



SECURITY OF SUPPLY SCENARIOS 2030

Summary

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FÖRSÖRJNINGSBEREDSKAPSORGANISATIONEN
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SECURITY OF SUPPLY SCENARIOS 2030

The scenarios shed light on the development and future prospects of the operating environment of security of supply work.

- *What do alternative future **scenarios** look like?*
- *What is **the future of security of supply work** in various scenarios?*
- *How can **society's ability to function** be secured in an uncertain operating environment?*

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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 the event of 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.

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The project in brief

The uncertainty of the security of supply operating environment has increased in the global network economy shaped by digitalisation. Geopolitical priorities are in flux as Asian countries seek to become the drivers of the corporate world and global politics in an age of protectionist rhetoric. Forms of influence are diversifying and the competition for resources is growing fiercer as consumption continues to increase. The progress of the fourth industrial revolution increases uncertainty about the future as disruptive technologies break established operating models, threatening to shatter the very logic of entire industrial sectors. Interdependencies, new operating models and technologies create unprecedented challenges – and also notable opportunities – in regard to safeguarding the functioning of society. Foresight on chains of events and changes – and preparing for them – has become an increasingly important part of society’s and organisations’ continuity management.

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The Security of Supply Scenarios 2030 project is an important part of the development of the National Emergency Supply Organisation’s foresight operations. The aim of the scenario project is to provide foresight information to serve as the basis of the Finnish Government’s next security of supply decision and the National Emergency Supply Organisation’s strategic and operative decision-making. The scenario work was conducted in the form of collaboration between the National Emergency Supply Organisation and the Capful management consultancy in autumn 2017. Through workshops and interviews, the process was contributed to by a wide range of experts from the National Emergency Supply Agency, members of the industrial sectors and pools as well as external specialists.

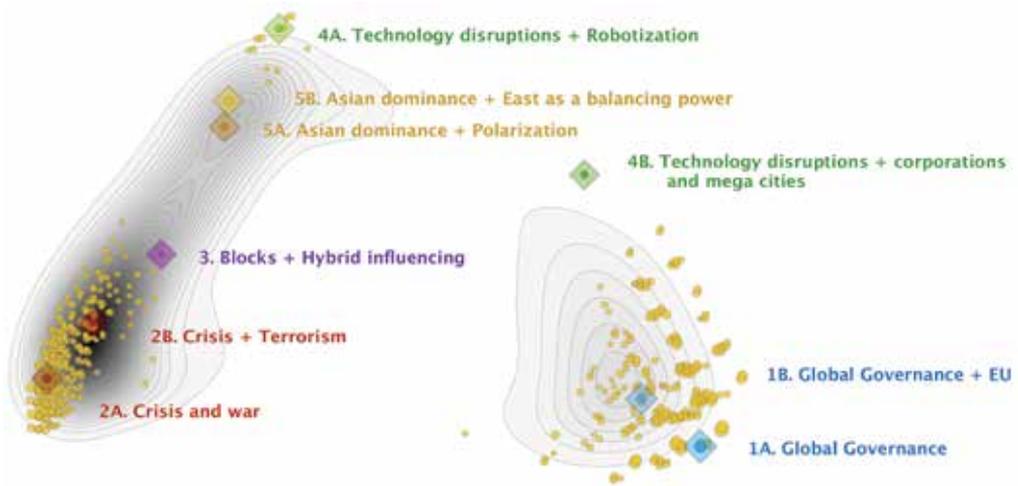
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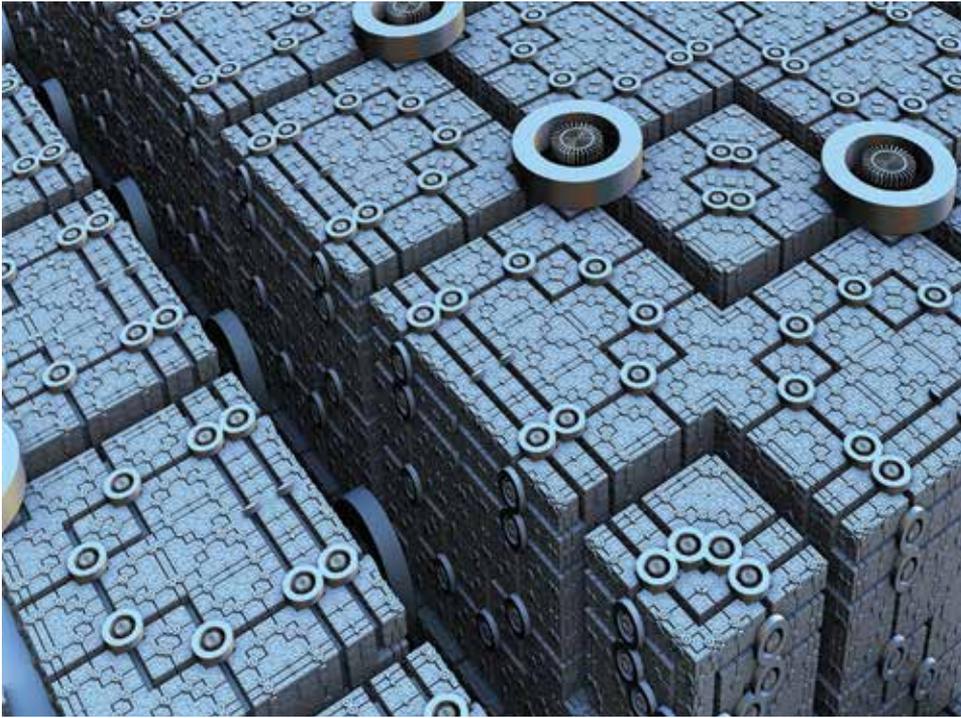
The stages and method of the scenario work

The security of supply scenarios for 2030 were formed using an **inductive method**, starting with the identification of the most notable uncertainty factors. With the help of a so-called futures table, four development options were defined for each uncertainty factor by way of analysing how each factor could potentially develop from 2018 to 2030. The interdependence and compatibility of the different development options was tested with the help of Scenario Builder™, a dedicated scenario building tool. The analysis produced by Scenario Builder™ allowed the identification of different internally logical scenarios relevant to security of supply work.

The scenarios, their development and their causal relationships were detailed on a timeline extending from 2018 to 2030. Several workshops were organised in order to discuss and concretise the scenarios and to analyse their impacts from the perspective of critical industries. Due consideration was also given to key trends and continuities, such as climate change, digitalisation, urbanisation and the servitisation of different industries. These are reflected in all the scenarios.



The orientation of the logical scenarios on Scenario Builder™'s scenario map.



Five different security of supply scenarios for 2030

Information gathering, deliberations by the project group and the workshop activities formed the basis for **five different development paths for the future, i.e. scenarios**. The scenarios are descriptions of how the international and national operating environment of security of supply work may potentially and alternatively develop by 2030.

The scenario descriptions are not meant to serve as definite predictions of the future. Instead, they are meant to steer versatile and consistent thought on potential development paths for the future. This is to improve the preparedness for interpreting current phenomena and bolster the planning of operations and ability to react. The idea is not to choose one scenario over the others on the basis of probability, desirability or importance, but to examine the whole formed by the scenarios. The actual future is often an amalgamation of different scenarios.

"Instead of attempting to accurately predict the future, the scenarios are meant to develop thinking and provide insight."

"The actual future is often an amalgamation of different scenarios."

Brief descriptions of the scenarios

1. Global interdependency

The financial crisis faced by developing countries will expose the weaknesses in the economic systems of leading developing countries, which will strengthen the position of the West as a stable safe haven. The rising costs of conflicts and disasters will drive nations towards closer cooperation. The role of international institutions will be strengthened. Applications based on blockchain technology will create new operating models and increase trust.

International conflicts and migration will be brought under partial control and internal cooperation within the EU will increase. The role of EU member states in NATO will grow and Finland will also join NATO. International regulation will increase and environmental and climate policies will become stricter, with western countries driving the establishment of international agreements. In China, however, social problems will increase, and the growth of the global economy will slow down.

Globalisation will slow down and become more stable and regulated. As part of this trend, regulation will also extend to cover digital trust platforms and transactions in the sharing economy. Highly educated people from Asia will move to western countries in search of a higher standard of living, clean air and a democratic societal model. The EU's role in global politics will increase.





2. Armed power politics

Deteriorating climate conditions and escalating armed conflicts will result in unprecedented population movements and even mass migrations from Eastern Africa and the Middle East to Europe, including Finland. Many nations will close themselves off as a result of nationalistic and protectionist thinking, and withdrawals from international agreements will become more commonplace. Conflicts in the Middle East, North Korea and Eastern Ukraine will escalate.

The world will fall into conflicts and an age of power politics, while actions that threaten the sovereignty of individual nations will increase. Defence alliances will divide nations into different camps, and Finland will also join NATO. Mass migrations will increase cultural collisions, which will serve as a platform for widespread and organised terrorism. The EU will be overshadowed by the defence alliances and by national interests. Sea traffic in the Baltic Sea will become more difficult, which will cause problems in the region and hamper local trade and energy supply operations.

The security policy situation and cyber risks will reduce information sharing and cooperation between nations. The Baltic region, the Arctic region and central logistical routes will become arenas for power politics. A space arms race will start up.



3. Blocification and hybrid influence

Politics based on national interests will weaken international cooperation and the power of global agreements will be reduced. The definition of war will become blurred and cyber attacks will increase. Nations will realise the actual risks of hybrid influence as radical hybrid operations start coming to light.

The world will be reorganised into competing alliances, or blocs. Social, economic and value-related differences between these blocs will increase significantly. Security measures related to cyber risks will be strengthened and critical ICT systems will be isolated to only operate within individual blocs and national borders. The EU will focus on strengthening the internal market and developing a hybrid defence alliance.

Information-based influence will deteriorate people's trust in institutions and blur the elements that hold societies together. The trust, characteristic of the early 21st century, in information, nations, companies and information systems will come to be considered naive. The blocs and/or nations will develop their own, separate and internal systems for controlling information, preventing external influence and increasing security.

4. Technological world order

The speed of technological advancement will continue to increase. Robotics and artificial intelligence will radically alter operating models and the need for labour. Skilled professionals will do fine, but unemployment will increase among the uneducated. Increasing networking and scaling benefits will force systems to go global. Global tech giants will strengthen their position as owners of data and information.

There will be a shift from national solutions to supranational ones and from public services to private services. The rapid pace of technological development will leave an increasingly large portion of public institutions behind. Responsibility for income and well-being will increasingly shift from societies to the individual. The economy will become increasingly dominated by large corporations, but at the same time work and production will become increasingly fragmented as a result of new technologies and the platform economy.

The role of cities in relation to nations will expand and global geopolitics will start to increasingly focus on technology centres around the world. The integration of digitalisation, automation and robotics into everything will enable artificial intelligence to surpass human reasoning. The capital generated by technology will be concentrated and differences between regions and people will increase.



5. The dominance of the East

The value of the natural resources and rare raw materials possessed by China will increase as new technologies continue to increase their consumption. The competitiveness of China and rising Asian economies will be strengthened. The West will be shaken up by a stock market collapse and the bursting of the property bubble, starting from the United States. Many western countries will be weakened by protectionism, increasing debt and internal political problems.

China, Russia and Islamic nations will find a common ambition in bringing an end to the dominance of the West. Traditional democracy will come to be considered ineffective, inflexible and even dangerous. Western values and societal models will no longer work as a basis for international operations. The EU's cohesion will decrease and its influence will weaken. Finland will identify itself as a neutral channel between the East and the West.

Asian investments in Europe will grow, encompassing strategically important sites as well. Infrastructure projects funded by China will unify Eurasia and the logistical importance of the Northeast Passage will increase. The focus of the global economy, corporations and global politics will shift to the East and the reign of the West as the leader of global politics and the global economy will come to an end.



The impacts of the scenarios on the security of supply of Finland

The security of supply scenarios for 2030 were concretised and their impacts were analysed in autumn 2017 in several workshops and within the project group. Here are some of the scenarios' key impacts on the security of supply of Finland:

Scenario 1 – Global interdependency:

The increasing emphasis of EU level agreements and NATO cooperation in security of supply operations; strong advocacy, so that the special characteristics of Finland as regards security of supply are taken into consideration in the harmonisation of the EU's operating models; the integration of Finland into Europe's central transport corridors (especially rail transport); preparation for disruptions in global control systems, since long and complex value chains are more vulnerable to disruptions in a highly interdependent system; ensuring the security of supply of energy and securing strong electricity transfer connections as the proportion of renewable energy and variation in production increase; monitoring and utilisation of the proliferation of blockchain technology.

Scenario 2 – Armed power politics:

The increasing importance of bilateral international agreements in security of supply operations; operating in cooperation with NATO especially in Arctic and Baltic Sea logistics; preparation for supply problems in the Baltic Sea region; increasing physical security of supply reserves and mapping alternative import directions for resources; physical safeguarding of sites critical to security of supply and increasing drills; preserving the diversity of the energy production portfolio and increasing the degree of national self-sufficiency; preparing for the threat of terrorism; preparing for the mass migrations caused by climate change and conflicts.

Scenario 3 – Blocification and hybrid influence:

The increasing emphasis of international agreements between alliances and blocs; active monitoring of agreements not involving Finland; investment in the development of the Baltic Sea region and the region's security of supply cooperation (Baltic Sea alliance); utilisation potential of the EU's hybrid defence alliance; securing the availability and reliability of data; monitoring of the ownership of critical infrastructure and systems; major investments in cybersecurity and responding to hybrid influence.

Scenario 4 – Technological world order:

Enabling the implementation of new technologies (developing legislation in a technology-neutral manner); increasing emphasis on understanding information management and the comprehensive functioning of networks; data management, storage, analytics, hubs, operation, control systems; protecting networked and decentralised systems (such as smart devices and decentralised small-scale energy production); the narrowing of the public sector and the increasingly important role of private actors; the shift towards contract-based security of supply; monitoring the operating methods and holdings of global technology companies and their impacts on security of supply; protecting smart transport and logistics ecosystems and utilising them in security of supply operations; the impacts of alternative currencies on the operating reliability of the financial system.

Scenario 5 – The dominance of the East:

The increasing importance of bilateral agreements (especially between Asian countries) and decreasing importance of EU level security of supply work; safeguarding the ownership of critical infrastructure, systems and immaterial holdings and preserving central decision-making power in Finland; taking care of Finland's ample mineral resources; possibilities related to the increase of international infrastructure investments (such as the Northeast Passage, the Arctic rail link, the Helsinki-Tallinn tunnel); investments in high-quality technology education and R&D activities; the increasing importance of energy self-sufficiency and alternative fuels (especially challenges associated with the supply of Russian gas to the East); the impacts of the bank and financial crisis affecting western countries on the operating reliability of the financial system.

*In the workshops, participants were divided into critical industry groups that were tasked with examining the impacts of the scenarios – **industry-specific contingency plans and essential, scenario-independent security of supply measures** – from the perspective of the following sectors: energy management, logistics, manufacturing, food supply, defence industry and maintenance, finance, health and social services, and information society (including the media sector).*



Proposed measures

The industry-specific contingency plans and essential measures served as a basis for compiling a list of general recommendations concerning measures and policies as well as proposals on how to develop the operations of the National Emergency Supply Organisation.

Relating to the changes in the operating environment in particular, there were **eight development themes** highlighted as a result of the scenario project. Some of these themes are intrinsically linked to the continuity management of industries critical to security of supply, while others are more directly linked to the operation of the National Emergency Supply Organisation.

Preparedness of industries critical to security of supply

1. **Safeguarding critical energy, logistics, capital and information flows:** There is a particular emphasis on energy security and balance management; national and international flows of raw materials, goods and finance; ICT connections and the ability to transfer data.
2. **Identifying, maintaining and developing national know-how in all industries:** Technology know-how and cybersecurity are particularly important.
3. **National ownership and management of critical production systems and resources:** Critical production know-how and ownership, including related patents and other intellectual property rights (IPR), must be retained. This also applies to strategic land and soil, water and infrastructure holdings.
4. **Preparing for diverse hybrid influence:** Combinations of political and economic as well as infrastructure and information-related means must be taken into consideration. The reliability of information must be checked. Point disturbances and their confluence needs to be analysed.
5. **Preparing for the scarcity or reduced availability of natural resources:** Means include: storage, the circular economy, alternative raw materials, monitoring and establishment of international agreements as well as taking the impacts of climate change into consideration.

The operation of the National Emergency Supply Organisation

6. **Strengthening systemic thinking and security of supply cooperation as the boundaries between industries become blurred:** The interdependencies and causal relationships of international and national organisations, the public and private sector and different industries must be identified and analysed. Digital preparedness must be more closely integrated into all industries critical to security of supply. Active training between industries (roles and responsibilities) is paramount.
7. **Monitoring and responding to changes in social and economic structures and operating models:** For example, work and production will become increasingly decentralised and the operating environment will become fragmented. Production will become more real-time and the amounts of goods held in stock will continue to decrease. The operating environment must be monitored and a shared situational awareness must be established. Legislation and preparation obligations related to security of supply must be updated, taking into account new actors and ecosystems. Improving flexibility and reaction speeds (productisation, modularity, trials) would boost security of supply operations.
8. **Integrating security of supply more closely into national policy and decision-making:** Security of supply requires a national strategy and shared performance requirements, strong agreements and international cooperation.

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The National Emergency Supply Agency



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