal trade. It was not merely a question of increasing domestic added value and creating jobs, it was also a matter of national security. Protection of national security meant that the USA’s key industries should have supply chains that are independent of China. In place of the previous policy of involvement and integration, the USA has economically disengaged from China. The trade policy instruments used in such a decoupling initiative include tariffs, investment controls and supply boycotts.

Joe Biden as the new president will certainly help to defuse some of these conflicts but protectionism is here to stay. What will change is the tone and how the countries interact with each other. The new mood makes it more likely that reasonable solutions can be found to trade issues. This creates a climate of predictability and ensures greater planning certainty, from which German companies also stand to gain. Biden is likely to place greater focus on international collaboration. This would be a positive signal for multilateral trade relations. But it is important to remain realistic: A new government cannot suddenly reverse the policies of the past four years. There will be continued friction as Biden also pursues a policy of “America first” with regard to production and jobs. His government’s initial reaction to proposed new trade agreements was to reject them.

In Europe too, free trade agreements have failed, most recently the Transatlantic Trade and Investment Partnership, and previously the Multilateral Investment Agreement (MAI), which failed in 1998 due to resistance from the then French government under President Jacques Chirac. So far, the European Union has not been able to turn its vision of free trade into reality. The Union’s strategies have a very short-term horizon. Their ecological focus on Europe is well intentioned but they are completely lacking in geopolitical ambition. We will pay the price for this if we continue this inconsistent path. We Europeans have become comfortable with a certain degree of multilateralism, but we need to adapt to the significant changes that have taken place.

Europe is going to have to respond to the developments in the USA and China. To facilitate this, we must replace our morals-based approach with an interest-led strategy. Ultimately, countries do not have friends. They have interests.

## ***China***

### ***The coronavirus hits supply chains and accelerates digitalization***

Due to the pandemic, investment, consumption, industrial chain, supply chain and value chain have suffered serious defeat. In this context, global supply chain security has been put on the agenda. Analysts predict the shock of the coronavirus means businesses will increase their options for manufacturing closer to end markets, rather than relying on a sprawling chain of factories.

In particular, the pandemic has accelerated businesses' adoption of digital tools to increase manufacturing efficiency, a trend which might not have happened as quickly without market pressure. This crisis will significantly accelerate the integration and the penetration of artificial intelligence (AI) into this supply chain. AI can increase transparency between demand and supply, helping to improve warehouse efficiency and manufacturing. Such incorporation of technology with supply chains, also referred to as digitalization, ties in with China's aim for higher quality development, as laid out in the 14th Five-Year Plan that kicks off in 2021 and in China's goals for the year 2035.

### ***New regional trade deals will help China sustain its advantages in global supply chains***

The corona crisis and the resulting increase in protectionist measures adopted by many countries are having a major impact on free trade. In order to protect entire industrial sectors and especially their own populations, governments are increasingly resorting to protectionist measures. Manufacturers worldwide are going to be under greater political and competitive pressures to increase their domestic production, grow employment in their home countries, reduce or even eliminate their dependence on sources that are perceived as risky, and rethink their use of lean manufacturing strategies that involve minimizing the amount of inventory held in their global supply chains.

China and 14 other countries signed the Regional Comprehensive Economic Partnership (RCEP) in November 2020, forming the largest trade pact in the world. China has thus demonstrated that the future of the international economic order will be determined in Asia. 2.2 billion people live in the member states of this free trade zone, and this represents 29 percent of the world's total

trade volume. This massive free trade zone is also especially attractive because the population there is significantly younger than that of the EU. Consequently, huge growth rates are expected, especially in those regions where the post-pandemic era has already begun. At the core of the project is the reduction of tariffs. This simplifies trade between the participating countries and reduces costs. In total, tariffs are expected to fall for almost 90 percent of the goods that the member states exchange. Companies who manufacture parts of their products in different countries of the free trade zone also stand to benefit. Analysts predict the deal will increase the market size of Asia-Pacific, creating more opportunities for companies to produce and sell within the region. When implemented, it creates a common standard for defining the source of a product, which helps anchor China in regional supply chains, serving as a potential counterweight to disruptions from trade tensions and the pandemic.

Moreover, by the end of 2020, China and the European Union (EU) completed negotiations for a comprehensive agreement on investment (CAI), giving companies in each area wider investment access in the other area. This marks another move for China to mitigate risks and sustain its advantages in global supply chains.

At the same time, with its “One Belt, One Road” initiative, China is investing huge sums in the development of the northern overland route and the southern maritime route to Europe in an attempt to tie the adjoining countries to the Chinese economy.

The overall project affects 60 percent of the world’s population and 40 percent of global trade, most of which occurs by sea. China is investing in infrastructure, that is, in power stations, pipelines, data cables, deep-water ports, roads, airports, rail stations, and rail lines. China is involved either as investor or owner or it grants generous loans to the other participating countries via a bank that has been set up especially for this purpose. With this initiative, China is demonstrating impressively how a powerful industrial policy can work.

### ***China aims for more supply chain autonomy in 2021***

During the annual Central Economic Work Conference held in Beijing from December 16 -18, 2020, Chinese leaders charted a course for economic development in 2021, in which the building of a science and technology power was highlighted, just as Washington is cutting off access to US technology.

As the foundation for building a new development pattern, the industrial and supply chain should be secure and stable. Thus, Beijing has set the task of enhancing independence and autonomy of the industrial and supply chain. It is necessary to promote this strength while filling the gap, to solve the key areas and “stranglehold” problems as soon as possible, the meeting said. It also pointed out that China should lay a firm foundation for basic components, advanced basic technology, and key basic materials. The task is in line with the broad outline of China's 14th Five-Year Plan (2021-2025), which makes technological autonomy one of the country's top priorities. “It is a must-have strategy to enhance autonomy of the industrial supply chain as charted in the conference as it is no longer workable to rely heavily on the basic manufacturing capabilities where China has forged a definite advantage over the past decades,” said Xiang Ligang, director-general of the Information Consumption Alliance.

## *Germany*

### *The corona crisis resulted in a massive collapse in exports*

The trade dispute between the USA and China has already caused severe damage to the global economy. This conflict also impacts on an export nation such as Germany, which is dependent on international collaboration and stability. Large parts of the German economy are export-led. And this applies also to the labor situation: One job in four in Germany is dependent on exports, in the industrial sector, this figure rises to one in two. German companies can only maintain these jobs in Germany if there is a sustainable export economy. This means that the Germany economy, more than most others, is internationally interlinked and is therefore dependent on open markets and fair rules for trade and investment.

Over the past year, the corona crisis has severely affected Germany's export performance. Compared to 2019, German exports of goods collapsed by 9.3 percent. This was the steepest decline since the global financial crisis in 2009. Back then, exports declined by 18.4 percent. The decline in exports can be traced back to the beginning of the pandemic in Germany: In March 2020, border closures, disrupted logistics, and interrupted supply chains significantly slowed the export trade. Then came the protectionist measures.

After this, exports did increase for eight months in a row but even this did not offset the initial slump. In December 2020, exports increased by 0.1 percent compared to the previous month. The

primary contributor to this positive development was the trade with the world's two largest economies: In December, exports to the People's Republic of China amounted to 9.3 billion euros. This was an increase of 11.6 percent compared to the same month in the previous year. Exports to the USA grew by 8.4 percent to 9.2 billion euros. The widely predicted recovery of the global economy following the recession of 2020, promises to be a bonus for exporters.

This year's forecast economic growth for China, which is Germany's most important trading partner, is 8.5 percent. The foreign trade federation BGA anticipates a significant increase in trade in 2021. Pre-crisis levels are expected to be achieved as early as summer 2022. However, the export trade has not yet recovered to its pre-crisis level. In addition to the ongoing consequences of the corona crisis, two special factors play a role here: Brexit and supply shortages for semiconductors. As far as trade with Great Britain is concerned, a clear decline is expected during the first half of 2021. The supply shortages relating to chips are currently impacting on automotive production and, as a consequence, exports are restricted.

### ***Germany dependent on imports in key areas***

It is not only exports that are important for Germany. Imports are also critical. Here the different industries in Germany and Europe have different needs but they are all dependent on imports. This is partly due to the political unwillingness, led by environmental concerns, to harvest the raw materials domestically. Other raw materials are only available in sufficient quantities in other parts of the world. What is important here is to reduce these dependencies. These raw materials include key components of high-tech products such as cellphones, photovoltaic modules, lithium-ion batteries, glass fiber cables, and synthetic fuels: Their manufacture is increasingly threatened by supply shortages.

The demand for these raw materials is also increasing as a result of the growth of the newly industrialized countries and the emergence of new future technologies. Much of the global extraction of key raw materials takes place in a few select countries. These are primarily China, Russia, Brazil and some African countries. If some forecasts prove correct, Europe will require almost 60 times more lithium by 2050 for electric cars and energy storage alone. As EU Commission Vice-President Maroš Šefčovič says: "A secure and sustainable supply of raw materials is a prerequisite for a resilient economy. We cannot allow ourselves to replace our current reliance on fossil fuels with dependency on critical raw materials. This has been clearly

demonstrated by the disruptions to our strategic value chains that have been caused by the coronavirus.”

### *Trends and recommendations for the time after the pandemic*

#### *China*

Zhang Yansheng, Principal Researcher of the China Center for International Economic Exchanges, sees the following trends: In the post-pandemic era, global supply chain security is more important than profit and efficiency. All countries in the world have significantly enhanced the importance attached to the safety of industrial chain, supply chain and value chain. Enhancing resilience is the key to the stability of the supply chain and the industrial chain.

The government’s intervention in the supply chain will obviously increase, and the international triangle of labor division pattern will be significantly changed. In the past, East Asia provided mainly labor and manufacturing capacity, and now it has begun to provide services and innovation, and even capital as well as financial and monetary cooperation. This is a typical change in the division of labor.

The world’s major powers have strengthened their dominant control over the competitive advantage of global science and technology. The production network of the United States and Europe further shortens the industrial chain and supply chain and accelerates the decoupling of science and technology and industry from other countries.

Industrial chains and supply chains may be more localized and regionalized. Although the industrial chain, value chain and supply chain are getting shorter, more dispersed and localized, they are more intelligent, automated and digital. So short does not mean low efficiency, but rather more flexible and resilient.

Super-globalization is shrinking, but at the same time it is driving digital globalization, service globalization, innovation globalization, and personnel exchange globalization - a new situation that we will face in the next 30 years.

The eastward shift of the industrial chain has obviously accelerated. This will lead to an accelerated adjustment of production patterns in East Asia, from a factor-input growth driven model to a factor- productivity growth driven model, from a global manufacturing, processing and assembly base to a global market, from a manufacturing hub to a dual-hub of both manufacturing and services.

***Potential impact of China's industrial supply chain resilience strategy on multinational companies***

Chinese policy makers, responding to increased geopolitical risk and seeking to reach ambitious industrial upgrading targets, are currently reshaping the market environment for foreign companies in China. For securing long-term business prospects, companies are expected to localize their supply chains and shift R&D and higher value parts of their manufacturing processes to China. The challenge for companies will be to make their supply chains more resilient without weakening their competitiveness.

China will further expand the domestic demand market in order to improve the stability of the supply chain and the industrial chain. The country will firmly adhere to opening up and continuously improving the business environment to advance the efficiency and synergy of the supply chain and the industrial chain. More excellent enterprises will be cultivated, and scientific and technological innovation will be vigorously promoted to improve the control of the supply chain and the industrial chain.

It can be expected that some global supply chains of national security strategic significance will be shortened in length, with the trend of localization of industrial chains. China's manufacturing industry still maintains a strong advantage of industrial chain cluster. Economies of scale, industrial chain supporting capacity, labor skills, etc. have become the priority consideration indicators for multinational companies to carry out industrial chain layout.

Multinationals could make full use of the "Belt and Road" and other mechanisms to diversify the supply chain, enhance flexibility and avoid over-reliance on some regions or markets, to reduce risks and enhance the overall efficiency of the supply chain.

## ***Germany and Europe***

### ***We need open markets***

The system of interlinked global economy with open markets has made a significant contribution to the prosperity of people worldwide. Ever since Ludwig Erhard's term as Germany's first economics minister, economic policy in Germany has always favored free markets and open trade. This means creating the conditions of freedom, individual responsibility and low regulation that enable the economy to grow quickly. We must continue to strengthen the market economy. Otherwise, we stand to lose many positive features due to overregulation and state intervention. And with regard to international supply chains: Companies themselves must carry out a cost-benefit analysis. The companies are the players in the supply chains. Any intervention by the state can result in severe consequences. We don't need more state nanny-ing but less. We don't need protectionism but committed efforts to create open markets.

Protectionism is certainly a side-effect of the pandemic that will continue to grow. However, our market economy can only develop properly if we allow trade to take place in open markets and across national borders, and if competition and goods exchange exists between countries. For me there is no doubt: Free global trade with fair international competitive conditions was and remains the most attractive economic model. This is the model that creates the stimulus for economic growth and employment.

The pandemic has proven to be a welcome gift for protectionists and nationalists around the world. After all, the crisis has shown clearly that you cannot rely on your neighbors, that mutual trading threatens one's own economy, and that foreigners pose a risk that only sealing off one's borders can mitigate. Therefore, the longer the corona crisis goes on, the more it inflames a conflict that has been festering in many societies for a long time. Many people are insisting on sealing off their society and they want a strong state to defend against further globalization. But there is a problem with this view. Our economies have been globally interconnected for a long time now. In all our value chains, a working international division of labor has been established, which has lifted many millions, even billions, of people out of abject poverty. Globalization has been a success story, which must not be reversed.

### ***We need stable supply chains***

A shortening of supply chains would certainly lead to significant cost increases and would be a negative development as far as companies are concerned. It would also be very difficult to justify price increases to consumers. What we need in the future is resilience and stability in the event of a crisis. It is not a question of shortening supply chains but rather of making them more stable. This means: There must be more than one single supplier for key products. In the past, many companies reduced the number of their suppliers and in doing so, created a dependency on them.

In many industries, most of the production depends on raw materials from China and India. These dependencies must be reduced without sacrificing the advantages of a globalized economy. The import of goods must not be dependent on one single exporting country no matter how geographically close or distant it is. If a supplier's products cannot be delivered to the customer, then it does not matter whether the supplier is based in China or in Europe. Companies must secure their supplies of raw materials from multiple sources in order to prevent supply shortages or even supply failures and to help them survive extended periods of crisis.

They must make provisions for times of difficulty, identify weaknesses in value chains, and develop stable and reliable strategies, especially for system-relevant areas. Here at Evonik, for example, we established a Group-wide supply chain management as of July 1, 2020. With a Group-wide organization, we can improve and standardize processes and create a common understanding of supply chain management. This way, we ensure that all products and raw materials get to their destinations smoothly and securely, and that costs and deadlines are adhered to.

Many have predicted the end of globalization as a result of the corona crisis, but I do not agree. In my view, the problems are rooted in the supply chains and sales markets and not in globalized production. On the contrary, I believe that many companies will take an even more international view and will align themselves accordingly to enable them to continue to serve their customers even in times of crisis. This is the case with the German chemical industry. In North America and Asia, these companies produce a huge amount of goods on site. And this is how it should be. If you can manufacture directly in the sales markets, you will have fewer problems with supply chains and protectionism.

***We need sustainable supply chains***

Another topic is the question of sustainability. We need not only stable supply chains but sustainable supply chains. This means: We must observe employee rights and comply with environmental standards. Companies must assume responsibility for the conditions under which their products are manufactured.

Back in 2013, the German Federation of Chemical Employers' Associations (BAVC), the German chemical industry association (VCI), and the Mining, Chemical and Energy Industrial Union (IG BCE) came together to create the sustainability initiative "Chemie3". The initiative is committed to anchoring sustainability as a guiding principle in the industry, and to viewing sustainability through the three dimensions of economy, environment and society. The initiative also produced a guide to sustainable supply chain management. This project is a successful example of how we can work together to increase the leverage of sustainability standards in the supply chain. Evonik is also engaged in "Together for Sustainability", a joint initiative and network of global chemical companies with the goal of improving sustainability in supply chains. Through the implementation of their duty of care, companies benefit from significantly more stable supply chains. And they also take responsibility.

The German government is putting the onus on companies to pay greater attention to the observance of human rights throughout the global supply chain and it has committed to introducing a national supply chain law. Following agreement on the final details on February 11, the relevant government ministries submitted a draft bill just four days later for a "law on corporate due diligence in supply chains". The law is expected to come into force on January 1, 2023 and will initially apply to companies with more than 3,000 employees. As an international company, Evonik is affected by this legislation.

The main component of the new law is the definition of the obligation on companies to carry out due diligence with regard to human rights. These "protected legal positions" include life, health, conditions of work, child protection, freedom of association, and environmental obligations. To ensure this protection, the affected companies must introduce instruments for risk analysis and risk management. Furthermore, the law calls for the companies to provide comprehensive documentation and reporting.

Compliance with the due diligence obligations must be reviewed on an ongoing basis and this must be documented in a report at the end of the financial year.

The compromised version of this supply chain law, which has been agreed by the federal government, has been considerably weakened compared to initial plans. In particular, the two controversial items relating to the extent of the duty of diligence in the supply chain and accountability under civil law have been amended. The fact that the law now only covers direct suppliers is a positive since it is not technically possible to monitor the entire supply chain. The exclusion of accountability under civil law is an important basis for legal certainty and it is a critical element for Evonik as the company seeks to protect its business interests. Political issues should be left to policy makers. The protection of human rights is the obligation of governments and this responsibility must not be transferred unilaterally to companies in the framework of a national supply chain law. At the same time: Policy makers cannot make business decisions for companies. This would quickly represent the end of the market economy for us. However, it is our duty as companies to comply with human rights standards in our field of activity. There must be a practical solution and it must be restricted to direct suppliers.

In principle, a European solution for a supply chain law is preferable to several national variants because individual solutions do not reflect the reality of globally networked supply chains, they lead to legal uncertainty and, as a consequence, they compromise companies' competitiveness.

***Europe must take a more strategic and independent position with regard to industrial policy***

Europe has sent a strong message via its major economic stimulus program. This is an act that focuses attention on a common Europe. This is to be welcomed since only a strong, united Europe can lead the continent to a prosperous future. Only by working together, can we remain competitive and meet the global challenges. We must work harder to develop this strength. Europe can only be successful if it sticks together, combines its strengths, and speaks with one voice.

Although the EU share of the world population is only 6.9 percent, EU trade with the rest of the world makes up some 15.6 percent of global imports and exports. But these ratios are fleeting, and they will become even more so as the member states of the European Union have so far not developed a common understanding of the importance of joint actions.

We need a common European foreign trade policy and not a collection of bilateral deals made by individual EU countries. We can only secure our economic and technological sovereignty by working together. An active union is the currency of Europe's competitiveness. We have initiated the EU-China Comprehensive Agreement on Investment. But this can only be the first step. Further steps need to follow.

An essential prerequisite for a permanent strengthening of the European economy is to secure and expand its industrial base. European industry provides 35 million people with work and income, it contributes 20 percent of the total value created by the European Union, and it represents 80 percent of all EU exports. Furthermore: It is the starting point and also the destination of the many small and medium-sized companies in the European Union, who make up 99 percent of all EU companies. These are suppliers to industry and, at the same time, also customers; a symbiosis in which any losses suffered by one partner are inevitably accompanied by losses to the other. The 28,000 chemical companies within the EU alone provide employment for 3.3 million people.

Industrial cores such as this form an economic backbone, which must be supported and strengthened. Ultimately, if there is no industry, there is no growth, no value creation, no economic recovery. And when this pandemic is finally over, these are exactly the things that we need.

### ***Conclusion***

I think, over the past year, if we have learned one thing, it is that crises do not recognize borders. There are no national solutions for global challenges such as pandemics, nor are there national solutions for climate change, migration, or peacekeeping. It should be clear to all of us that national go-it-alone strategies only do damage to us all. In our networked world, we cannot afford to isolate ourselves from our neighbors. We can only maintain economic, social and political stability within a multilateral system.

New trade barriers and border fences are toxic to our prosperity, to us all, wherever we are in the world. We depend on free trade. In the corona crisis, we are seeing what it means when international supply chains no longer run smoothly, when access to specific raw materials and precursor products is cut off, and goods are suddenly stopped and delayed at borders.

And it is not only the economy that is affected. Our freedom is also at risk if protectionism and nationalism prevail. The history of Europe illustrates how the removal of trade barriers and physical barriers together with increased cooperation and integration across the entire continent have helped to bring about peace and freedom. Brexit too will show that go-it-alone policies do not pay off in our networked world.

For this reason, it is important to us to stand firm against nationalism and isolationism. Isolationism and national self-interest are not the answers to global challenges: These can only be met with international cooperation. We need openness and trusting partnerships. The corona crisis has shown just how fragile our togetherness really is. And how precious. For this reason, we should do all in our power to strengthen our togetherness, and to create a strong immunity against isolationism. For our own good. And for our common future.