



# THE NEW NORMAL OF SECURITY OF SUPPLY

Scenarios for a post-COVID world and  
their impacts on security of supply

**HUOLTOVARMUUSKESKUS**  
FÖRSÖRJNINGBEREDSKAPSCENTRALEN  
NATIONAL EMERGENCY SUPPLY AGENCY



## [www.huoltovarmuus.fi](http://www.huoltovarmuus.fi)

Security of supply refers to society's ability to maintain the basic economic functions required for ensuring people's livelihood, the overall functioning and safety of society, and the material preconditions for military defence in serious disruptions and emergencies.

The National Emergency Supply Agency (NESA) is an organisation operating under the Ministry of Economic Affairs and Employment. It is tasked with planning and measures related to developing and maintaining security of supply.

The National Emergency Supply Agency operates in conjunction with the National Emergency Supply Council as well as individual sectors and pools that operate as permanent cooperation bodies. Together they form the National Emergency Supply Organisation.

Publisher:  
The National Emergency Supply Agency

Authors:  
Christian Fjäder  
Katri Liekkilä  
Nuutti Nikula  
Hanna Havumäki  
Erik Honkanummi  
Teija Toroskainen

Images: Colourbox

Layout: Up-to-Point Oy

Year of publication: 2020

ISBN 978-952-5608-87-8

**HUOLTOVARMUUSKESKUS**  
FÖRSÖRJNINGSBEREDSKAPSCENTRALEN  
NATIONAL EMERGENCY SUPPLY AGENCY



# Table of contents

The new normal of security of supply –Scenarios for a post-COVID world and their impacts on security of supply .....	5
1. Security of supply ant-COVID .....	6
2. The coronavirus crisis and security of supply .....	7
2.1 The impacts of the coronavirus crisis on security of supply and Government Decision 1048/2018 on the Objectives of Security of Supply .....	9
3. Foresight and scenario planning for a post-COVID world .....	11
3.1 Questionnaire- and interview-based research and the foresight process .....	12
3.2 The scenario planning method .....	12
4. How the world will change – results of the questionnaire and NESO interviews .....	13
4.1 The international operating environment .....	13
4.2 The domestic operating environment .....	15
4.3 Megatrends .....	16
4.4 Preparedness .....	18
4.5 The private sectors’ views regarding permanent changes .....	19
4.6 Summary of the questionnaire results and interviews .....	19
5. Four alternative new normals .....	21
5.1 Dividing walls .....	21
5.2 The return of globality .....	24
5.3 Saving innovations .....	25
5.4 A world of crises .....	28
6. Security of supply in the ‘new normal’ .....	30
Source material .....	31



# THE NEW NORMAL OF SECURITY OF SUPPLY

## Scenarios for a post-COVID world and their impacts on security of supply

The COVID-19 pandemic and its cascading effects plunged the world into a crisis, the scope and impacts of which no one had anticipated. The impacts of the coronavirus crisis were felt in Finland as well, and the first wave of the pandemic was enough to convince most people that the world would be forever changed as a result of the crisis.

Although the coronavirus crisis tested the operations of the National Emergency Supply Agency (hereinafter the NESAs) and the National Emergency Supply Organisation (hereinafter the NESO), its impacts on the security of supply of Finland have so far remained relatively minor, except in the logistics, health care and food supply sectors. Since Finland's security of supply is based on a functioning market, there has been a pronounced need since the spring to monitor the operational capability of sectors considered critical to security of supply and the cascading effects between them, and identify the need for potential special measures for ensuring security of supply. It is important to monitor the progress and impacts of the coronavirus crisis so that we can learn from it. However, lessons learned alone will not guarantee a more effective crisis response in the future, as crises rarely repeat. Because of this, the main goal of preparedness planning is to look to the future instead of the past. It should also be noted that COVID-19 is not just a health crisis, but an economic one as well, in addition to which it has also been recognised as having social, environmental and legal dimensions, amongst others, and the capacity to effect permanent global change. This raises the question of what the world will look like after the coronavirus crisis and how well its development trends can be identified and assessed. Providing answers to this question is challenging, as the coronavirus crisis came as a surprise despite preparedness planning efforts, resulting in an increase in uncertainty. This only goes to show that preparedness planning needs to be supported by foresight activities and data, now more than ever. Security of supply is particularly vulnerable to sudden changes in the operating environment, consisting as it does primarily of consistent and long-term cooperation. Security of supply measures are typically the result of patient planning, broad cooperation and mutual understanding.

This scenario report prepared by the NESAs explores the permanent changes in the operating environment caused by the coronavirus crisis and examines their impacts on security of supply. This version is a translation of the original Finnish-language report, which was published in December 2020. These are the first scenarios that the NESAs has produced independently. Their aim is to provide comprehensive foresight based on lessons learned about previous scenario projects, freely available current analysis data and security of supply experts' assessments of the most notable changes. To this end, the scope of the scenario planning was limited to the medium-term future, and the scenarios were prepared on a shorter schedule and with a more limited number of participating experts than in previous scenario projects. The report presents four different scenarios of a future after the coronavirus crisis and the resulting pressures for change regarding the development of security of supply operations in the post-COVID 'new normal.' The purpose of the report is not to provide accurate predictions of the future, but to describe alternative futures that can be used in security of supply planning. The scenarios are all principally equal. The actual future will most likely be a combination of the different scenarios, depending on the central dynamics of the primary driving forces.

The report was prepared by the NESAs's Planning and Analysis Department, which is responsible for research, analysis and foresight related to security of supply in both the domestic and international operating environment. As in previous scenario planning projects, the NESAs's foresight and analysis were carried out with the support of the organisations and representatives thereof involved in the NESO's operations. Without their commitment and contribution to security of supply work, this report would not have been possible. We would therefore like to extend our warmest thanks to everyone who participated in the project!

The report consists of five actual content sections, the first of which, entitled 'Security of supply ant-COVID,' provides some background information on the focus areas and development of security of supply work prior to the coronavirus crisis and highlights some long-term trends in security of supply, some of which may be subject to pressure for change as a result of the coronavirus crisis. The second section provides a concise description of the impacts of the coronavirus crisis on security of supply and the response to them, particularly in relation to the Government Decision on the Objectives of Security of Supply issued in 2018. The third section examines the importance of foresight in ensuring security of supply and the methodology of scenario planning, explaining how the scenarios presented in the report were formed. The fourth section examines the results of the broad survey and supplementary interviews conducted to serve as a basis for the scenario planning and includes assessments of the subsequently identified driving forces and Finland's capacity to adapt to them. The fifth and final content section presents the subsequently formed four scenarios and their potential impacts on security of supply and security of supply work. The report ends with conclusions on the importance of monitoring the operating environment, utilising the lessons learned about the coronavirus crisis and guidelines on what should be done on the basis of this report.

# 1. SECURITY OF SUPPLY ANT-COVID

Finland's Government Decision 1048/2018 describes security of supply as the safeguarding of the critical production, services and infrastructure necessary for the livelihood of the population, the national economy and national defence in cases of serious incidents and emergencies. The Decision goes on to state that the starting points for the national security of supply are international markets, a diverse industrial and other production base, a stable public economy and a competitive national economy<sup>1</sup>.

The primary way in which Finland has developed security of supply over the past decade is by **building the ability to anticipate, withstand and to recover from serious disruptions, resilience and continuity management of networks and supply chains alongside traditional material preparedness**. This development measure has been stated in the two previous Government Decisions on the Objectives of Security of Supply<sup>2</sup>, the purpose of which is to adapt security of supply work to both the times and changes in the operating environment.

The need to invest in the continuity management of sectors and industries critical to security of supply is a consequence of the long-term trend of globalisation giving rise to networks and value chains that connect societies and their structures around the world. The resulting networked world is built upon functional and fast connections, whether talking about telecommunications, energy or logistics, which has been seen first and foremost as creating opportunities for trade, for example. At the same time, however, participation in this shared system of systems also creates interdependencies and makes it possible for disruptions to spread rapidly and widely. **As such, success in the network economy requires not only active attachment to global value chains, but also national preparedness for situations in which the operation of global networks is disrupted or even stopped**. Finland's security of supply work focuses on supporting the latter, but since security of supply is, as previously mentioned, based on a functional market, everything ultimately hinges on how successful Finnish industries are in global networks. With this in mind, the NESO has assessed the threats and opportunities posed by global changes to sectors considered vital to security of supply in its Security of Supply Scenarios projects, the most recent of which was carried out in 2017<sup>3</sup>. Alongside networking and the network economy, **another change factor that has been identified as being critical to security of supply is climate change** and the effort to relatively quickly transition to carbon neutrality, which requires the re-evaluation of the basic tenets of security of supply in regard to energy<sup>4</sup>. Based on its scenario follow-up questionnaire carried out in 2019, the NESO assessed that the most notable threats to security of supply alongside climate change are power politics in which energy is used as a tool, the hybrid influence made possible by networks and the increase in cyberthreats as the development of cyber capabilities slows down. On the other hand, the NESO also identified the circular economy, digitalisation and the rising importance of domesticity and self-reliance as being opportunities for security of supply.

**Global interdependence and the network economy have increased the need for international and inter-governmental cooperation**. This has also led to an increase and the consolidation of security of supply cooperation in various forums over the last decade. The most notable of these for Finland are the European Union, the OECD and our neighbouring Nordic countries. In the EU context, key developments in terms of security of supply and preparedness overall have been the European Programme for Critical Infrastructure Protection (EPCIP) and the Directive on security of network and information systems (NIS Directive). Critical infrastructure has also been examined in the cooperation promoting security of supply carried out with the Organisation for Economic Co-operation and Development (OECD), especially from the perspective of economic and catastrophic risks. Since security of supply is a Finnish model, it is also worthwhile to compare it to other taxonomies used around the world and develop awareness of the similarities and differences between them. To this end, Finland has engaged in extensive and long-term cooperation with its neighbouring Nordic countries of Norway and especially Sweden. In recent years, Finland's investment in security of supply and preparedness cooperation with Sweden has been inspired by the extensive defence cooperation between the two countries. The concrete outcomes of preparedness cooperation have included shared projects on the promotion of cybersecurity, in addition to which Finland, Sweden and Norway have carried out a shared research project focusing on Nordic networks and flows<sup>5</sup>. In addition to engaging in international cooperation, the NESO has also examined the **connections between security of supply and global economic policies** within the framework of cooperation carried out with the Finnish Institute of International Affairs<sup>6</sup>. This cooperation has resulted in reports examining topics such as the importance of critical flows to security of supply, the geopolitical risks associated with them and the rise of geoeconomics as a new paradigm. The critical flows of and Nordic cooperation in the Baltic region have also been examined from the perspective of security of supply.

1. <https://www.finlex.fi/fi/laki/alkup/2018/20181048>

2. Government decrees 857/2013 and 1048/2018

3. <https://cdn.huoltovarmuuskeskus.fi/app/uploads/2019/08/09142841/Scenarios-2030.pdf>

4. [https://cdn.huoltovarmuuskeskus.fi/app/uploads/2019/06/04101238/Huoltovarmuus\\_energiaturroksessa.pdf](https://cdn.huoltovarmuuskeskus.fi/app/uploads/2019/06/04101238/Huoltovarmuus_energiaturroksessa.pdf)

5. <https://cdn.huoltovarmuuskeskus.fi/app/uploads/2020/04/21161811/Critical-Nordic-Flows.pdf>

6. <https://www.fiaa.fi/julkaisu/huoltovarmuus-muutoksessa>, <https://www.fiaa.fi/en/publication/suomen-huoltovarmuus-ja-baltian-alue>

## 2. THE CORONAVIRUS CRISIS AND SECURITY OF SUPPLY

2020 will be historically remembered as the year in which the entire world followed the spread of a new coronavirus found in China as it developed from a local epidemic into a global pandemic. The outbreak of the virus observed in the early days of the year quickly spread far and wide, and by 11 March the World Health Organization declared COVID-19 a global pandemic<sup>7</sup>. In Finland, the effects of the COVID-19 pandemic started to manifest in February-March, which is also when the Finnish Institute for Health and Welfare (THL) started to frequently update its COVID-19 guidelines for the health care sector<sup>8</sup>. The unpredictability and rapid spread of the pandemic is well illustrated by the fact that the Finnish Government in cooperation with the President of the Republic declared a state of emergency as early as 16 March 2020<sup>9</sup>. This also put the country's security of supply system to the test for the first time since the Second World War.

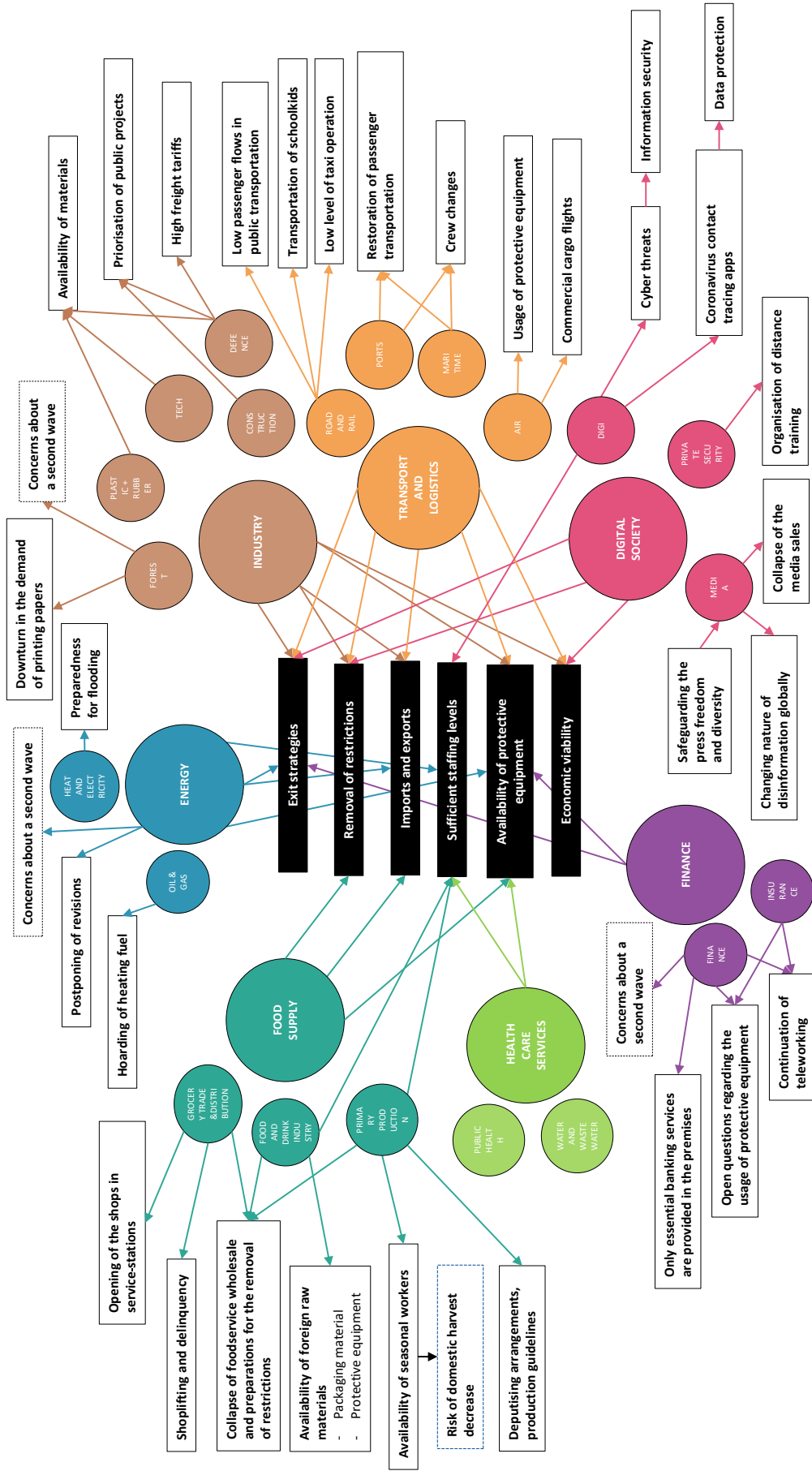
The primary means of controlling the spread of the coronavirus in spring 2020 were various restrictions on movement and gathering. Countries implemented, tightened and eased restrictions of various scopes at varying intervals, depending on the number of infections and the capacity of their health care systems. These restrictions had major economic impacts across different sectors, which countries had not prepared for. Restrictions on opening hours, educational institutions transitioning to distance learning, remote work and social distancing put a stop to hobbies, cultural activities, travel and cash flows. In Finland, the Government implemented the Emergency Power Act, which had direct impacts on the basic rights of citizens. The restrictions implemented in Finland and across the globe led to a rapid decrease in trade and demand as well as waves of lay-offs and dismissals.

The actions taken to prevent the spread of the coronavirus were recognised as having a major impact on the economy and employment, but its full scope was difficult to comprehend. The NESO responded to this need for understanding by maintaining a common situational picture since March, which involved the organisation's sector-specific pools collecting observations from their respective sectors and submitting them to the National Emergency Supply Agency, which used them to compile an overview of the situation and produce common situational picture reports for different branches of Government and the NESO. In addition to this economic situation picture, the NESO's Planning and Analysis Department produced situation pictures on the international impacts of the pandemic. Utilising cooperation networks and international public sources, the resulting report compiled observations from the Nordic countries, the EU, the OECD and NATO, among others.



7. <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>
8. <https://thl.fi/en/web/infectious-diseases-and-vaccinations/what-s-new/news-on-coronavirus-covid-19>
9. [https://valtioneuvosto.fi/-/10616/hallitus-totesi-suomen-olevan-poikkeusoloissa-koronavirustilanteen-vuoksi?languageId=en\\_US](https://valtioneuvosto.fi/-/10616/hallitus-totesi-suomen-olevan-poikkeusoloissa-koronavirustilanteen-vuoksi?languageId=en_US)

Picture 1: Security of supply situational picture of the effects of COVID-19 Theme map 5/2020





The production frequency of the situation pictures was highest in the spring and early summer, when reports were produced on weekdays or several times a week. In the autumn, the situation pictures were produced every two weeks, as the need and demand for increasing the frequency did not grow in tandem with the second wave of the pandemic. This was seen as being an indication of the economy's and the whole of society's improved capacity to operate during the pandemic and adapt operations based on its progress.

While the situational pictures focused on short-term, immediate, industry- and sector-specific observations, the National Emergency Supply Agency's Planning and Analysis Department also produced analysis products for bridging the gap between situational picture and situational awareness. The situational picture data was used to compile situational picture maps that summarised monthly observations related to the coronavirus crisis and identified the common impacts reported in different sectors. In addition to this, the NESO worked together with different sectors to map the cooperation carried out between sectors, i.e. interactions between individual sectors, and related observed and expected disruptions.

The situation picture operations and supporting analysis products illustrated how connected the Finnish economy is to global networks and called attention to the cascading effects of the interdependencies arising out of this networking. Similar observations were also made in other countries as the societies caught off guard by the crisis realised the sudden resource shortages resulting from the disruption of optimised supply chains and subsequently started to re-evaluate their self-reliance. Another indication of the exceptional nature of the situation is the fact that one of the methods by which countries attempted to limit the impacts and spread of the crisis and maintain social order was protectionism. In other words, it took mere months for the pandemic to shake up notable global trends that had up to that point been considered mainstream. Trends that have also served as the basis for developing security of supply.

During the first wave of the pandemic and the ensuing coronavirus crisis, the NESO also carried out special security of supply measures in an attempt to safeguard the functioning of services, production and infrastructure considered critical to security of supply amid the state of emergency declared in the spring. These special security of supply measures included providing financial support to passenger car ferries to safeguard flows of goods from Finland to Sweden and Central Europe via the Baltic Countries, which were considered important to security of supply<sup>10</sup>, and the procurement of protective equipment in accordance with procurement proposals received from the Ministry of Social Affairs and Health.

## 2.1 The impacts of the coronavirus crisis on security of supply and Government Decision 1048/2018 on the Objectives of Security of Supply

The purpose of the Government Decision on the Objectives of Security of Supply, the most recent version of which was issued in 2018, is to align Finland's security of supply work with the times and contemporary society. The Act on the Measures Necessary to Secure Security of Supply (1390/1992) and the currently valid Government Decision on the Objectives of Security of Supply together constitute the key guidelines for security of supply work, with the Act defining the tasks and responsibilities of security of supply work and the Government Decision defining the contemporary phenomena that the tasks respond to.

Government Decision 1048/2018 starts with a description of how security of supply is connected to Finland's comprehensive security approach and national preparedness, in addition to which the Decision describes the general principles of implementing security of supply. The Decision also touches upon the international dimension of security of supply, describing global trends that need to be taken into account in Finnish security of supply work in the coming years. The most notable sections of the Government Decision as regards practical security of supply work are the national objectives of security of supply and the objective regarding the safeguarding of critical infrastructure, production and services, which are described by sector.

Since the role of the Government Decision is contextual, it is also proactive in nature, describing the global trends in response to which security of supply should be developed in the coming years. The Decision is valid until further notice, so its lifecycle can be considered to be defined by how long the trends described in the Decision remain probable and especially by how long the objectives set by the Decision steer security of supply through these probable trends.

### The starting points of Government Decision 1048/2018

The 2018 Government Decision states that the starting points for the national security of supply are **international markets, a diverse industrial and other production base, a stable public economy and a competitive national economy**. Safeguarding the security of supply is also described as being based on functioning international political, economic and technological links as well as on their continuity<sup>11</sup>. The Decision goes on to state that a significant role in the implementation of the security of

10. <https://www.nesa.fi/maritime-transport-of-the-rubber-tyred-vehicles/>

11. <https://www.finlex.fi/fi/laki/alkup/2018/20181048>



supply measures shall be played by the **partnership between the public and private sectors**, which is voluntary for the private sector. In **addition to voluntary partnerships, security of supply shall also be safeguarded by mandatory provisions in certain competence areas**. The role of these provisions is to enable the creation of structures and operating models that support security of supply in situations where the market cannot maintain a sufficient level of security of supply alone.

The development of the population's resilience in serious incidents and emergencies is also taken into account in the 2018 Decision. **The guidance and communication of the authorities** responsible for preparedness and rescue services as well as for social welfare and health care **are seen as key measures for ameliorating the immediate effects of incidents and developing the ability to adjust to the effects of extended incidents and emergencies**. Along with the authorities, municipalities are seen as playing a central role in ensuring the security of supply of society and the basic services on the local level. This role is emphasised in tasks relating to critical infrastructure and the functional capacity and resilience of the population.

Cooperation between different administrative branches, the private sector and municipalities, which are closest to the population, are all in their part responsible for the implementation of security of supply and thus, in accordance with the comprehensive security approach, for the continuity of functions vital to society.

## Objectives regarding the development of security of supply in Government Decision 1048/2018

The central role of critical infrastructure, services and production as maintainers of the vital functions of society and the population's health, welfare and income is underlined in sections 5–8 of the Government Decision. In addition to physical infrastructure, the Decision also takes into consideration digital infrastructure and the various networks that the functions of modern society are built upon. The Decision states that the focal point of security of supply work should be increasingly directed at **ensuring the functioning of the critical infrastructure** in addition to material preparedness via programmes that focus on developing the preparedness of key areas.

Security of supply work should also take into account and **adapt to rapid changes in the operating environment**. The increasing significance of international interdependencies and global value chains requires constantly developing cross-border cooperation in order to safeguard the availability of materials and resources that are critical to security of supply. The increasingly complex and rapidly changing operating environment also gives rise to new risks that should be managed **with both national measures and deepening cooperation with partner countries, such as Sweden and Norway**.

Traditional material preparedness by way of national measures is represented in the Decision by the objective stating that **security of supply work should support critical capability areas related to national defence**. The maintenance and development of national defence capability require **extensive national competence and a competitive and competent Finnish defence and security industry**. Global networks and industrial cooperation also affect the defence industry. The aim of the cooperation between the areas of national defence and security of supply is to be able to manage the most severe emergency conditions through national measures.

The currently valid Decision can be seen as striving to diversify the methodology and tools of security of supply work beyond traditional material preparedness by focusing on the operational reliability of networks and value chains. This diversification is driven by the networked nature of contemporary society, the resulting interdependencies and the increasing role of international connections. In addition to reliability and continuity management, the Decision mentions the enhancement of analysis and development operations, the development of exercises and regulation as means of supplementing the security of supply work built upon cooperation between the public and private sectors.

### 3. FORESIGHT AND SCENARIO PLANNING FOR A POST-COVID WORLD

The downsides of international interdependence and global value and supply chains include increased complexity, dynamism and uncertainty. Even before the coronavirus crisis, these characteristics have emphasised how important proactive preparedness is for all types of operators, whether in the context of national preparedness or the continuity management of companies. In business management literature, this tyranny of uncertainty is generally referred to as TUNA (Turbulent-Uncertain-Novel-Ambiguous) or VUCA (Volatile, Uncertain, Complex, Ambiguous)<sup>12</sup>. Whatever the term used, we are currently living in a period where the operating environment is characterised by rapid change, complexity, ambiguity and uncertainty – and thus the potential for major (negative) surprises. This bane of our time emphasises that survival and success hinge not only on the constant monitoring and understanding of the operating environment, but on the ability to look forward and anticipate what is coming, i.e. foresight.

Security of supply is particularly vulnerable to this kind of dynamism of the operating environment because it is first and foremost a consistent and long-term activity based on extensive cooperation. Security of supply measures implemented at the society level are also often very resource-intensive. The dependence of security of supply work on changes in the operating environment has been recognised in Finland, which is why the NESAs and the NESOs have invested an increasing amount of time and resources in monitoring the operating environment. Examples of these investments include the Security of Supply Scenarios projects and the cooperation with the Finnish Institute of International Affairs mentioned in section one of this report.

This foresight for the new normal of security of supply differs from NESAs' previous scenario planning projects. The scenario planning was carried out during a period of recovery from global shock, the extent of which could not be predicted, and increased uncertainty. At the same time, however, there is a growing amount of situation picture and analysis data on the impacts of the coronavirus crisis from different perspectives and assessments on what went wrong in terms of preparedness and foresighting and what the world will look like once the dust settles. From these starting points, the NESAs started for the first time to independently build a foresight project that would make use of lessons learned in previous scenario projects, freely available current analysis data and assessments of the most notable changes by security of supply experts. Compared to previous scenario projects, this project was limited to looking towards the medium-term future, the scenario planning was carried out on a shorter schedule and the participating group of experts was more limited. Furthermore, a decision was made to narrow down the scenario descriptions to illustrate conditions affecting security of supply in particular instead of building them up into narratives that cover Finnish society as a whole, for example. These choices were based on the assessment that what we now need in terms of security of supply work and the steering thereof as a consequence of the coronavirus crisis is rapid assessments of what is changing and what kind of circumstances security of supply needs to be prepared to adapt to. The project as a whole and its different stages are illustrated by the foresighting process described in the following section.

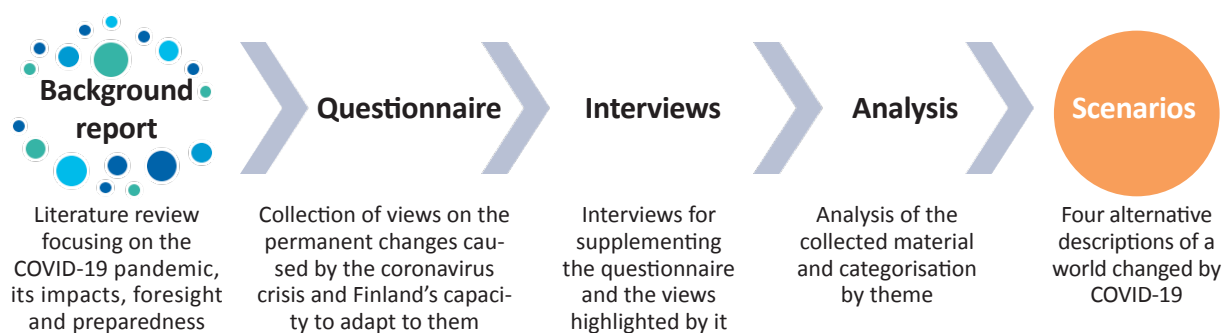


12. See for example: Ramirez, Rafael and Angela Wilkinson (2018), *Strategic Reframing: The Oxford Scenario Planning Approach*, Oxford University Press, Oxford, Forbes, "You say VUCA, I say TUNA: how Oxford helps leaders face the complex and uncertain future", 6.4.2016, <https://www.forbes.com/sites/adamgordon/2016/04/06/oxford/>

### 3.1 Questionnaire- and interview-based research and the foresight process

The scenarios described at the end of this report were prepared as a result of a foresight process. This foresight process began in October 2020 with the preparation of the background report on the scenario project and associated literature review. The review examined freely available international and Finnish publications focusing on the COVID-19 pandemic, its impacts, foresight and preparedness<sup>13</sup>.

The foresight process continued with a questionnaire aimed at mapping the permanent changes caused by the coronavirus crisis and Finland's capacity to adapt to them. The target group of the questionnaire consisted of interest groups and cooperation partners associated with the NESAs security of supply and foresight activities, representing the Finnish Government and authorities as well as the private and third sectors. The questionnaire was carried out at the turn of October and November 2020. The views on the impacts of the coronavirus crisis collected with the questionnaire were further supplemented with interviews carried out in November 2020. These interviews were carried out in industry- and sector-specific groups as semi-structured interviews. A semi-structured interview involves utilising pre-defined themes and emphasising the interviewees' own interpretations, the meanings assigned to them and how these meanings are formed<sup>14</sup>. The interviewees consisted of the chairs and secretaries of the NESOs's pools, committees and sub-committees.



### 3.2 The scenario planning method

After the data collection phase, the process moved to the analysis phase, in which the collected data was structured and the forming of the alternative scenarios began.

The scenario planning method is an operating model widely utilised in foresight in which the aim is to collect a consistent and broad range of views from experts on key driving forces and the alternative futures that combinations of these driving forces could produce. The aim is not to provide accurate predictions of the future, but rather describe alternative potential futures that can be used in preparedness planning. The actual future will most likely be a combination of the different scenarios, depending on the central dynamics of the key driving forces.

In scenario planning, the journey is often just as important, if not more so, than the outcome. The aim is to ultimately provide a common framework to facilitate analytical discussion about potentially significant and long-term changes in the operating environment. The scenarios serve as narratives with the help of which a diverse group of experts can exchange views and collectively form 'frames of thought' about the future. In other words, the scenarios serve as the shared understanding of experts on how the identified driving forces could, when combined, significantly and permanently change the operating environment. By monitoring these driving forces, this deduction about the change of the operating environment can be carried out persistently, as was done in the NESAs Security of Supply Scenarios 2030 project.

13. <https://cdn.huoltovarmuuskeskus.fi/app/uploads/2020/12/03102859/Security-of-supply-in-a-post-COVID-19-world-background-report.pdf>

14. See for example Tuomi & Sarajärvi, 2018: Laadullinen tutkimus ja sisällön analyysi, Hirsjärvi & Hurme 2007: Tutkimushaastattelu

# 4. HOW THE WORLD WILL CHANGE – RESULTS OF THE QUESTIONNAIRE AND NESO INTERVIEWS

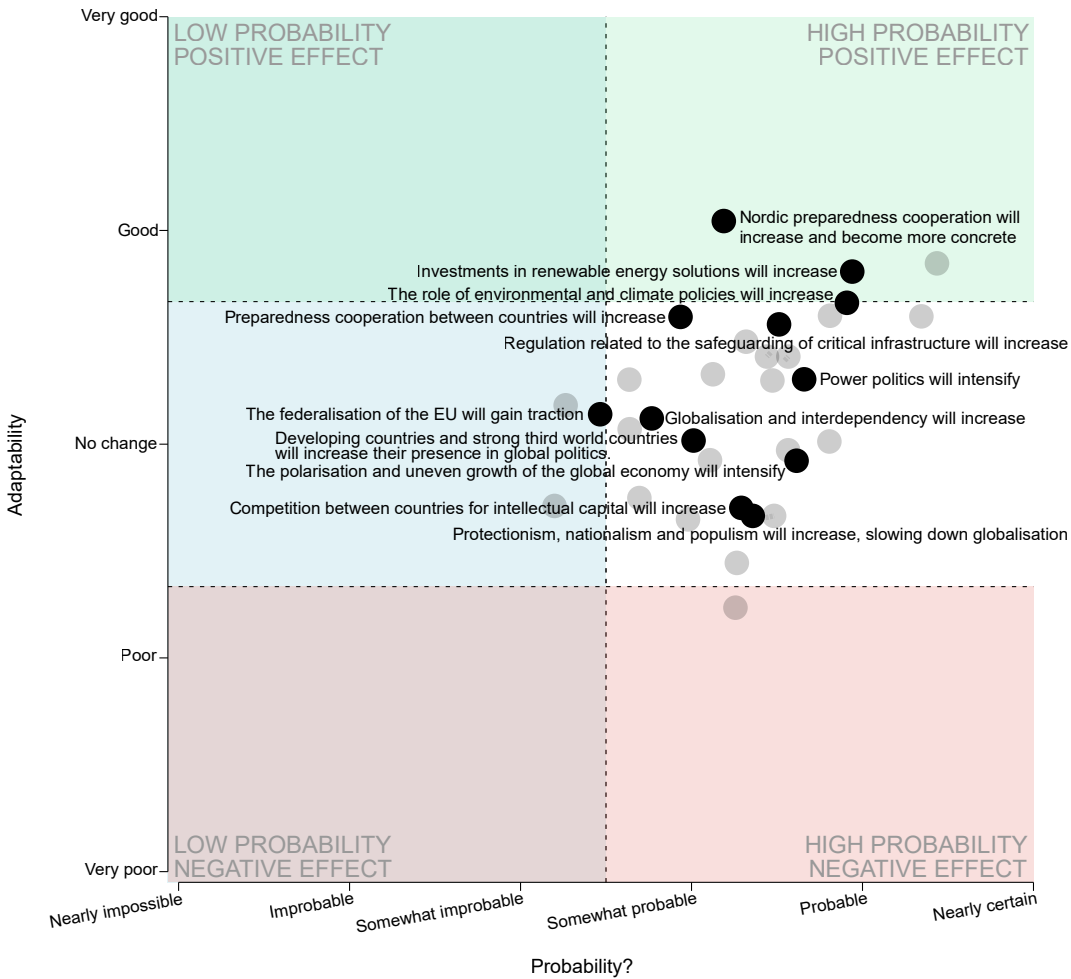
The primary data for the scenario planning consisted of the results of the online questionnaire and supplementing interviews. The questionnaire was sent to a total of 668 persons, of whom 261 responded. The number of people interviewed was 54.

The questionnaire was structured around 47 phenomena that respondents were asked to assess in terms of probability. In addition to this, the respondents were asked to assess how well Finland as a society would be able to adapt to these phenomena. The assessment of 15 of the included phenomena was limited to respondents working in the private sector. In fact, one of the aims of the questionnaire was to determine how differently change processes are perceived in the different sectors of society.

The phenomena descriptions of the questionnaire were divided into four different themes: *the international operating environment, the domestic operating environment, megatrends and preparedness*. In addition to this, the questionnaire featured a follow-up section that only representatives of the private sector were asked to respond to.

## 4.1 The international operating environment

As regards the international operating environment, the phenomena that interviewees assessed as being the most problematic for Finland were protectionism, the polarisation of the global economy and competition between countries for intellectual capital. These same phenomena were also highlighted in the questionnaire responses overall as developments which Finland is believed to be poorly prepared for and that are likely to occur.



The slowing down of globalisation was considered a concern especially among respondents with a background in the ICT, manufacturing or financial sectors. Respondents from these sectors also assessed the risk of the interdependency-based world order deteriorating as high. Almost no respondents considered this kind of development to be positive, but there was a great deal of variation in the assessments of its probability.

On the other hand, the phenomena that Finland was assessed as being the most capable of adapting to were the ones opposing the aforementioned phenomena describing withdrawal and competition between countries, namely Nordic preparedness work, investments in renewable energy and the increasing role of international environmental policies, and these developments were also assessed as being probable. Out of all the phenomena included in the survey, these were also among the ones assessed as being the most opportune for Finland.

All respondents assessed it as moderately likely that power politics will intensify. However, there were differences in respondents' assessments of whether Finland would be able to adapt to this development. NESA employees and NESO secretaries (hereinafter security of supply experts) were more concerned about Finland's ability to adapt to this development than other respondents. The federalisation of the EU gaining traction was assessed as being improbable by all respondents.

There was some variation in the responses based on the background of the respondents, however. Security of supply experts assessed the increase of protectionism as more probable than other respondent groups. Representatives of the Finnish private sector from highly international industries were the most concerned about this development and also assessed it as being more probable than others.

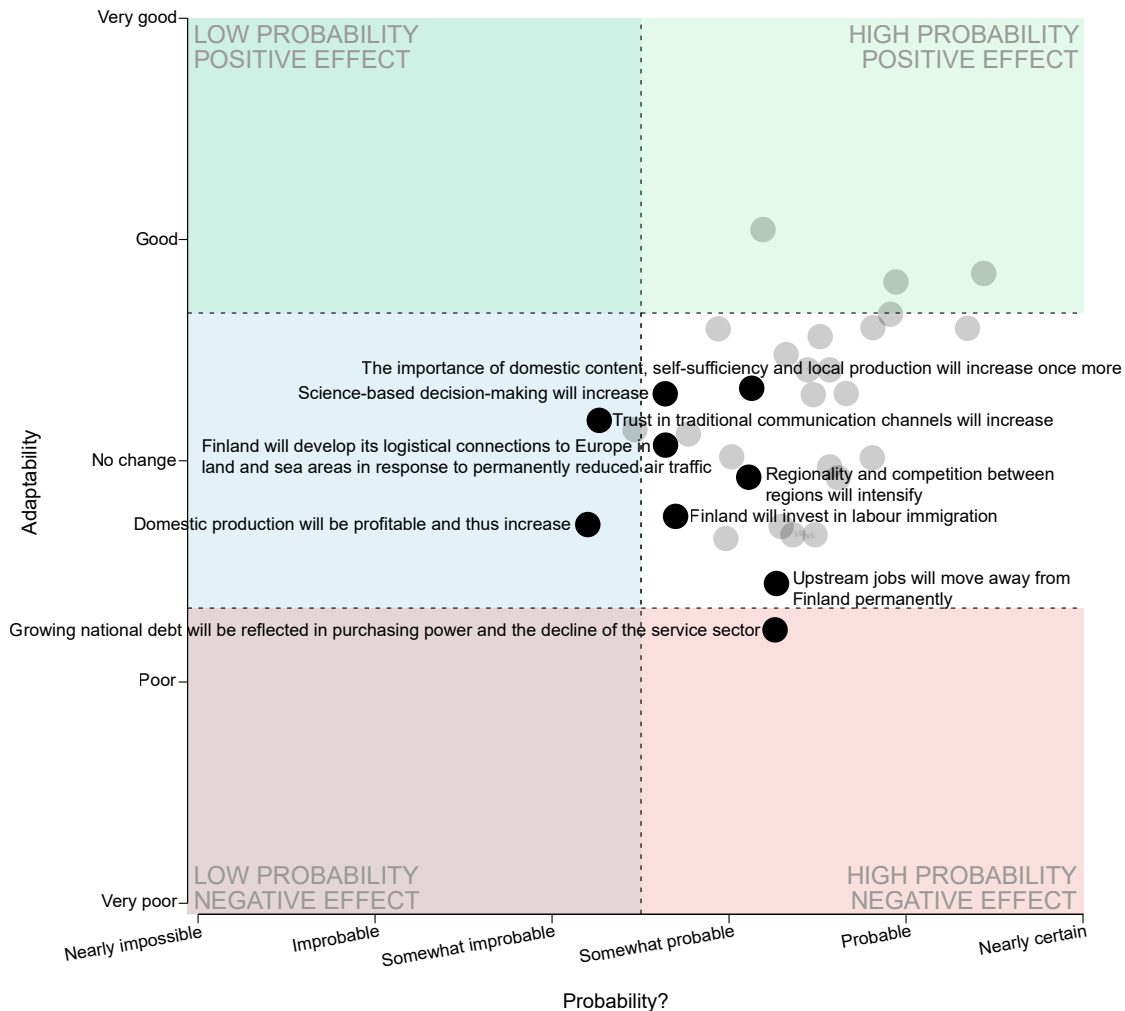
There was a great deal of variation in the responses regarding the probability of preparedness cooperation between countries increasing. This development was assessed as being somewhat improbable in general, with representatives of the Finnish private sector being more sceptical about it than public sector respondents. Security of supply experts assessed this development as more probable than other respondent groups. In contrast, health care representatives were the most pessimistic regarding the probability of this development. Considering their position on the front line of pandemic prevention, this view can be considered quite realistic. On the other hand, it is somewhat unclear how international public health care operations are. Respondents from the ICT sector were the most positive in regard to this development, which may be due to how international the ICT sector is.

As regards competition between countries for intellectual capital, respondents assessed Finland as being poorly equipped to adapt to this. The respondent group that was the most concerned about this was the private sector, with respondents from the ICT and financial sectors being particularly concerned. These respondents were also the most concerned about the availability of skilled employees, which has also garnered public discussion. Respondents from more domestic industries were less concerned about this.



## 4.2 The domestic operating environment

Growing national debt was considered the greatest threat in the entire questionnaire. Unfortunately, it was also assessed as being likely to continue, meaning that respondents were of the opinion that this phenomenon is not just a passing crisis caused by pandemic response, but rather a permanent development that will reduce purchasing power in the future. State finances have always been recognised as playing an important role in preparedness, with Finland’s Security Strategy for Society highlighting them as one of the vital functions of the comprehensive security approach, for example.



The responses to the statement ‘Finland will invest in labour immigration’ were very varied. Finland’s ability to adapt to this phenomenon was assessed as being below neutral overall, with security of supply experts being the most pessimistic about this. It could be that the polarisation of discussion about immigration has contributed to creating an atmosphere in Finland where the country is not believed to be capable of adapting to labour immigration, even though it is recognised as being necessary to support societal development.

Finland developing its logistical connections to Europe in land and sea areas in response to permanently reduced air traffic was assessed as being improbable, especially by respondents working in the logistics sector. On the other hand, respondents working in sectors that involve little to no logistics assessed this development as being probable.

Domestic production becoming more profitable was assessed as being somewhat improbable. This is somewhat surprising, as at least at the early stages of the pandemic there were many opinions and views expressed about how production would move closer to the consumer. Respondents with a background in public administration assessed this development as being more probable than those with a background in business. This lends credence to the hypothesis that the idea is based on a misconception of how the global economy works and how dependent Finland is on it. On the other hand, the most pessimistic about this development were respondents working in the media sector. Considering the difficult financial situation of media companies, it might be that the poor profitability of the industry steers thoughts in a more pessimistic direction.

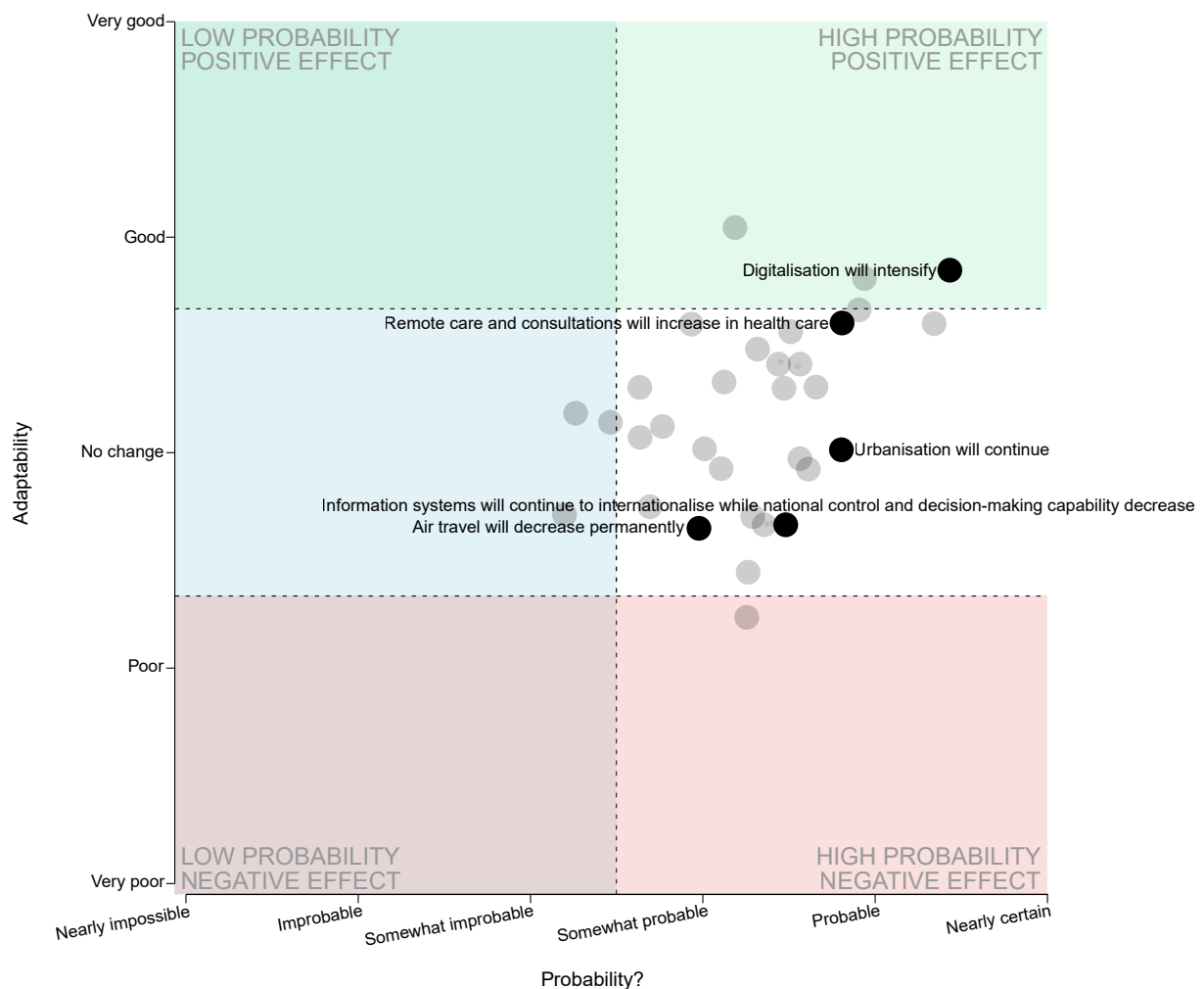
Upstream jobs moving away from Finland was assessed as being a probable and negative development. Those working in critical industrial production were the most concerned about this development. The importance of domestic content, self-sufficiency and local production increasing was assessed as moderately probable, with respondents also considering this development as being positive. There was a considerable degree of variation in the responses, however. Security of supply experts and those working in the food supply sector, in particular, were more hopeful about this phenomenon, while those working in health care believed in it the least.

Science-based decision-making increasing was assessed as being a positive, but not very probable development, at least compared to the assessed probability of the other phenomena included in the questionnaire. There was little variation in the responses based on the respondents' backgrounds. Those working in the ICT sector were the only exception in terms of average responses, with these respondents unfortunately assessing science-based decision-making increasing as less probable and Finland's ability to adapt to it as lower than other respondents. It is somewhat worrying to learn that those working at the forefront of digitalisation, for example, think that Finland lacks the capacity to adapt to this kind of development.

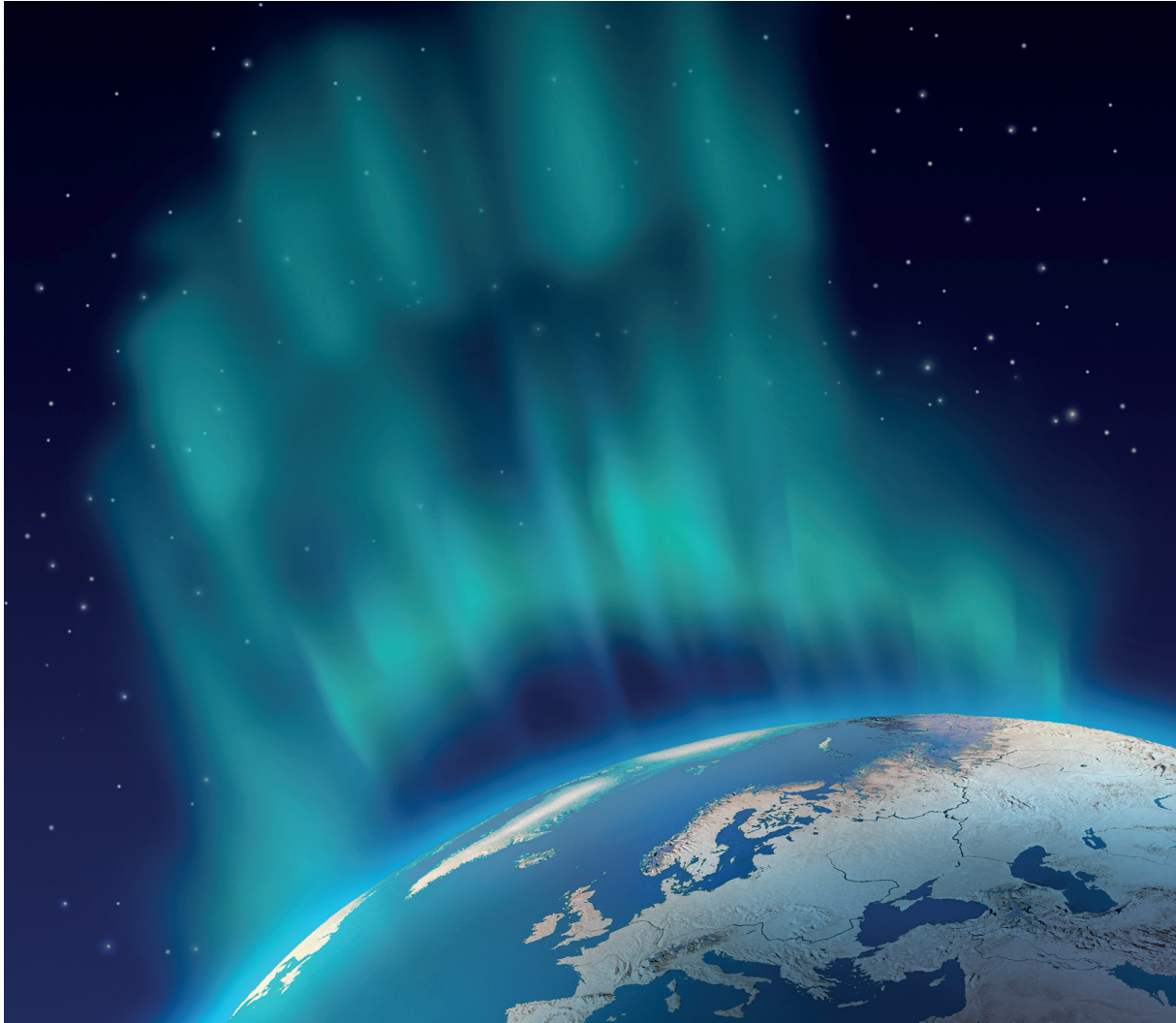
Talk of fake news and other undermining of traditional communication was clearly reflected in the questionnaire responses, with 'trust in traditional communication channels will increase' assessed as the most improbable development out of all the phenomena included in the questionnaire. All respondents assessed this as being a positive development, but had little faith in it actually occurring. The respondent group that was the most hopeful about it was people working in media.

### 4.3 Megatrends

The questionnaire data indicates that respondents do not challenge the continuation of previously identified megatrends. The intensification of digitalisation was assessed as the most probable development out of all the phenomena included in the questionnaire. From the perspective of Finnish society, it is very positive that respondents also believed Finland to be very capable of adapting to this development. Company representatives and security of supply experts were more positive about this development than other respondents.







All of the respondents working in the ICT sector gave this megatrend the highest possible probability rating. This has never occurred before in the foresighting projects carried out by the NESAs. On the other hand, the same respondent group was also more pessimistic than others about Finland's ability to adapt to this phenomenon. Although digitalisation has generally been considered as being a positive and probable development trend even before the pandemic, it is clear that the large-scale transition to remote work has contributed to opening people's eyes to the positive potential of this development.

One of the challenges associated with the digitalisation of society is the increase in cybersecurity threats. Respondents were consequently of the opinion that cybersecurity-related skills will become vital for success as digitalisation continues to accelerate. From the perspective of Finland, it is positive that respondents assessed Finland as being quite capable of adapting to this development.

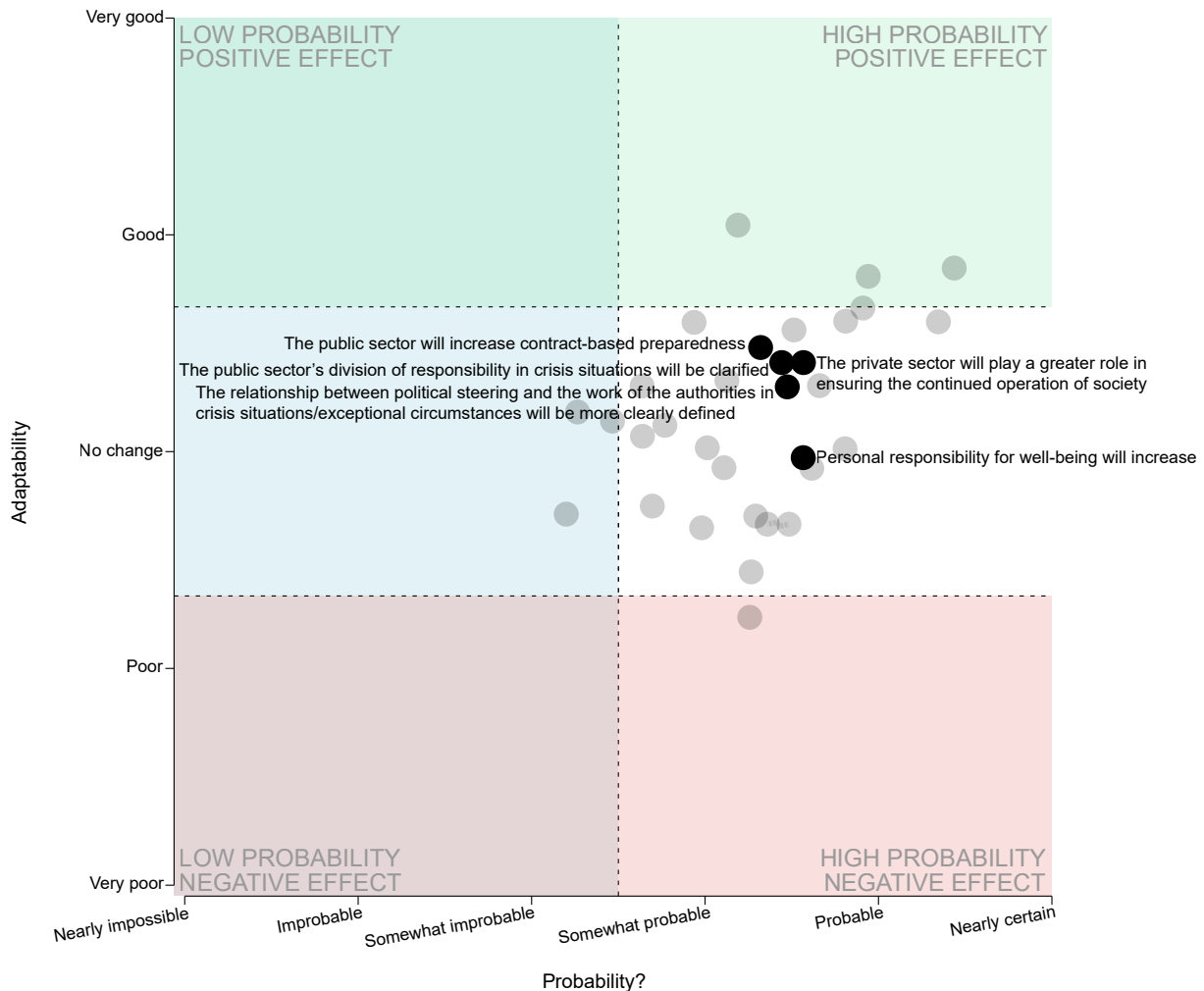
Urbanisation continuing was assessed as being probable, but assessments of Finland's capacity to adapt to it varied. Those working in the food supply sector assessed Finland as being less capable of adapting to continuing urbanisation than other respondents.

Attitudes towards the increase of remote care in health care, which can be considered a synthesis of digitalisation and urbanisation, were very positive. The respondents' background had no bearing on their assessment of the probability of and Finland's capacity to adapt to this development. If more Finns live in cities and society is more digital in the future, it would be positive to be able to provide a more comprehensive range of services to those still living in sparsely populated areas via remote connections. The responses were most likely also influenced by the pandemic, i.e. the fact that health care providers have been forced to adopt forms of remote care that would not have been actively offered under normal circumstances.

Although the air travel industry is currently in a major crisis, with some respondents believing that its growth has slowed down permanently, this was not strongly reflected in the questionnaire responses. Respondents assessed the permanent decrease of air travel as an overall negative development for Finland.

## 4.4 Preparedness

Security of supply experts assessed the public sector increasing contract-based preparedness as the most probable development under this theme. This is quite a natural result, as these respondents have experience in these types of activities. However, other respondents also assessed this development as being probable and believed that Finland has the capacity to adapt to it. Health care sector respondents were the most sceptical in regard to contract-based preparedness increasing, which cannot be considered an ideal situation considering how notable Finland's private sector health care resources are. This line of thinking may be due to the division of labour between private and public sector health care, for example. ICT sector respondents were more positive about this development than other respondents. This is quite a natural result considering the fact that there is not any significant public sector software development taking place around the world.



There was a great deal of variation in the responses to the statement 'the public sector's division of responsibility in crisis situations will be clarified,' probably more than in the responses to any other statement. However, there was little variation between different respondent groups. The variation was greatest in regard to the probability of the development. There was little variation in responses between different business sectors, and only the health care sector assessed the development as less probable than others. Responses to the statement 'the relationship between political steering and the work of the authorities in crisis situations/exceptional circumstances will be more clearly defined' were nearly identical to those to the statement regarding division of responsibility.

'The private sector will play a greater role in ensuring the continued operation of society' was assessed as being a more probable development by security of supply experts than other respondents working in public administration. This is quite natural considering that this type of cooperation between the private and public sectors is one of the objectives of security of supply work. However, there was a great deal of variation in the responses regarding how capable Finland is of adapting to this development. Those working the ICT sector stood out from other respondent groups in that they assessed Finland's capacity to adapt as higher and the development as more probable than others.

## 4.5 The private sectors' views regarding permanent changes

Nearly all of the respondents were of the opinion that remote working has changed operating methods in a way that has permanently changed the operating culture of companies. Some operators have managed to cut costs due to a reduction in work-related travel and need for facilities. But for some industries, operations have continued largely unchanged by the pandemic.

Companies believe that investments in R&D&I operations and new business areas will increase, though there was a great deal of variation in the responses. This variation was similar across different sectors. However, most of the interviewees wanted to emphasise that the future can also offer new opportunities and innovations that could not have been considered as realistic options in the past.

According to the respondents, the pandemic has increased companies' trust in their own capacity to operate during exceptional circumstances. It was positive to note that companies see preparedness as a common goal instead of something to compete in. Companies also believed that investments in continuity management will continue.

The state aid system becoming more flexible and efficient for future emergencies was not considered particularly probable. Based on the interviews, cooperation with the authorities has worked well in situations where the authorities already had a strong cooperative role in the sector before the pandemic. Problems have occurred especially in situations in which the authority has been someone from outside of the sector and provided guidance on matters in which they are inexperienced. From the perspective of preparedness, it is important for the authorities to be familiar with the operating principles of the sector that they are steering.

As regards stockpiling, respondents from different sectors had significantly differing views. Some company representatives felt that the state should maintain a stockpile of critical raw materials for their sector. More global private sector respondents, on the other hand, felt that companies should maintain their own stockpiles wherever maintaining them is most cost-efficient, if stockpiles should be maintained at all. Some of the interviewees felt that having large stockpiles is not as important as having functional subcontracting chains and other cooperation networks, which are continuously tested and audited under normal circumstances as well.

Interviewees considered networks and supply chains to be important. The representatives of many sectors reported that they have engaged in more cooperation since the spring, especially between local and regional operators. Some of the respondents expressed scepticism about international, Nordic or EU-level cooperation. In general, however, the interviewees felt that cooperation networks and subcontracting chains have functioned fairly well throughout the pandemic so far. In some sectors, subcontracting chains have required increased supervision to ensure supply chain reliability and uninterrupted operation. Severe supply disruptions have occurred in some sectors and in regard to certain raw materials/products, but companies have managed to address these relatively quickly.

The questionnaire did not reveal any lack of trust among companies in the Government's ability to function during crises. The respondents felt that the Finnish model, in which preparedness is carried out collaboratively by the Government and companies, is sustainable.

Familiarity with value chains amid the crisis has had a positive effect on companies' trust in one another. On the other hand, the respondents were not very unanimous about whether supply chains could be adjusted in different areas so as to limit disruptions to only parts of the chains in the future. Respondents with a background in the ICT sector had a more positive attitude regarding the probability of this development than other respondents.

Business-related travel decreasing permanently was assessed as being probable, but its impact on Finland was considered neutral. However, there was a great deal of variation in the responses about this phenomenon. One of the major concerns highlighted by the questionnaire results was that multinational companies might start treating remote areas as less important. The respondents considered the growth of the subsidiary-based economy in Finland as problematic.

## 4.6 Summary of the questionnaire results and interviews

The questionnaire and interviews allowed the representatives of different sectors to report on how the pandemic has directly or indirectly changed established practices and introduced new operating models. The respondents felt that the pandemic has decidedly accelerated or slowed down several trends that had already been identified before the pandemic; e.g. the pandemic was considered to have accelerated digitalisation in all sectors.

As regards preparedness, the respondents hoped that cooperation between public and private operators would improve and considered this development as being important. It is important to clarify the division of tasks in cooperation between different operators, and some responses expressed concerns that the steering carried out by the authorities during the pandemic has been too inconsistent.

The responses reflected the fact that Finland is an open economy with a high standard of living, with all trends that threaten the harmonious progress of globalisation perceived as being negative. The phenomena highlighted as positive in the questionnaire responses were the ones that would involve the international operating environment imposing stricter regulation on the safeguarding of critical infrastructure and environmental policy. This type of rule-based world order was perceived as being clearly in the best interest of Finland.

As regards cross-sectoral themes, the transition to remote operations in all tasks or processes where doing so was possible rose to the forefront in particular. Many of the interviewees note that due to the pandemic we are all facing the same challenges and opportunities across the globe.

One of the major common threads in the responses was issues related to the economy and the new kind of monitoring of the economic operating environment. Increasing national debt was highlighted as the largest individual concern in the questionnaire responses. Some sectors had already experienced financial difficulties, while others predicted that they will be facing some in 2021 (such as a surge in bankruptcies). Even respondents from sectors that had not suffered from the economic downturn felt that overall uncertainty about the future might slow down investments, for example. On the other hand, some of the interviewees felt that their sectors would also reap long-term financial benefits from the digital leap carried out by society as a whole and the new operating models and innovations created as a result of it.



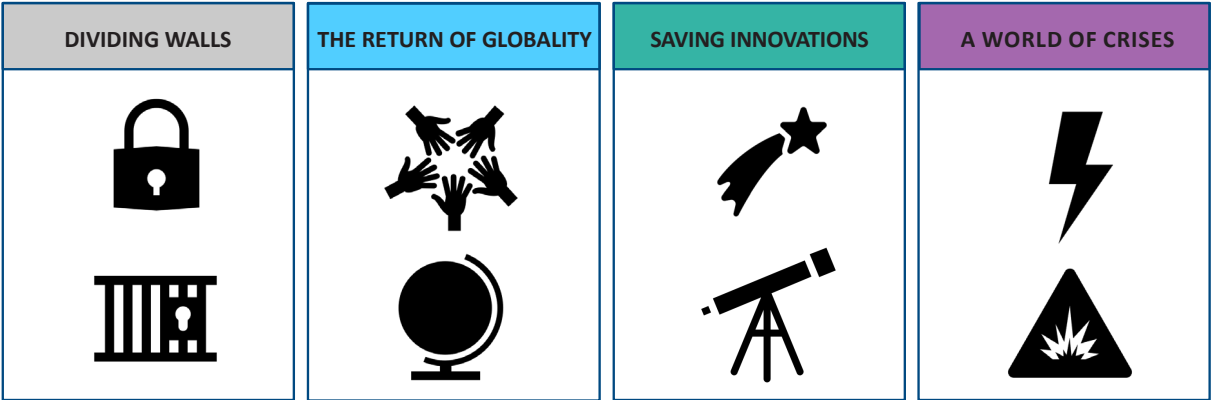
# 5. FOUR ALTERNATIVE NEW NORMALS

The driving forces described in this report can, when combined, give rise to different, new and permanent sets of circumstances. These permanent sets of circumstances are described in this report through four alternative scenarios. The scenarios are named as follows: Dividing walls, The return of globality, Saving innovations and A world in crisis. The scenarios were formed utilising not only the questionnaire and interviews described above in section 4, but also the international foresight sources described in the background report. For example, some of the driving forces were picked from the IMD’s COVID-19 scenario planning report<sup>15</sup>.

The scenarios describing potential near futures detailed in this section consist of three different parts; a scenario narrative, the driving forces emphasised in the scenario and an examination of the resulting needs for change in regard to security of supply.

The narratives built around each of the scenarios describe the most relevant future circumstances presented by each scenario. These narratives are not meant to provide detailed descriptions of potential futures, but rather describe the paths along which the relevant driving forces combine and give rise to the specific set of circumstances. The descriptions of the circumstances also serve as descriptions of factors that would steer the organisation, measures and boundary conditions of security of supply work in each scenario. Similarly to the scenario narratives, the descriptions of the resulting pressures for change in regard to security of supply are not meant to serve as definitive lists, but as examinations of possible methods and tools. The hope is that the scenarios will serve not as maps, but as a kind of ‘compass’ for the future.

The parties utilising this report can utilise the scenarios by adapting the described circumstances to their own sector and operations. Changing circumstances treat the different sectors of society and industries in different ways. This is why you should keep in mind while reading the scenarios that no single scenario should be used as the basis for preparing contingency plans. Instead, the scenarios should only be utilised to support contingency planning. It should also be noted that the scenarios are not forecasts as there are some major uncertainties associated with each. For the same reason, the scenarios should not be treated as a substitute for relevant risk or threat assessments.



## 5.1 Dividing walls

In this scenario, the SARS-CoV-2 virus has proven resilient. Although vaccines have been developed, problems in their availability and distribution have led to infection numbers and mortality remaining high even after the first two years of the pandemic. Disinformation campaigns fueling sensationalist discussion about the vaccines’ side effects have proven effective and the vaccination coverage has remained lower than intended. At the same time, citizens lulled by the protection provided by the vaccines have started to shirk social distancing, as a result of which infection clusters have become so commonplace that people no longer have the energy to treat them seriously. Combined, these factors have resulted in a total of four global waves of infection so far, with a fifth on the horizon.

In the Dividing walls scenario, the experiences of the first year of the pandemic produce the ideal conditions for a rise in nationalism. Governments around the world grow tired of multilateral and international negotiations that lead nowhere and thus fail to provide solutions to the slowly but surely deteriorating situation. One after another, countries start pursuing policies of strong self-reliance, which seem to also garner public support.

15. <https://www.imd.org/contentassets/b9e9a6572dbc4d11af99038674577ec7/imd-covid-19-scenario-planning-report.pdf>

The global operating environment is characterised by the consequences of the breakdown of the multilateral, rule-based international system and the decline of international institutions. The WHO has shrunk and funding from the United States has not returned to pre-Trump levels, as President Biden has failed to secure additional funding due to the opposition of the senate. The WTO's mandate crumbles as the trade war between China and the US continues during President Biden's term. The policy of 'America First' does not substantially change despite the president changing. The new normal for trade policy is characterised by tension and uncertainty: The US's decision to impose new tariffs on goods made in Europe has strained transatlantic relations.

The rise of nationalism in the EU has led to more member states following the path chosen by Poland and Hungary, and the EU's remaining vestiges of authority are strained by member states imposing restrictions on the export of critical goods and the free movement of persons in the EU. At the same time the UK, which failed to secure a free trade deal with the US, is ravaged by economic depression following a no-deal Brexit. Spiraling sanctions and trade restrictions have led to a significant decline in the value of global trade. The prevailing uncertainty and countries pursuing only their own interests cause market disruptions. Logistics volumes have also collapsed and sea transports have declined. All these uncertainties and disruptions serve as additional fuel for policies of self-reliance. Material preparedness has become a core ideology with countries stockpiling everything that they can – or can afford. This has happened despite global shortages of critical raw materials resulting from developments such as China restricting the export of materials and components that it classifies as critical to national security. None of the 3,500 materials or components thus classified can be exported without the permission of the Ministry of State Security.

In Finland, the national economy has declined and unemployment has doubled as a result of the prolonged coronavirus crisis. Companies have suffered with sales and profits plummeting and responded by cutting all fixed expenses. Increasing national debt has also led to cutbacks in the public sector, which is reflected in increasing inequality, for example. Unemployment increases poverty. At the same time, however, some industries are suffering from a lack of specialised employees, as the availability of foreign labour is poor. It would seem that not all critical functions can be operated efficiently. Many multinational companies have moved their Nordic operations to Denmark or exited the Nordic market entirely. Security of supply is subject to more and more expectations, but at the same time the resources available for it decrease. Many sectors have lobbied the Government to stockpile resources critical to them, mainly materials, but also components and spare parts. However, the extent to which stockpiling proposals from different sectors correspond to national-level threat models or risk assessments is not verified.

The situation has grown tense in regard to digital infrastructure as well. Cyberattacks have become so commonplace in recent years that most countries that can afford it are in the process of establishing closed national networks. The public and private sectors cannot survive without each other in the networked world, so cooperation develops rapidly in the form of concrete national cooperation projects. The private sector has invested heavily in cybersecurity, with Finnish companies using an average of 10% of their turnover on it. Due to security threats, 5G technology is largely reliant on the hardware of two Nordic suppliers and its use in industrial operations is strongly regulated.



However, the global uncertainty has had some positive effects as well. Preparedness cooperation with Sweden has finally progressed by leaps and bounds and become concrete. Factors bringing Finland and Sweden together include efforts to ensure the availability of medicines and the goods flows of the Baltic Sea, the safeguarding of which becomes a priority in a world characterised by frequent disruptions. The latest development in the Nordic context is Norway’s increasing interest in participating in the joint stockpiles planned by Finland and Sweden as a result of the US shifting its focus away from the North Atlantic and increasingly towards Asia. Denmark, on the other hand, strives to integrate itself more strongly into continental Europe instead of the Nordic countries. For Finland, ensuring closer and mutually essential cooperation with Sweden and Norway becomes a top priority. Finland’s independent success, however, continues to be hindered by the country’s remote location, small market and participation in the weakening European single currency system.

The economic decline means that the resources available for preparedness also decrease. The NESAs have been turned into an agency primarily tasked with maintaining the Nordic partnership, maintaining private sector partnerships and carrying out duties related to material preparedness. The national preparedness assessment carried out in response to the 2020 coronavirus crisis recommended that security of supply should be subjected to parliamentary oversight, which subsequently led to the establishment of a committee dedicated to this purpose. In connection with this, security of supply was incorporated into the central government budget as opposed to being funded by the National Emergency Supply Fund. Security of supply work is now composed of two, somewhat separate domains; the management of the Government’s and the authorities’ partnerships, which is the purview of the NESAs, and concrete measures for maintaining the safety and security of Finnish society carried out with the Finnish private sectors, which are handled by the NESOs.

**The driving forces emphasised in the scenario:**



In this scenario, security of supply work is carried out with an emphasis on self-reliance and material preparedness. The circumstances that have led to these choices bring to mind the aftermath of the Cold War and the Government Decision on the Objectives of Security of Supply issued in 1988, which was based on a scenario describing Finland being cut off from foreign trade for one year. Disruptions in global and European flows require Finland to implement active measures to maintain national operating reliability and mitigate potential exchange disruptions. The establishment of a Nordic block that would maintain a shared strategic stockpile would be an ideal way of utilising the synergies between countries and sharing risks.

From the perspective of security of supply work, the emphasis on self-reliance and material preparedness also necessitates the strengthening of contract-based preparedness. Multilateral arrangements are needed at the national level. Some of the contracts established with the private sector would focus on stockpile-related trade, while others would focus on cooperation projects for maintaining and developing the operating reliability of Finnish society. At present, cooperation with the private sector is based on voluntary partnerships. In the world described by this scenario, however, it is important for the Finnish Government to ensure that the companies participating in the cooperation cover all the sectors of society and that they are committed to the cooperation. If companies whose services society needs have exited Finland, the continuation of their services must be ensured either commercially, by seeking similar services from Sweden or Norway, or by starting domestic service production.

## 5.2 The return of globality

In this scenario, the vaccines developed against the SARS-CoV-2 virus have proven effective and the pandemic is finally easing up after two difficult years. However, production has not managed to meet global demand and vaccine prices have remained so high that the poorest countries have not been able to afford them in sufficient quantities. As a result, the pandemic seems to have been brought under control only in Europe, North America and parts of Asia. In Africa, the situation is still dire, and in South America, the pandemic coupled with the already weak economic situation has led to even greater political instability. As such, the pandemic has both emphasised and weakened global equality, with poor countries suffering disproportionately from its effects, both directly and indirectly. Russia's Sputnik V vaccine has proven considerably less effective than anticipated and its distribution has been so badly hindered by increasing corruption during the pandemic that Russia is now the worst affected country in the world. In contrast, the Nordic countries have managed to bring the pandemic under control and restrictions have given way to recovery.

In The return of globality scenario, governments have realised that they cannot effectively and sustainably respond to global threats like the pandemic alone. Organising the domestic production of protective equipment, for example, has proven to be an unsustainable burden following the spike in demand caused by the pandemic. In addition to falling demand, the preconditions for domestic production are challenged by reliance on raw materials from China and other Asian countries and the problems identified during the start-up of European protective equipment production. Self-reliance in regard to personal protective equipment (PPE) based on state subsidies soon gives way to the goal of maintaining a joint EU stockpile and dismantling obstacles for trade. However, reliance on global value and supply chains also requires cooperation in the areas of risk management and preparedness.

As regards the international operating environment, the US continues to maintain a significant role on the world stage, with President Biden continuing the hardline policies regarding China started by his predecessor. The US upholds the metal tariffs imposed on EU countries, but otherwise there is a desire on both sides of the Atlantic to consolidate both economic and security cooperation. Concrete strides are also made in cooperation in the area of climate change prevention, as value chains are re-designed utilising the lessons learned about the global pandemic and responsibility for shared international systems is divided among the parties wishing to participate in them. International institutions strengthen their position and benefit from the need for cooperation demonstrated by the global crisis. Significant investments are made in global infectious disease monitoring and exercise cooperation. Attempts have also been made to increase the transparency of critical value and supply chains, with the UN establishing a Global Supply Chain Monitoring Center (GSCM) to promote disruption monitoring, reporting and preparedness.

In Europe, the federalisation of the EU proceeds with member states drafting a new regulation for increasing their joint responsibility for the vitality of the European Economic Area. As digitalisation progresses, investment in the free movement of data increases, as do investments in digital infrastructure and related know-how. European cooperation has increased, even though cooperation in the area of preparedness is steered by strong regulation. The updated critical infrastructure protection (CIP) directive requires member states to draft national strategies and regulations, but preparedness obligations have been primarily relegated to companies. Companies have expressed their dissatisfaction with the unreasonable burden placed on them by the new CIP and updated NIS directives, with interest groups lobbying the European Commission for funding to ease their burden. The Commission remains unwayed, however, and wants critical infrastructure operators to take greater responsibility for societal risks. As regards material preparedness, the rescEU package has been doubled in addition to the increases implemented in 2020. European pharmaceutical and vaccine production have also been supported with significant sums. However, at the same time external dependence on vaccine ingredients and patents remains significant. As such, the EU emphasises the importance of global cooperation and does its best to promote it. Finland's position has not significantly changed; the country remains a small market at the outskirts of global flows.

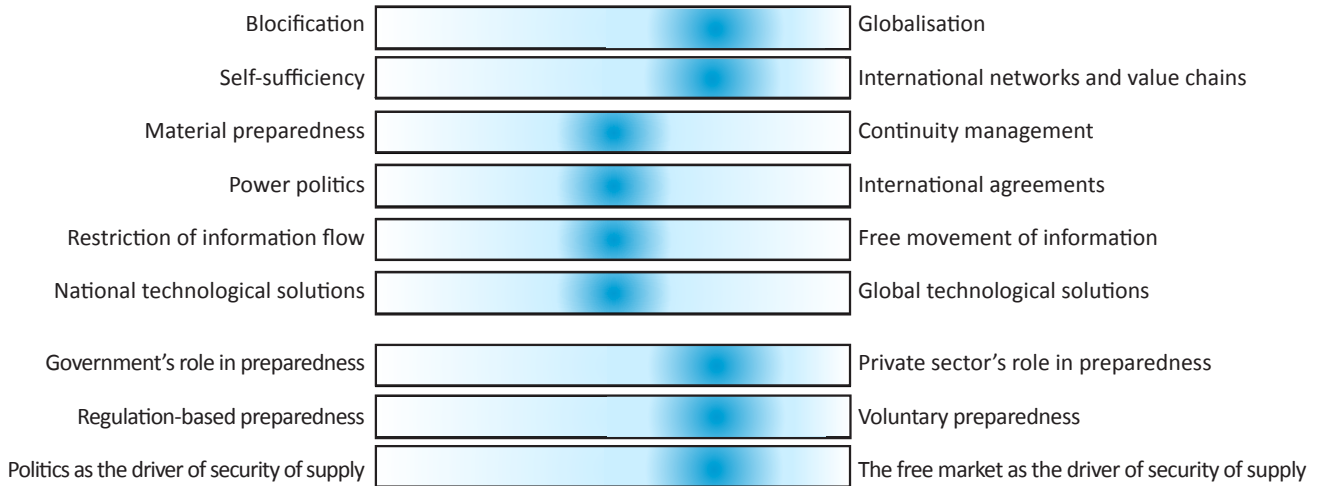
With the pandemic easing up, the Nordic countries have finally managed to put their political decisions on increasing cooperation into practice, establishing stockpiles of critical medicines with joint funding and rescEU funding. Cooperation between authorities in the area of civil preparedness is starting to become seamless and genuinely cross-border in nature. Cooperation with the private sector in the area of preparedness is also active and effective.

In Finland, nearly half of the country's emergency stockpiles are stored in Nordic and European joint stockpiles. Instead of material preparedness, the emphasis of national security of supply is more clearly on continuity management and international cooperation. With the crisis abating, the great interest that politicians and citizens had in security of supply has waned. Especially in the area of cybersecurity, cross-border exercise cooperation has become more extensive and global in nature. Companies have demanded a significant increase in the support provided for developing continuity management, and the work of the NESO and the NESO now focuses primarily on the production of services for supporting continuity management and cybersecurity. Otherwise, Finland's comprehensive security approach, security of supply concept and the NESO have not significantly changed. The numerous security of supply and preparedness assessments carried out in 2021 ended up having little impact, ultimately resulting in only minor adjustments. The new Government Decision on the Objectives of Security of Supply also remained a minor update,



presenting no new major focus areas. In other words, there has been no desire to make significant changes to preparedness structures that ‘work well enough’ nationally. The majority of the value and supply chains for critical materials, products and services recovered surprisingly quickly after the pandemic, and trust in the market is strong. This in turn increases trust in joint production and network-oriented preparedness in line with Finland’s current comprehensive security approach.

**The driving forces emphasised in the scenario:**



The return of globality scenario describes a situation in which Finland’s security of supply approach is characterised by an emphasis on the country’s connections to international systems and placement at their outskirts. In other words, upholding security of supply requires increasing familiarity with the global operating environment as regards raw material flows, international networks and supply chains. In addition to this, Finland should strive to increase its ability to influence EU decision-making regarding preparedness and security of supply and examine needs to create new international agreements concerning security of supply. Alongside the EU context, it is also important for Finland to increase Nordic cooperation so that conditions relevant to Northern Europe are also taken into consideration in decision-making and potential new regulations. Security of supply being based on global flows and open markets also emphasises the role of the private sector in security of supply. Instead of progressing regulation, the aim is to provide added value to the private sector through preparedness cooperation between the public and private sectors. Areas in which this type of cooperation should be pursued include the foresight and continuity management of the global operating environment. This naturally also requires increasing the know-how of security of supply experts in these areas. In this scenario, the prosperity of Finnish society is facilitated by relatively advanced digitalisation and companies’ capacity to utilise and create new operating models for connecting Finland to regional, European and global networks.

### 5.3 Saving innovations

In the Saving innovations scenario, people, companies and societies have stepped up and managed to create new, innovative solutions for controlling the pandemic and its impacts, which have proven surprisingly effective. In addition to accelerated vaccine production, new innovations have been developed in the areas of medication, protective equipment and general health technology, with the help of which the virus has been largely suppressed. As a result, most companies have managed to restore their operations to near normal levels much faster than anticipated. Along with solutions for suppressing the pandemic, other new innovations have also emerged, creating entirely new areas of business in many industries. The global economy has subsequently taken great strides towards recovery.

The global economy has been re-vitalised by the added value produced by new innovations. As a result, both pandemic response services and other services are more equally distributed. Vaccines can now be produced close to where they are needed and delivered quickly and safely. Entirely new areas of business have also given rise to new sources of income for large amounts of people.

Competition in the utilisation of technologies and innovations has changed international relations, which are now more clearly steered by the search for synergies and cooperation with partners that provide benefits. This has also had an impact on institutions like the UN and the EU, the emerging role of which in this technology-driven world is to provide support to countries that



rank in the middle or lower in regard to technological development. At the same time, technologically advanced countries form strategic but short-lived alliances for various innovation projects, at the conclusion of which the participating countries withdraw to re-assess their needs for future cooperation. Regulation has difficulties keeping up with and responding in a timely manner to the accelerating technological development. This leads to the role of regulation decreasing especially in the areas of preparedness and security, both nationally and internationally. Differences in regulation between countries also affect the operating conditions of companies and trade. Companies start re-assessing the locations of their head offices with the aim of finding the optimal conditions for their operations.

In Finland, digitalisation has progressed with leaps and bounds. The digital leap carried out partly by necessity has saved many companies from bankruptcy and created new forms of business in the areas of health care and event organisation, among others. In both of these areas, virtual and augmented reality have produced entirely new forms of operation and the use of artificial intelligence has made services and the targeting thereof more efficient. For example, the experience of going to the doctor has become entirely different, with the meeting taking place in a virtual environment, with direct diagnostics provided by AI. This also makes the experience much more human than a mere video or chat consultation. In more and more professions and workplaces, new technological innovations and digital services have made it possible for people to work while also maintaining a human connection, creating entirely new operating models. The resulting increase in productivity has been so significant that the misery caused by the pandemic has started to feel like a blessing in disguise; without the pandemic, all this additional investment in innovations may never have happened. Finland and Finnish experts are relatively successful in international technology markets, thanks to their reputation for reliability, diligence and consistent quality. Finland becomes a country that is regularly invited to participate in the cooperation projects of technologically advanced countries, finding a role in the technical planning and testing of inventions, with other countries taking care of idea generation and commercialisation.

In security of supply, too, new innovations have provided a better understanding of the operation of critical value and supply chains and new ways of anticipating and managing disruptions. Smart and decentralised services based on 5G technology have

proven resilient, recovering quicker from local disruptions thanks to their swarm intelligence. In the area of cybersecurity, blockchains, artificial intelligence and quantum computation have created new potential for proactive defence and rapid response to cyberattacks. At the same time, however, cyberattacks have become more sophisticated and some governmental operators have gained new capabilities that could potentially paralyse entire communities in mere minutes. Because of this, the regulation of new, disruptive technologies has become a critical topic on the global stage, and those opposed to artificial intelligence, for example, have started to take more radical actions against technology companies and their executives. In international terrorism, focus has shifted from individual, physical attacks to cyberattacks and the destruction of technological targets with bomb strikes. New technologies have made it easier for terrorists and anarchistic organisations to organise their operations, turning them into genuinely global operators. In other words, there is a battle raging between good and evil over who controls technology and the digital world. This has resulted in a global innovation race, taking place not only in the market and on its terms, but also between governments and against international criminal and terrorist organisations.

The NESA's duties have changed to the storing and safeguarding of data related to society's critical, digital functions, with material and traditional preparedness taking a backseat. This work is carried out primarily internally and with the help of contract partners, due to which the NESA has shrunk considerably and now operates more like an ad hoc working group-based expert network. Cooperation with the NESO's pools is still carried out in the areas of continuity management and cybersecurity, but this work has been largely outsourced to commercial partners and technology. This technology-driven approach also has its opponents, however. Some citizen groups urge the NESA to establish massive emergency stockpiles for the moment when technology and digital solutions fail and society is paralysed.

**The driving forces emphasised in the scenario:**



The world order described in the Saving innovations scenario also has major impacts on security of supply work. If national regulation as a method for steering social safety and sector-specific preparedness takes a backseat or is no longer linked to the regulation of the internal market for example, security of supply turns into a tough balancing act: what level of regulation is sufficient in regard to steering without endangering the competitiveness of Finnish companies?

Since regulation is only one method among many in security of supply work, the change in its role increases the need to utilise other methods and tools. These could include a strong investment in international cooperation, in which Finland could profile itself as belonging in the same group as other Northern European countries, and strengthening cooperation with the private sector so as to provide concrete benefits to companies. The private sector is responsible for a significant share of the services that society produces for its citizens, so it is important to maintain the conditions for the disruption-free continuation and long-term development of services. In this situation, cooperation between the public and private sectors should be based on partnerships instead of individual contracts so as to ensure more long-term cooperation.

Contract-based preparedness was already increasing in importance before the coronavirus crisis, so the world described in this scenario is merely the result of existing developments accelerating. The actual challenge in the society described in this scenario is the narrowing of the existing methods and tools available in regard to preparedness and their basis on contracts. Contracts must be established at multiple levels and with several different operators, significantly increasing the need for coordination. Contract-based preparedness also causes pressures for change in regard to the organisation of local security of supply.

### 5.4 A world of crises

In the A world of crises scenario, our worst fears are coming to pass. The pandemic, now on its fifth wave, has killed tens of millions of people and further strained relations between both major powers and smaller countries. The situation in the areas hit hardest by the pandemic is catastrophic. An increase in antibiotic-resistant bacteria has made health security a top priority, and the prolonged pandemic has set off a massive wave of migration. Refugees are subject to increasing prejudice, fear and hate as the citizens of better off societies become more and more concerned about their own health, demanding Governments to take action and take better care of their citizens. Refugees are both violently turned away and confined to camps, where the virus spreads uncontrollably. The virus spreading in camps is feared to give rise to yet another wave of infection.

The economic crisis caused by the prolonged pandemic has brought entire countries to their knees, and basic industries have collapsed. As a result, several countries are also experiencing food shortages. The areas hit hardest by the pandemic have experienced a rise in corruption, organised crime, terrorism and violent activism. Access to the raw material market and logistics have been severely disrupted, and competition for critical materials has created more extreme divisions. In material procurement, conditions for peaceful agreement and the sharing of scarcity are overridden by nationalism, and the limited nature of natural resources or climate change mitigation rank low on the list of global priorities. The global economy is in trouble, and the private sector is now focusing exclusively on maintaining existing market shares instead of R&D&I activities. The public reacts to the prevailing uncertainty and growing scarcity by increasing personal preparedness. At the insistence of their residents, cities and municipalities also start making their own preparedness arrangements where possible, with the aim of ensuring the basic income of their residents during prolonged disruptions.

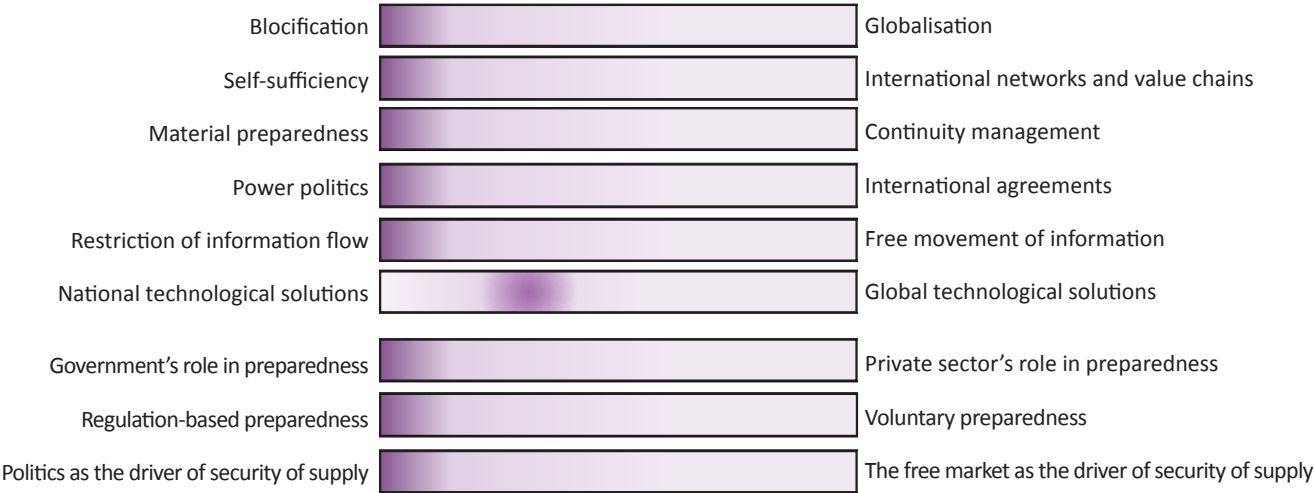


Survival seems to be becoming dependent on either insulation and isolation or the forming of strong alliances. In Europe, NATO approval ratings are at an all-time high and member states are urged to at least double their defence budgets. The EU is struggling for survival and has found added value by facilitating the creation of and supporting the European defence industry. As a result, the war economy is starting to compete with the market economy on influence in Europe. In Finland, the prevailing uncertainty and Russia becoming increasingly active in global power politics has caused people to revise their opinions on military alliances, with the majority now in favour of Finland joining NATO. As an alternative, with Russia’s reaction raising concerns, attempts are also made to establish a full-scale defence pact with Sweden, but Sweden’s NATO membership is already being processed. This and other regional developments in the area of defence raise more concrete concerns in Finland about the country falling under Russian influence. Finland decides to bolster its defences by procuring weapons systems from the US. However, the EU and its member states are of the opinion that Finland should centralise its procurements to the newly formed European Defence Industries consortium, and Finland’s position in the EU is weakened.

The developments described above have had a negative impact on the Finnish economy already strained by the pandemic. Accessing primary markets is starting to become difficult, while domestic industries are declining. Regular and continued border violations by Russia demand constant preparedness, which is starting to test the limits of the national economy. Public discussion about national defence increases and attitudes become increasingly harder: Finland no longer seems to have the economic preconditions for maintaining a believable national defence, yet attempts to reach a decision on joining a military alliance fail despite Finnish military officers having been in favour of it for decades.

There has been discussion among Members of Parliament about moving the NESA under the jurisdiction of the Ministry of Defence and turning it into a genuine contingency organisation. The proposal has garnered widespread support, but competing with it is a proposal made by experts about incorporating the NESA into a new national defence agency. Hardening attitudes towards the organisation of national defence also seem to be leading to the abolishment of the previous, cooperation-based comprehensive security approach. This would mean a return to more traditional, military security of supply, in which stockpiling focuses on munitions and weapons. The NESA’s work in the area of continuity management ends and connections between the private sector and the authorities weaken. The know-how of the NESA’s management and personnel has shifted to ‘hard security,’ making the NESA a viable option for serving as the core of a national crisis team. In other words, security of supply is starting to focus on readiness, with preparedness and continuity management taking a backseat.

**The driving forces emphasised in the scenario:**



In the A world of crises scenario, maintaining security of supply is difficult; the uncertainty of the market and the rivalries between countries discourage companies from investing in production. If trade relations and value chains are vulnerable to disruption at the same time, increasing material preparedness must take precedence over self-sufficiency. In this type of world order, material preparedness is combined with contract-based preparedness. However, the success of contract-based security of supply is challenged by the uncertainty of the operating environment and the need to constantly re-assess partnerships – just in case. In this scenario as well, the narrowing of available methods and tools bodes ill for Finland in terms of preparedness and security of supply, as both are based on the combined effect of multiple methods and long-term cooperation.

## 6. SECURITY OF SUPPLY IN THE ‘NEW NORMAL’

The operating environment of security of supply is constantly changing. Changes in society and global systems often change the way in which security of supply is organised as well, as security of supply is supposed to mirror the surrounding society. The NESAs and the NESOs have strived to respond to these changes, their impacts and the resulting needs for change through foresight. In addition to producing information on potentially significant changes and their impacts on those carrying out security of supply work, this foresight has previously also served as the foundation for the preparation of the Government Decisions on the Objectives of Security of Supply. The scenario projects that have served as the basis of the Government Decisions, which have lasted approximately one year each and been contributed to by a broad group of experts, have aimed at examining the operating environment as comprehensively as possible over the next 15 years or so. As stated in section 3 above, this report and the scenario planning described in it differ significantly from the NESOs and the NESAs's previous reports, as this project focused exclusively on the changes caused by the COVID-19 pandemic over the medium term. Although the megatrends and driving forces identified in previous projects have been acknowledged in this project, they were not its primary focus.

The aim of the scenarios presented in this report is to illustrate what the changing of the operating environment means for security of supply and how security of supply is based on a broad range of methods and tools and cross-sectoral cooperation. It is not possible, nor is it in the national interest of Finland, to develop the security of supply system based on any individual line of operation. Instead, the aim should be to find the right mix of different methods and tools that are more effective combined than they would be individually. The development of security of supply and its diverse set of methods and tools are not random, but rather based on a series of conclusions and measures that have been made and implemented in national preparedness over the years. As regards security of supply, the common thread tying them all together is perhaps best illustrated by the Government Decisions on the Objectives of Security of Supply, which reflects Finland's geopolitical starting points, the legacy of the Cold War, EU membership, the increasing complexity of society's services, digitalisation and interdependencies alike.

The link between security of supply and the changing of the operating environment has recently become topical in the national context as well, with the coronavirus crisis putting national preparedness and Finland's comprehensive security approach to a real test. It goes without saying that the different stages of the crisis will be reviewed for the purpose of identifying areas in need of development. Security of supply arrangements will justifiably be a part of this review, due to which already started and upcoming assessments on the topic have been taken into account in the writing of this report. One of these is the National Emergency Supply Council's already completed assessment of the impacts of the coronavirus crisis. All of these assessments are expected to affect the development of the national comprehensive security approach, preparedness and security of supply in their own ways in the coming years.

It is stated in the conclusions of the National Emergency Supply Council's assessment that the Government Decision on the Objectives of Security of Supply should be reassessed, taking into account the lessons learned during the coronavirus crisis as comprehensively as possible. However, it will be crucial for this reassessment to identify which objectives of security of supply should be revised as a result of the crisis and which ones should remain unchanged on the grounds of continuity. The operating environment of security of supply is also subject to changes that are not associated with the coronavirus crisis. For example, resilience policy becoming the centre of attention of international communities may cause EU-level changes that can potentially have major impacts on security of supply. Developments that could bring about these kinds of changes include the ongoing renewal of the directive on the protection of critical infrastructure (ECI Directive) and the updating of the directive on security of network and information systems (NIS Directive) concerning the security obligations and disruption reporting of digital services. Both of these directives regulate infrastructure, production and services considered critical to society, which in the Finnish operating environment also fall within the purview of security of supply. These developments demonstrate that the long-term planning of security of supply cannot focus exclusively on the changes and consequences of the coronavirus crisis. Instead, the aim should be to understand the strategic operating environment as comprehensively as possible and independent of threats/risks.

The long-term effects of the coronavirus crisis cannot be ignored, however. This is why the NESAs has launched a strategy project for responding to the development needs highlighted by the ongoing crisis so far. The focus areas of this strategy project include the development of material preparedness and the emergency stockpiling system, programmes for responding to social changes affecting security of supply and the strengthening of analysis and foresight activities focusing on examining the operating environment. Alongside this strategy project, the NESAs will also be following the assessments to be carried out on the effectiveness of national preparedness and comprehensive security approaches. Security of supply is part of a larger whole in the context of national preparedness as well.

The hope is that this report will open discussion on the link between the monitoring of the global operating environment and security of supply. Right at the start of 2021, the National Emergency Supply Agency will be organising the first session for interest groups to discuss the 'new normal' of security of supply based on the conclusions presented in this report. Diverse and open-minded discussion will be needed in the coming years, as security of supply must genuinely live with the times.

## SOURCE MATERIAL

Publisher	Name	Link
The Finnish Government	Government Decision 1048/2018	<a href="https://www.finlex.fi/fi/laki/alkup/2018/20181048">https://www.finlex.fi/fi/laki/alkup/2018/20181048</a> (in Finnish)
The Finnish Government	Government Decision 857/2013 on the Objectives of Security of Supply	<a href="https://www.finlex.fi/fi/laki/smur/2013/20130857">https://www.finlex.fi/fi/laki/smur/2013/20130857</a> (in Finnish)
The National Emergency Supply Agency	Security of Supply Scenarios 2030	<a href="https://cdn.huoltovarmuuskeskus.fi/app/uploads/2019/08/09142841/Scenarios-2030.pdf">https://cdn.huoltovarmuuskeskus.fi/app/uploads/2019/08/09142841/Scenarios-2030.pdf</a>
The National Emergency Supply Agency	Security of supply and the energy sector transformation – Report for the National Emergency Supply Agency	<a href="https://cdn.huoltovarmuuskeskus.fi/app/uploads/2019/06/04101238/Huoltovarmuus_energiamurroksessa.pdf">https://cdn.huoltovarmuuskeskus.fi/app/uploads/2019/06/04101238/Huoltovarmuus_energiamurroksessa.pdf</a> (in Finnish)
The National Emergency Supply Agency	Critical Nordic Flows – Collaboration between Finland, Norway and Sweden on Security of Supply and Critical Infrastructure Protection	<a href="https://cdn.huoltovarmuuskeskus.fi/app/uploads/2020/04/21161811/Critical-Nordic-Flows.pdf">https://cdn.huoltovarmuuskeskus.fi/app/uploads/2020/04/21161811/Critical-Nordic-Flows.pdf</a>
Finnish Institute of International Affairs	Changing security of supply: The challenges of national preparedness in an international operating environment	<a href="https://www.fiiia.fi/julkaisu/huoltovarmuus-muutoksessa">https://www.fiiia.fi/julkaisu/huoltovarmuus-muutoksessa</a> (in Finnish)
Finnish Institute of International Affairs	Finland's security of supply and the Baltic Sea region: Increasingly dense connections in a changing security environment	<a href="https://www.fiiia.fi/en/publication/suomen-huoltovarmuus-ja-baltian-alue">https://www.fiiia.fi/en/publication/suomen-huoltovarmuus-ja-baltian-alue</a> (in Finnish)
World Health Organization WHO	WHO Director General's opening remarks at the media briefing on COVID-19 – 11 March	<a href="https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020">https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020</a>
Finnish Institute for Health and Welfare THL	News on Coronavirus COVID-19	<a href="https://thl.fi/en/web/infectious-diseases-and-vaccinations/what-s-new/news-on-coronavirus-covid-19">https://thl.fi/en/web/infectious-diseases-and-vaccinations/what-s-new/news-on-coronavirus-covid-19</a>
The Finnish Government	Government, in cooperation with the President of the Republic, declares a state of emergency in Finland over coronavirus outbreak	<a href="https://valtioneuvosto.fi/-/10616/hallitus-toteusi-suomen-olevan-poikkeusoloissa-koronavirus-tilanteen-vuoksi?languageId=en_US">https://valtioneuvosto.fi/-/10616/hallitus-toteusi-suomen-olevan-poikkeusoloissa-koronavirus-tilanteen-vuoksi?languageId=en_US</a>
The National Emergency Supply Agency	Maritime transport of rubber-tyred vehicles secured with measures taken by the National Emergency Supply Agency	<a href="https://www.nesa.fi/maritime-transport-of-the-rubber-tyred-vehicles/">https://www.nesa.fi/maritime-transport-of-the-rubber-tyred-vehicles/</a>
Ramirez & Wilkinson 2016, Oxford University Press	Strategic Reframing: The Oxford Scenario Planning Approach	
Forbes	You say VUCA, I say TUNA: how Oxford helps leaders face the complex and uncertain future”	<a href="https://www.forbes.com/sites/adamgordon/2016/04/06/oxford/">https://www.forbes.com/sites/adamgordon/2016/04/06/oxford/</a>
The National Emergency Supply Agency	The new normal of security of supply – Background report	<a href="https://cdn.huoltovarmuuskeskus.fi/app/uploads/2020/12/03102859/Security-of-supply-in-a-post-COVID-19-world-background-report.pdf">https://cdn.huoltovarmuuskeskus.fi/app/uploads/2020/12/03102859/Security-of-supply-in-a-post-COVID-19-world-background-report.pdf</a>
Tuomi & Sarajärvi 2018, Kustannusosakeyhtiö Tammi	Qualitative research and content analysis: Updated edition	
Hirsjärvi & Hurme 2007, Gaudeamus	Research interview	
IMD	Scenario Planning for a Post- COVID-19 World	<a href="https://www.imd.org/contentassets/b9e9a-6572dbc4d11af99038674577ec7/imd-covid-19-scenario-planning-report.pdf">https://www.imd.org/contentassets/b9e9a-6572dbc4d11af99038674577ec7/imd-covid-19-scenario-planning-report.pdf</a>



**HUOLTOVARMUUSKESKUS**  
FÖRSÖRJNINGSBEREDSKAPSCENTRALEN  
NATIONAL EMERGENCY SUPPLY AGENCY