





Resilience of the Swiss logistics industry

Current situation, vulnerabilities and recommendations for action

Contents

01	Current situation	Page 03
02	Vulnerabilities	Page 10
03	Findings	Page 15
04	Recommendations for action	Page 17
	Your contacts	Page 23
	Acknowledgements	Page 24



01

Current situation



01

02

03

04



Sprayed on a wall in a goods yard in Bern are the words 'Wenn die Logistik es will, steht die ganze Welt still'. This roughly translates as 'If the logistics industry wanted to, it could bring the whole world to a standstill'. And logistics really is the lifeblood of the Swiss economy, which is highly interconnected globally.

Without pallets, HGVs, freight trains and the 185,000 or so people who work in the logistics sector, there would be a shortage of vital goods such as medicines and food. When global supply chains are disrupted, we notice it straight away. Most recently, the container ship stuck in the Suez Canal and the restrictions imposed during the COVID-19 pandemic led to cancelled shipments and supply shortages that quickly made life difficult for both companies and the general public. Its reliance on personnel and infrastructure and its global connectivity make the logistics industry vulnerable on several levels.

For the [Deloitte Resilience Barometer](#), we consulted internal and external experts to conduct an assessment for eight areas of the Swiss economy, logistics being one of them. The resilience of Swiss logistics and its dimensions were examined in view of the three likely crisis scenarios of an increase in geopolitical tensions, extreme climatic events and the outbreak of a pandemic. Resilience was assessed on a scale from 100% (no noticeable negative impact) to 0% (complete breakdown).¹

¹ A detailed definition of the scenarios can be found in the [Deloitte Resilience Barometer 2022](#).



01

02

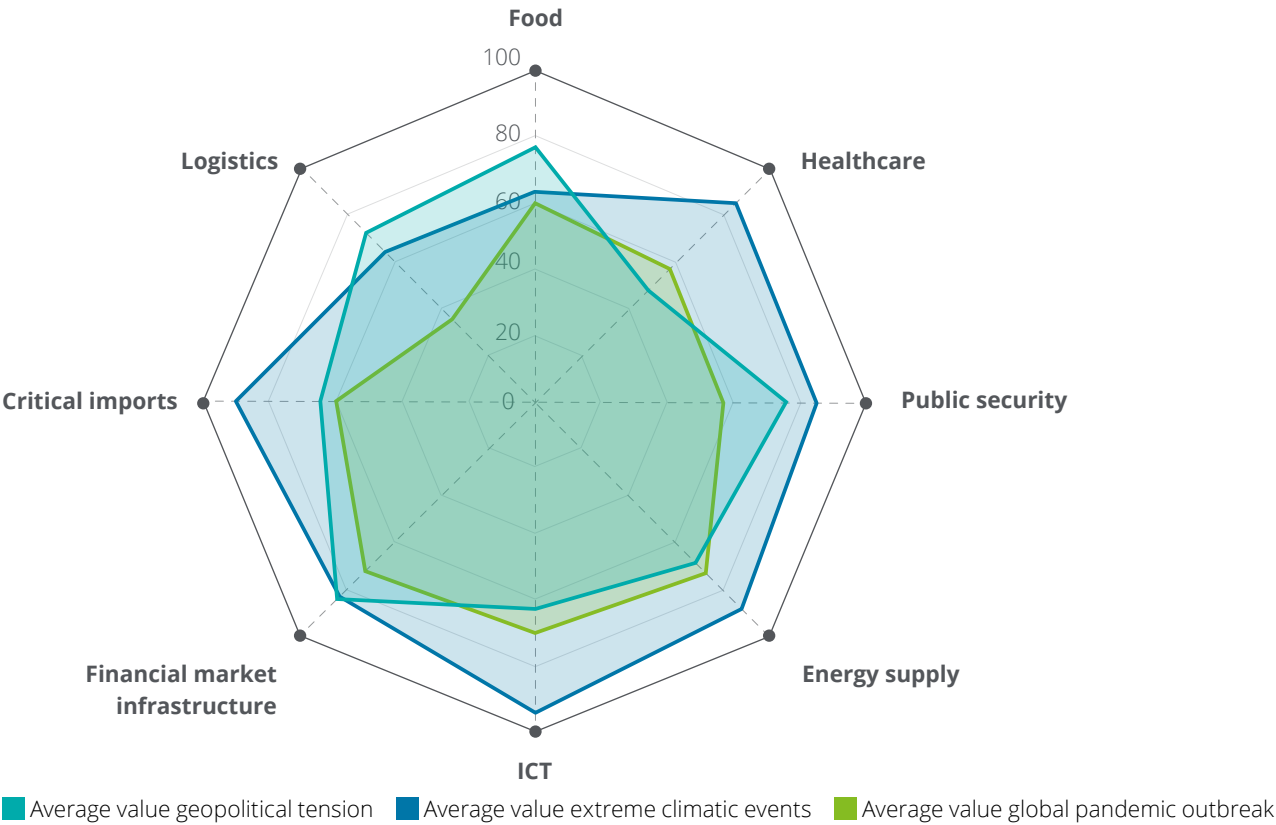
03

04



The results of the Deloitte Resilience Barometer for Switzerland reveal major weaknesses in the resilience of the logistics industry (see Chart 1). Based on the three crisis scenarios, logistics is most vulnerable to a pandemic outbreak. This scenario would lead to significant limitations, and a basic level of provision could not be maintained in some areas. Below, we will focus on the vulnerabilities identified for the transport of goods into Switzerland and reveal a number of ways to make transport by road, rail, air, water or pipeline more resilient.

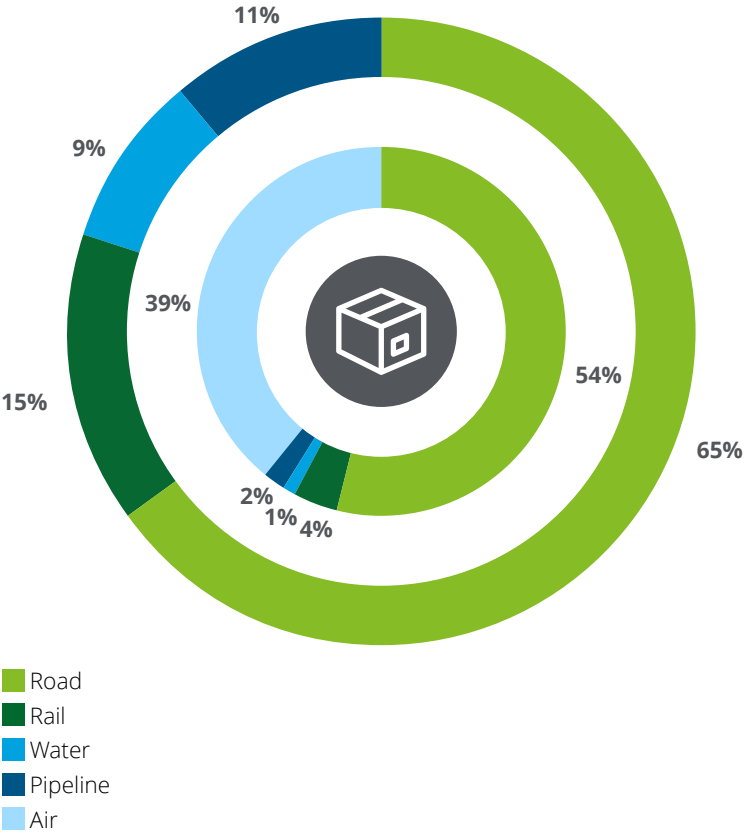
Chart 1. The resilience values of the economic sectors in comparison. Logistics is the least resilient area of the Swiss economy (Resilience Barometer 2022)



In order to assess resilience more accurately, two issues first need to be cleared up: what is the mix of goods being imported, and how – by road, rail, water, air or pipeline – do the goods enter Switzerland? Answers to these questions are provided by Swiss customs statistics.

Road is the most important transport route for Swiss imports in terms of both value and volume, with over half of all imports entering the country in HGVs. Many lightweight but valuable goods are also imported by air. Air freight therefore accounts for nearly 40% in value terms. If one looks at imports by weight, then freight trains (15%), Rhine shipping (9%) and pipelines (11%) also play a significant role.

Chart 2. Swiss imports in 2021 by means of transport
(inner ring: by value; outer ring: by weight)



Source: [Swiss customs statistics \(2021\)](#)

The most important categories of goods and their means of transport

Chart 3 shows the various transport routes taken by imports into Switzerland and links these to selected categories of goods by weight (value). Chemical products (including medicines) are among the top three imports in terms of both weight and value. The group that includes coke and petroleum products is in second place in terms of weight. Fertiliser, which is essential for local agriculture and food production, accounts for a large proportion of the petroleum products imported.

For instance, around two-thirds of chemical products reach Switzerland by road, with a further 27% being imported by rail. At 16%, air freight also plays a role in the sub-category that includes pharmaceutical products. Fertiliser makes up a significant part of the petroleum products imported and enters Switzerland mainly along the Rhine and on trains. Liquid goods

such as oil are also well suited to waterborne transport. The road is the most important import route for food, accounting for around 80%, or as much as 90% in value terms. The discrepancy between value and volume is particularly pronounced in the case of metal products: nine out of every ten Swiss francs' worth of imports enter the country by air, but road and rail account for 70 and 25% respectively when it comes to weight. Air freight also makes up nearly half of the value of total imports of medtech products, clocks and watches.



01

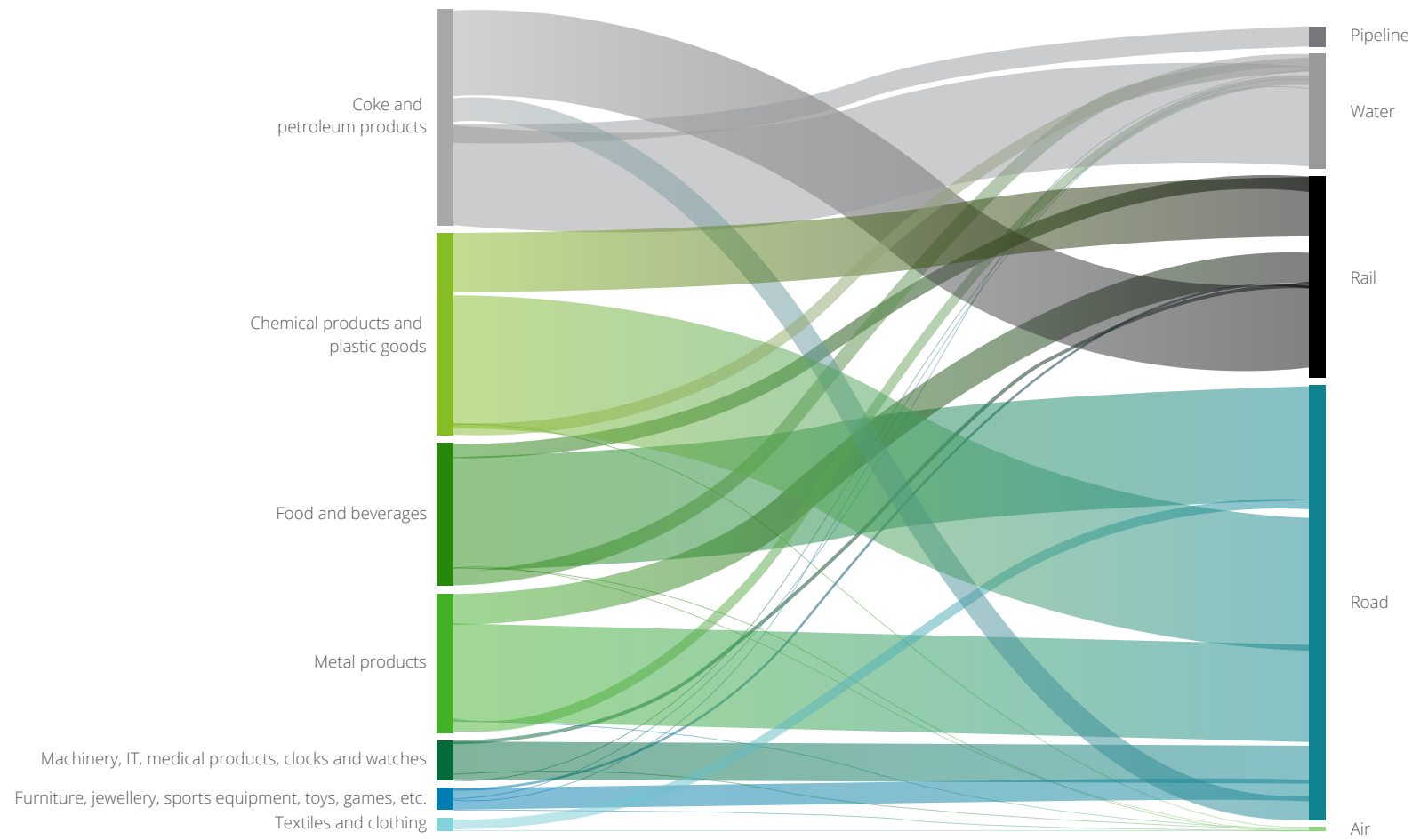
02

03

04



Chart 3. Imports to Switzerland by selected product groups and means of transport in 2021
(by weight)



Source: [FSO \(2023\), imports to Switzerland by means of transport and product groups \(NST\)](#)



Various transport routes are used to reach the destination. The means of transport that ultimately takes the goods into Switzerland is often merely the final link in a long chain.



A different means of transport is preferred depending on the transport requirements (e.g., what goods are being shipped, how much they weigh and how much time is available). Air freight is clearly the fastest option over longer distances, making it suitable for urgent, expensive and lightweight products. Heavy liquid products such as fertiliser, as well as solid raw materials and building materials, are often carried by ship or on trains.

Often, a combination of the various means of transport is required. The modal split within Switzerland amounts to 37%. This means that, of the 27.8 billion tonne-kilometres carried in

total (one tonne transported a distance of one kilometre; abbreviated as 'tkm'), rail accounts for 10.4 billion tkm and road for the remainder (just under two-thirds). The modal split thus reflects the distribution of a particular item of goods between various transport routes from its point of origin to its destination. In other words, the means of transport that ultimately takes the goods into Switzerland is often merely the final link in a long chain.

Food and goods intended for the construction industry are primarily transported via the road network. Both categories of goods have to be distributed to very precise geographical locations, which makes them ideal for carrying by road. At 174 kilometres, the average distances travelled by rail are over three times longer than for road (50 km). Switzerland plays a key role in transalpine freight traffic, with around one-third of all the goods transported across the Alps passing through the country. Three-quarters of these goods are transported by rail.ⁱⁱ



Vulnerabilities



01

02

03

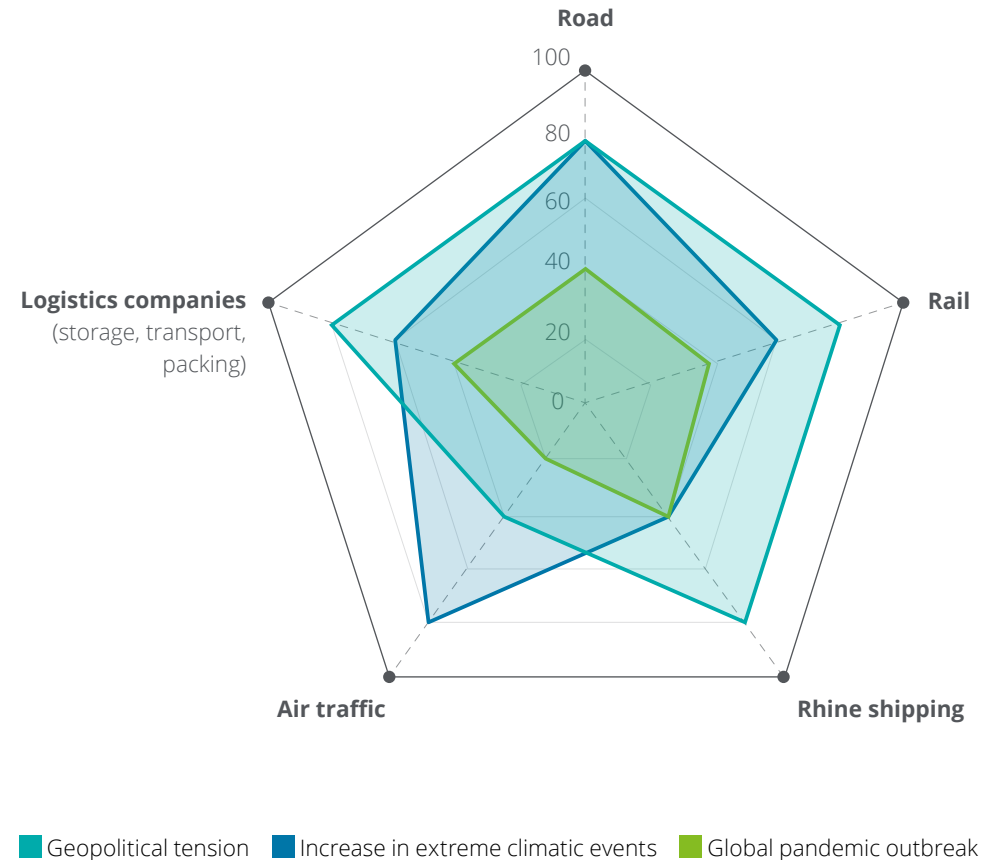
04



Striking differences can be seen in air traffic, which is resilient to extreme climatic events, but is much more susceptible to geopolitical tensions and pandemics.

The [Deloitte Resilience Barometer](#) provides an illustrative summary of the strengths and weaknesses of the various transport routes in each scenario. Our analysis has shown that the logistics industry is particularly vulnerable in the pandemic scenario, as it is still heavily dependent on personnel. Damage to infrastructure caused by an increase in extreme climatic events would also lead to limitations. Although air travel would be largely unaffected by this, it would be vulnerable in the event of geopolitical tension or a pandemic. Specifically, the situation looks like this:

Chart 4. Resilience of the logistics industry in Switzerland



Source: Deloitte Research



01

02

03

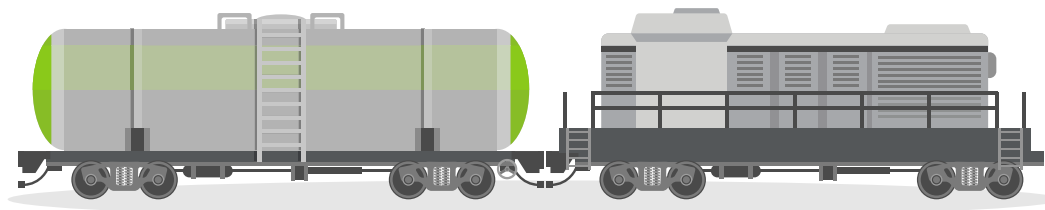
04





Road

Freight transport by road is very labour-intensive, as well as being vulnerable to infrastructural damage caused by natural disasters such as landslides, mudslides and floods. A pandemic and the associated staff shortages and potential border closures would thus result in significant limitations. By contrast, geopolitical tension would have less of a direct impact. Indirectly, however, higher energy and fuel prices could have a negative effect.



Rail

Although rail is less labour-intensive than road for the same volume of goods transported, it is equally vulnerable to disruption. Control centres employ a large number of specialists who perform essential coordination tasks and keep operations going. These experts cannot be replaced at short notice. Innovations such as automatic coupling and other automation measures may replace certain manual tasks in the future and thereby increase the segment's resilience. However, the scope for introducing automation across the board in the foreseeable future is limited at best, as safety, security and the associated risk

assessments are still too heavily reliant on human intervention and experience. Self-driving trains – to name one example – would be hard to introduce given the current legal situation and are unlikely to meet with much acceptance from customers either. The situation with regard to infrastructural damage is similar to that on the roads: there are a limited number of diversionary routes available for the most important lines. Disruption and blockages would therefore cause delays and higher costs but not usually a total loss of service.





Air

Unlike road and rail transport, air freight does not need end-to-end infrastructure: all it requires is somewhere for the aircraft to take off and land and a certain level of air traffic control. However, logistics in international air freight is complicated. As well as functioning aviation, it also needs extensive landside infrastructure to ensure both that the aircraft is operated safely and the freight is handled effectively. With air freight being very expensive, it is also important how much time aircraft spend in the air and on the ground.

The system as a whole thus runs to a very tight schedule, making it vulnerable to disruption

affecting individual processes. As well as pilots, it relies on a large number of other specialists, and the high safety and security requirements in air travel mean that they cannot be replaced at short notice. If a major Swiss airport (Zurich, Basel, Geneva) is out of action, there are alternatives, including some not far across the border (Stuttgart, Frankfurt, Munich and Lyon). However, the pandemic has shown just how fragile the overall air freight system is. A pandemic or geopolitical tension could cause the large-scale suspension of air travel or prevent the necessary services from being provided due to a lack of key specialists. Even if only passenger flights were restricted, this

would still have a significant impact on freight capacity, because Switzerland transports a very high percentage (70%) of its freight on passenger planes. Nevertheless, the sector proved flexible during the last pandemic. It did not take long for Cargo Swiss, for example, to switch to freight-only flights and thereby ensure the continued supply of medical products.ⁱⁱⁱ



01

02

03

04





Rhine shipping

Shipping along the Rhine is a key part of Switzerland's logistics infrastructure, with over 10% of the country's total foreign trade moving up or down the river. Switzerland's Rhine ports handle around 8 million tonnes of goods and some 125,000 containers every year.^{iv} However, Rhine shipping does have an Achilles' heel: the water level, which must not be too high or too low. Both extremes have an impact on the maximum volumes that can be loaded onto ships and how fast they can travel. In the worst-case scenario, they can even bring shipping to a complete standstill. Sensors that provide day-by-day depth measurements and forecast models are used to improve planning. In the long term, ships should also be built in a different way to reduce their draught, or maximum depth.

Although it would also be possible to modify the river bed, that would soon become problematic from a conservation perspective.

Typical goods that often reach Switzerland by river, such as building materials and fertiliser, can also be transported on a freight train or HGV. However, using the Rhine is cheaper. A degree of flexibility is more or less guaranteed, because the freight will have to be transshipped sooner or later. However, this only works under certain conditions and with timely planning, because trains rarely have much spare capacity available at short notice. How the individual means of transport work together is therefore a key factor in an efficient and resilient logistics system, as the next section explains.

The availability of captains also plays a significant role, and it means that Rhine shipping, too, is vulnerable in a pandemic, since personnel cannot be replaced at short notice. This weakness only had a limited impact during the last pandemic (COVID-19), as the bulk of the working population were affected much more by social distancing and self-isolation rules than by actual health consequences. A pandemic that also has a severe and widespread health impact on the working population would have considerable negative consequences for Rhine shipping, since it is highly labour intensive.



03

Findings



01

02

03

04



In terms of the quality and reliability of infrastructure, Switzerland is ahead of many of its neighbours. However, it is also highly reliant on other countries' logistics, infrastructure and regulatory frameworks for its goods imports.

The most recent pandemic showed us just how important careful contingency planning is, including for rare events. Although Switzerland's infrastructure is good overall, it does not yet have an overarching logistics strategy that shows how to ensure a resilient supply for the public and the economy across different scenarios and in all segments of the logistics industry. This is where our recommendations for action for the private and public sectors come in to strengthen resilience in cross-border movement of goods. This is partly due to how powers in Switzerland are

shared between municipalities, cantons and the federal government. At the same time, there is also a certain degree of fragmentation within the federal government. In addition, the liberal attitude inherent in the Swiss state produces a situation in which government authorities attempt to regulate only what they absolutely have to, and ensuring comprehensive resilience requires an interaction between the private and public sector.



Recommendations for action



01

02

03

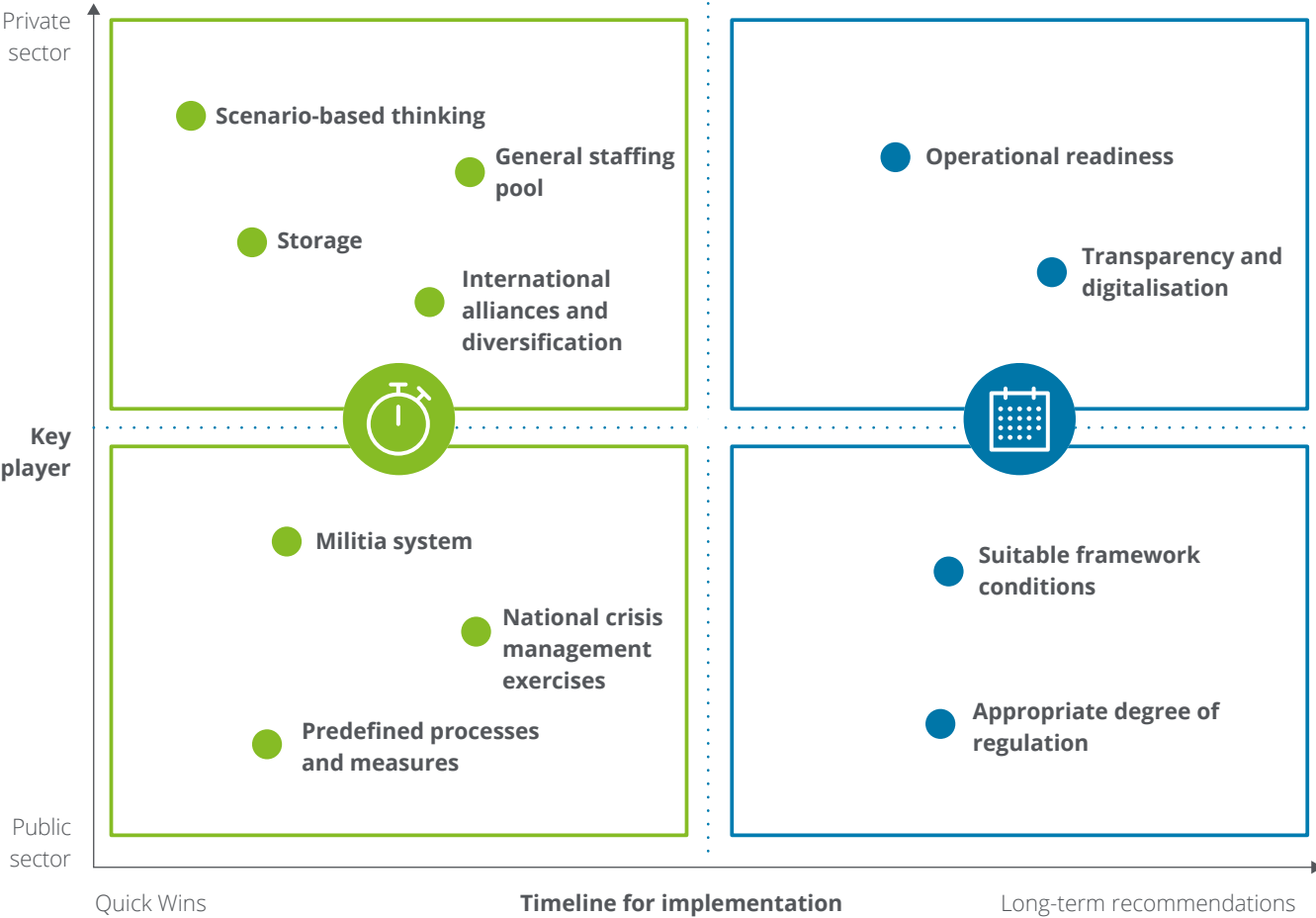
04

04 | Recommendations for action

Despite these challenges, our assessment suggests that the importing of goods as examined here can be made more flexible and more agile as well as more resilient overall. These recommendations for action are intended not just for public sector but – as suggested above – for the private sector as well.

Rapid adjustments between companies and the public sector can make logistics considerably more resilient.

Chart 5. Concrete recommendations for making Switzerland’s logistics industry more resilient





Quick wins for the private sector

International alliances and diversification

Transport companies with international operations should forge cross-border alliances and partnerships that they can draw on in a crisis. Using a wide range of international partner companies as a safety net will give them access to alternatives in an emergency, such as if they need to reinforce their fleet quickly following a storm in a particular country. Besides international alliances, transport companies should also conclude agreements with partner companies that use a different means of transport. This would allow them to diversify across several means of transport and forms of infrastructure, giving them added flexibility in a crisis or if one particular transport route is unavailable.

Scenario-based thinking

Although many companies have embraced scenario-based thinking, experience shows that these scenarios are rarely thought through all the way to the end. Analysis often focuses on a particular event and the environment that would be directly affected by it, while ignoring the bigger picture. For instance, it assumes a sharp increase in the number and severity of cyberattacks without considering in detail what other limitations might result if these cyberattacks happened in the context of an escalation of geopolitical tension.

General staffing pool

In a crisis scenario, more hands on deck are often needed in order to get a grip on the situation while keeping operations running as normal. Having a pool of workers on hand that can be brought in quickly in such a scenario is a major help. An alliance of several transport companies will be able to cushion peaks rapidly and deploy staff in a targeted manner while also sharing the costs. The staff involved will also build up expertise in

various means of transport, allowing them to be assigned to a wide variety of roles.

Storage

The days of everything being manufactured and supplied on a just-in-time basis wherever possible are over. Storage is becoming more important again – mainly for companies, but private individuals too should also think about it for essential products. As far as logistics is concerned, for example, it makes a big difference during a power cut whether people have enough emergency supplies for a few days or none at all.

Diversification over different transport companies, transport routes and infrastructures boost flexibility.





Quick wins for the public sector

Predefined processes and measures

The federal government and the cantons have an obligation to specify the necessary measures, processes and bodies to be put in place in the event of a crisis. Ad hoc decision-making in times of crisis is to be avoided wherever possible, so as not to waste time unnecessarily. Getting the planning done when times are good will enable a rapid and assured response when an emergency strikes. This also includes raising awareness among companies and the general population. The Nordic countries are some way ahead of us in this area and can serve as a role model.

Militia system

It should be possible to mobilise people quickly and easily under the militia system of part-time public service. The militia system can help to overcome personnel shortages in the short term while keeping supply chains moving. However, it should not be used to cover longer-term requirements, as was the case during the pandemic. Rather, the administration needs to get used to the 'new normal' quickly and adapt its own structures, so that the number of militia involved can be reduced again. The concept behind flexibility of this kind will need to be prepared in advance as a contingency plan, so that disagreements over who is responsible for what do not get in the way when the crisis does come further down the line.

National crisis management exercises

The federal government and the cantons should run more crisis management exercises together with critical companies. Joint exercises led by national or cantonal representatives are already being conducted in some areas and can serve as a model. Practising together on a continual basis is the only way to ensure being able to make it through a crisis. Short exercises that are managed centrally and require little preparation should also be considered as an addition to the extensive federal-level exercises, some of which have to be planned years in advance. The fact that the facilities available for these exercises may not be perfect will be made up by the training success achieved through regular practice. An agile approach will enable mistakes and findings to be used for continuous improvement or to generate additional insights. The key players involved will also be able to establish some important contacts.



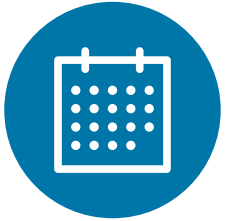
01

02

03

04





Long-term recommendations for the private sector

Transparency and digitalisation

Many transport companies do not currently have a way to monitor information about their entire supply chain and means of transport in real time. However, information of this kind would help to reveal weak points and delays at an early stage, avoid unexpected costs and prepare alternative solutions in good time. Establishing this level of transparency throughout the supply chain will require increased digitalisation and standardisation between all the key players involved, right from A to Z, including suppliers, all the transport companies and shipping agents.

Operational readiness

Rail transport in particular still has scope for improving its operational readiness. Ordering rail wagons is associated with long lead times, and the processes involved are complex and time-consuming. Greater agility and international data sharing could make rail transport more user-friendly and even more attractive. Switzerland should work together with its neighbours to improve punctuality and long-term capacities at its transshipment terminals.

Many companies do not currently have a way to monitor data over their entire supply chain and means of transport in real time. Such data helps to reveal delays at an early stage.



01

02

03

04





Long-term recommendations for the public sector

Suitable framework conditions

Lawmakers and administrators at all levels need to create the framework conditions and legal certainty required for reliable partnerships between companies. Needless to say, agreements with the EU – Switzerland's most important trading partner – are the top priority in this regard. This is the only way to enable firms to forge the necessary partnerships and give them a legal foundation for ensuring that they have a cross-border safety net in place in the event of a crisis. Contractual agreements in areas in which Switzerland is particularly dependent are essential.

Appropriate degree of regulation

Excessive regulation stymies the business activities of companies both in Switzerland and abroad. Firms have to be able to act quickly and straightforwardly without being held up unnecessarily by red tape, particularly when a crisis hits. Existing laws should therefore be reviewed regularly to determine whether they are still necessary and conducive to business and then amended depending on the findings.

Agreements with the EU – Switzerland's most important trading partner – require legal certainty for reliable partnerships.



Your contacts



Ralph Wyss

Defence, Security & Justice
Sector Leader

Tel: +41 58 279 7060
rwyss@deloitte.ch



Céline Neuenschwander

Consulting Business Operations –
Government & Public Services

Tel: +49 58 279 6338
cneuenschwander@deloitte.ch



Fabien Lussu

Partner Audit & Assurance,
SME Logistics

Tel: +41 58 279 6985
flussu@deloitte.ch



01

02

03

04



Acknowledgements

Many thanks go to Martin Haller (Member of the Board of Directors of Gateway Basel Nord), Peter Blohm (Head of Business Design and Regulation at SBB Cargo), Patrik Reiniger (Director of Military and Civil Protection, Head of the Cantonal Management Staff, Basel Landschaft Security Department) and Kay Metzger (General Manager at Danser Switzerland Ltd) for their stimulating conversations and input for this article.



01

02

03

04



ⁱ [Swiss Federal Statistical Office FSO \(2023\)](#)

ⁱⁱ [FSO \(2022\), 'Freight Traffic in Switzerland 2021'](#)

ⁱⁱⁱ [Swiss Federal Office of Civil Aviation \(FOCA\) and University of St. Gallen \(HSG\) \(2020\), 'Air Freight Logistics Study Switzerland 2020'](#)

^{iv} [Swiss Federal Office of Transport FOT \(2023\)](#)



This publication has been written in general terms and we recommend that you obtain professional advice before acting or refraining from action on any of the contents of this publication. Deloitte Consulting AG accepts no liability for any loss occasioned to any person acting or refraining from action as a result of any material in this publication.

Deloitte Consulting AG is an affiliate of Deloitte NSE LLP, a member firm of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"). DTTL and each of its member firms are legally separate and independent entities. DTTL and Deloitte NSE LLP do not provide services to clients. Please see www.deloitte.com/ch/about to learn more about our global network of member firms.

© 2023 Deloitte Consulting AG. All rights reserved.

Issue 06/2023