

Report on the Northeast Passage telecommunications cable project Summary



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Title of the report

Report on the Northeast Passage telecommunications cable project. Summary

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Abstract

The Northeast Passage underwater fibre cable connection (Arctic Connect) has been studied for several years. The underwater part of the system would consist of a connection of about 10,500 kilometres from Japan and China to Kirkkoniemi in Norway and the Kuola peninsula in Russia. It would enable several landfall points to be established on this route in Northern Russia.

The cable connection would make it possible to implement a fast physical telecommunications route from Asia to Northern and Central Europe via Norway, Russia and Finland. This would be possible because it would be connected to the Baltic fibre cable connection between Helsinki and Rostock. In addition to providing speed, the cable would also respond to the rapidly increasing need for capacity and would provide a reliable alternative to the risky southern routes.

The Northeast Passage cable project would be broad and multinational, and implementation would require commitments from at least Russia, China, Japan, Norway and the relevant EU countries. In addition, the European Union would have a significant role in the international cable project both as a beneficiary and in providing funding.

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Summary of the rapporteurs' report on the Northeast Passage sea cable

On 2 May 2016, the Minister of Transport and Communications Anne Berner appointed former Prime Minister and Master of Political Science Paavo Lipponen and former CEO of FiCom and Master of Laws Reijo Svento to be the rapporteurs responsible for producing a report on the prerequisites for international cooperation to initiate the Northeast Passage cable project.

The rapporteurs delivered their report to Minister Berner on 10 November 2016. This is a summary of that larger report.

1. Background work

The Northeast Passage submarine fibre cable connection (Arctic Connect) has been a subject of investigation for a number of years. The system's submarine section would consist of an approximately 10,500 kilometre connection from Japan and China to Kirkkoniemi in Norway and Russia's Kola Peninsula. This would enable the creation of a number of landing points for the cable along Russia's northern coast.

With this cable connection, it would be possible to create the fastest physical telecommunications route from Asia to Northern and Central Europe via Norway, Russia, and Finland. This would be possible once the cable is connected to the Baltic Sea fibre cable connection between Helsinki and Rostock. In addition to the extra speed, the cable would respond to the rapidly growing need for extra capacity and would create a reliable alternative to risk-prone southern routes.

The Northeast Passage cable project would be broad and multinational, and its execution would demand international commitment from, at the very least, Russia, China, Japan, Norway and the relevant EU countries. In addition, the European Union could have a significant role in this international cable project as both a beneficiary and a funder.

2. Questions for the Finnish embassies

In the early stages of their work, the rapporteurs sent questions via the Finnish Ministry for Foreign Affairs to a large number of Finnish embassies to inquire about the possible attitudes of each country towards the project. The questions were delivered to the Finnish embassies in Sweden, Norway, Denmark, Iceland, Estonia, Russia, China, Japan, South Korea, Singapore, Germany, Belgium, Holland, France, Canada, the US, India, Great Britain, Italy and Finland's representation to the EU in Brussels.

3. Analysis of responses

The whole project and the idea of laying a telecommunications cable between Europe and Asia via the Northeast Passage was a surprisingly new one to the majority of the countries. In these countries the issue has therefore received little attention by politicians, officials, and the media. Similarly, it was therefore also rather difficult to make clear estimates of the decision-making mechanisms that would be involved.

In contrast, the project and idea were familiar in those countries which it would directly involve. In addition to Finland, these countries were Norway, Sweden, Russia, China and Japan. Also, the project was familiar to some officials within the EU administration, primarily those from DG Connect.

With regards to the preliminary standpoints of both those countries that were unfamiliar with the project and those that were more familiar with it, the following can be said:

The need for and benefit of the project is understood well. The more concretely the project affects a particular country, the greater the interest in it. In the more affected countries, it can also be more clearly discerned what the related political decision-making mechanism is who the key decision-makers are.

4. Visits to key capital cities

During their work on the report, the rapporteurs visited Oslo, Berlin, Paris, Brussels (EU), London, Tokyo, Peking, Washington and Moscow. In all the capital cities, and also in the European Commission, they met with high-level political decision makers and officials from ministries responsible for administration of foreign affairs, communications and industrial policy. In addition, they engaged in discussions with representatives from the administration of the country's prime minister / chancellor. In the EU, they met with commissioners, heads of cabinet and director-generals. In many countries visited, they also met with large telecommunications companies, including Alcatel-Lucent (Nokia), NEC, Fujitsu, KDDI, NTT, Softbank, Huawei etc. Additionally, direct and indirect contact was made outside the visits with other companies, including Microsoft, Facebook and Google.

In all the countries, there was understanding of the need for and large significance of the project. The countries expressed interest in being involved in the project and expressed willingness to support the success of the project by taking a favourable attitude towards the official permits that may be required for the project's realisation.

Two things considered important in all places, however, was that the project would offer genuine business opportunities and that private funders and investors would participate in financing the project. It was also seen to be possible to channel finance for the project implementation via different regional development banks and funds.

The project was seen to be technically challenging, but not impossible. In the most challenging stretches, a channel would need to be dug into the seabed to a depth of many metres. It was estimated that the project would take a number of years to complete.

The project was generally seen to be an essential part of joint Arctic policy in northern regions. It was stated that the project, once completed, would further economic activity and competitiveness in the project's regions of impact in Europe, Russia and Asia.

5. Observations made by the rapporteurs

5.1 Positive factors

It can be said that the project in itself is received positively and its need and justifications are understood. In general, it is comprehended that this is a win-win-win situation. The beneficiaries would be Europe, Russia and Asia.

The project is seen to have both direct and indirect positive economic impacts on the development of each party's national economy. With a fast and safe telecommunications connection, it is possible to improve the international competitiveness of businesses in these regions, and there is also a greater certainty that telecommunications investments would be secured in these same areas, for example through the creation of data centres. These regions would be able to form better international telecommunication hubs, with experience shows to be factor which then draws in businesses from other spheres.

The implementation of the project would significantly reduce the telecommunications time delay (latency) between Europe and Asia, meaning the time it takes for one bit of data to travel from one end of the connection to the other. This time delay is of great importance to banks, stock exchange trading and the gaming industry, as well as the internet of things and the growing amount of remote surveillance and remote control taking place using 5G. This affects, for example, robotic vehicles.

With the international situation, as is well known, being tense for a number of reasons, the different parties are eager to engage in neutral technical cooperation that could help to ease tensions. The Northeast Passage cable project is an excellent candidate for such a project.

The finance for the project could possibly be obtained both in Europe and Asia via a number of international financing instruments. Private investors have also shown interest in financing the project.

One positive factor can be said to be the positive attitude of all the key countries towards the project and their stated willingness to see to it that the granting of permits required for the project proceeds as smoothly as possible.

5.2 Challenges

Based on the discussions had, the largest challenges for the project relate to data security. In a delicate international political climate, different countries direct strong suspicions towards each other with regards to data security, protection of privacy and other cyber-related matters.

Although it would be possible to establish the cable connection in such a way that communications between Europe and Asia would be routed using the end-to-end system (without using Russian territory), special difficulties would be faced by the consortium that manages the data communications and, in particular, the company that carries this out in practice. Neutrality is especially important.

Some of the parties take the view that sea cable projects should primarily be purely commercial projects carried out by private businesses. Based on the discussions had, they nevertheless understand the necessity of obtaining political commitment in such a special case as this one. Often sea cables directly connect the two parties involved across the intervening sea without the need to lay the cable along the coastline and territorial waters of another state.

The funding of the project also raises many questions. Who would fund and how much? Why would states be involved? And the questions continue. Clarifying such matters does not fall within

the remit of this report, but these issues were so prominent in the discussions conducted that they cannot go without mention.

It should be mentioned that the project involves a number of chicken-and-egg scenarios. Public bodies want to be certain of genuine commercial interest and the realisation of the extra capacity created by the connection. At the same time, commercial entities are waiting for the removal of political obstacles to activity before making clearer plans for the project etc. Regarding this second requirement, significant progress has now been made and political obstacles are no longer present on a wide scale.

In a similar way, different states and the EU are waiting to hear the opinions of other states before finalising more detailed positions of their own.

In some of the discussions, environmental questions were highlighted, not so much with regards to the sea cable itself as to its indirect impacts. Will the improved telecommunications connection facilitate the inappropriate use of Arctic resources, causing a greater burden on the environment?

In some discussions the issue was also raised of the Canadian project to lay a Northwest Passage cable that would be equivalent to the Northeast Passage cable. This cannot, however, be seen as straight alternative to the Northeast Passage cable, as it would benefit neither Asia nor Russia.

The project should be technologically and commercially neutral. All stages should be carried out through open tendering.

In addition, the project is in any case a technically challenging one owing to the natural conditions in the region. In some discussions, the thought was raised of a smaller-scale pilot project that could be implemented before starting the project as a whole.

5.3 Funding perspectives

Although questions of financing do not come under the remit of this report, there is reason to state at the least the following on this matter:

Division of costs

No party was willing to be the sole funder for such a large project. The inclusion of public funding is possible and, in fact, also essential in the project's early stages. In the longer-term, the company should be able to operate on a purely commercial basis.

One financing model that was seen to be workable involved a three-way split between public funding, financing from the consortium that would be formed, and loan finance. There can be a number of different financing models, and their more precise specification would take place in the next stage of the project.

From the discussions it arose that it would be possible to obtain financing for the project through different kinds of institutional financing mechanisms. These could include, for example, the Asian Development Bank, EBRD, EIB, and EU.

Preliminary interest has also been shown among private investors in participating in project financing. One possibility is also the use of 'vendor finance', meaning that the companies chosen to carry out the project also participate in financing the project.

6. Opportunities

6.1 Part of broader Arctic policy

It is natural to connect the cable project with Arctic policy at a wider level. Many countries through which the cable does not itself run are interested in Arctic policy for reasons related to research and natural resources. These countries include Germany, France, England and the US.

Arctic policy is often seen as a common matter, and there is a desire to avoid letting it become the monopoly of any one state. This attitude is ideal for smoothing the path towards the project's implementation.

Interest in Arctic policy has clearly increased in all the capitals visited. The drafting process for the EU's communication prompted a number of countries (for example Germany) to draft their own Arctic policy programme. Similarly, France published in June 2016 its own Arctic roadmap. The EU's Foreign Affairs Council considered the Commission's communication and made decisions on the matter. In these, the implementation and monitoring of the communication remained unclear. There has also been discussion of the communication in the European parliament, where a report on the matter is being prepared.

In spite of Brexit, the UK wishes to strengthen its polar policy. The EU should see to it that, as Brexit is implemented, Great Britain is offered participation in the Arctic Council (as an observer) and partnership in cooperation on Nordic matters together with the other current partners (the EU, Russia, Norway and Iceland).

Finland's coming Chairmanship of the Arctic Council was highlighted by the rapporteurs and it was found that this offers Finland an opportunity to take a leading role in making Arctic policy a priority. Similarly, Finland's coming Chairmanship of the Arctic Economic Council will serve for awakening interest among European businesses.

Japan, China, and Russia all indicated willingness to support a strong emphasis being placed on the project in the Arctic Council. Some even considered it a necessity to discuss the project in the Council.

6.2 Finland's chairmanship of the Arctic Council 2017–2019

Finland will take over the Chairmanship of the Arctic Council at the start of 2017. The year in question is also, as is well known, Finland's 100-year anniversary of independence. Finland should work purposefully to get the cable project onto the Arctic Council's agenda.

6.3 Economic growth in beneficiary countries

Evidence shows that good telecommunications connections have a positive impact on the economic growth and international competitiveness of regions that benefit from them.

Europe and Asia are in danger of falling behind the US in this area of development. The Northeast Passage cable would make enable extra investment by large international players in, for example, data centres in Nordic countries. In the longer term, these then have the tendency to attract others into the same region.

As a hub for Nordic countries and for the Baltic Sea and Northeast Passage cables in particular, Finland would be even better placed to become a hub for international data transfer in the same way as it is for air traffic between Europe and Asia.

In all conversations, the issue also arose of the project's potential to partially transfer the international internet network's centre of gravity away from the US. Currently a significant portion of communications between Europe and Asia first cross the Atlantic to the US and then continue from there over the Pacific to Asia. This considerably increases the time delay for data transfer.

6.4 WIN-WIN-WIN situation (Europe-Russia-Asia)

The Northeast Passage cable would be an unusual sea cable due to the fact that it would have a number of direct beneficiaries. Sea cables are normally simply laid directly between two states or regions.

The beneficiaries of the Northeast Passage cable would be both Asia and Europe, located at the ends of the cable, as well as Russia, which is situated along much of the route.

This makes the cable more than a win-win situation: it is a win-win-win situation.

By laying the sea cable, it would be possible to significantly reduce the length of the data connection between Europe and Asia. At the moment, the data in sea cables travels to Asia either via the Mediterranean, Suez Canal and Indian Ocean or via the US.

Air traffic currently benefits from shorter routes via the north of Finland and Russia that avoid the so-called 'big circle' route, and the same should be achieved for data as well.

6.5 Russia has its own large needs

Russia itself has a clear need to improve data connections in its northern regions. The area has even large cities which are lacking good data connections. The same applies to the area's industry.

With the use of the Northeast Passage route becoming possible also for sea traffic, Russia intends to invest heavily in the exploitation of the area's natural resources. These plans also require better data connections than before. Russia itself currently has a number of programmes in operation for developing its northern regions.

6.6 Technical implementation

It is possible to lay the sea cable in such a way that a couple of the 6–8 fibre pairs running through the cable would be allocated for Russia's own use. Only these fibre pairs are the ones that would be routed onto land at locations specified by Russia.

The other fibre pairs would run directly from one end to the other, between Europe and Asia.

The sea cable would split in two at both the European and Asian ends. At the European end, one branch would extend to Norway and the other would terminate at Russia's Kola Peninsula. In Asia, one branch would go to Japan and the other to China. In addition, the cable can begin to be laid simultaneously at both the European and the Asian ends.

7. Summary

The rapporteurs have collected as much earlier material as possible and have discussed the project with officials and business representatives that have dealt with the project earlier.

The rapporteurs sent key questions to a significant number of Finnish embassies, via the Finnish Foreign Ministry, to enquire about each country's attitudes towards the cable project. Based on the

responses received, it can be seen that the project is a familiar one primarily in those countries which are concretely affected by it. The European Commission was also aware of the project.

The rapporteurs made visits to Oslo, Paris, Berlin, Brussels, London, Tokyo, Peking, Washington and twice to Moscow. In every location visited, a large number of discussions were had with political decision-makers, officials and businesses.

Based on these discussions, it could be seen that the need for and opportunities offered by the project were understood and its implementation was seen as desirable.

Based on their wide-ranging investigation and large number of discussions conducted with high level political officials, the rapporteurs can unambiguously state that there are no political obstacles to the project's realisation.

The rapporteurs also had many discussions about the project's technical feasibility with some of the world's largest businesses that have carried out similar projects in other maritime areas. All of them considered the project to be possible to carry out, although it would be technically challenging. There are only a few summer months when the cable could be laid, and in some areas the cable would have to be laid in a deep trench on the sea bed because of the large icebergs the move through those areas. An ideal way to speed up the project would be to start laying the cable simultaneously at both the Asian and European ends. This is technically possible and the cables can then be joined at some point along the Russian coast.

The sea cable can be technically configured so that the data between Europe and Asia travels along its own fibre pairs directly from one end to the other to ensure the lowest possibly time delay (latency). At its lowest, the time delay is estimated to be only 100 milliseconds. Currently, it is clearly over twice this amount.

The challenges are related to technical implementation, financing, and managing the data communications. These matters did not, as such, come under the remit of this investigation, but they came up in many discussions. The project should be moved forward quickly into the next implementation phase, in which the issues mentioned above would be more thoroughly investigated and resolved. This will enable states, businesses and the various potential funding and investment bodies to make their final decision as to whether the project should be realised. Some kind of business should lead the project, as only a business can apply for the required permits and financing. During their work on the report, the rapporteurs have also been either directly or indirectly in touch with different funding and investment bodies from both the public and private sector. A number of bodies in both Europe and Asia seemed interested in financing the project. There was also interest among a number of large international businesses in the opportunity to benefit as users of the fast connection provided by the sea cable.

In addition to the technical challenges of implementing the project, security questions and protection of privacy were also seen as challenges. Neutrality was seen to be important.

The project involves a number of chicken-and-egg dilemmas. Different countries, and the EU also, are first of all particularly interested in each other's attitude towards the project. Similarly, businesses are waiting for the removal of political obstacles to project implementation while public bodies are waiting at the same time for sure indications of commercial interest and some understanding of the possible consortium that could form, with particular emphasis on which organisation would in the end manage the international data transfer.

The rapporteurs' work has succeeded in alleviating these chicken-and-egg dilemmas as it is possible to state that there does not seem to be any political obstacles to the project. Businesses can thus begin to move forward more freely and rapidly than before.

The project is also seen as an excellent opportunity to achieve a win-win-win (Europe-Russia-Asia) result which would be technical and neutral in character. The project could serve to alleviate tensions between the different parties involved. There is good reason to connect the project to wider Arctic policy and to Finland's coming Chairmanship of the Arctic Council. If it would be possible, as part of the work of the Arctic Council, to hold a summit of state leaders in connection with Finland's 100-year anniversary of independence, it would be good to get this project onto the agenda for that meeting.

The project is of at least medium length, and will involve a number of different stages. The first stage is the removal of political ambiguity. In the following stage, there is the need to form a clear launch project or company that can gather the relevant parties (in particular businesses) to make the necessary studies and reports, including charts of the sea bed and other such matters. Only a company can apply for financing and the required official permits from the countries concerned.

At the same time, ongoing discussions need to be maintained at the level of officials and political decision-makers for the securing of international financing and the required permits.

In the following stage, the project progresses through a process of open competition to the selection of manufacturers and sea cable layers. The manufacture of a cable for a distance of well over 10,000 kilometres will in itself take a considerable amount of time, and laying the cable in some Arctic areas is possible only during the summer months. From all this it can be concluded that the planning and implementation of the project will take a number of years.

8. Rapporteurs' proposals for action:

1 Informing key players

The key countries involved, as well as the EU, have indicated that they have a positive attitude towards the project as such. This information should be quickly communicated to all parties in order to facilitate implementation of the project's following stages.

2 Ongoing emphasis of the matter at the political and official level

There is good reason to maintain the matter as a topic of discussion in meetings with political leaders of the key countries involved. The same applies to meetings with officials and the activities of embassies in the same countries.

3 Inclusion of the project as part of Finland's Arctic policy

The project should be clearly stated to be a part of Finnish Arctic policy that is to be realised in practice.

4 A strong emphasis on the matter during Finland's Chairmanship of the Arctic Council

The project should be firmly on the Council's agenda during Finland's Chairmanship of the Arctic Council between 2017 and 2019. The project should not, however, be connected solely with the dealings of the Council. It should be possible to carry out the project in other ways as well.

5 A quick progression to the next stage

The following stage of the project involves the establishment of a project or company to carry the project forward in a more detailed manner. In this stage, companies need to be brought on board,

preferably from a number of the participating countries. The project is an international one, not a bi-party one.

There is good reason for Finnish companies to quickly start acting and contacting other actors to work on developing the consortium that needs to be formed in the next stage. This consortium could also possibly form the basis for the consortium which is in the end responsible for realising the project.

The next stage is not, however, to be carried out solely between businesses. At the same time, and presumably in an overlapping manner, cooperation between officials is needed, with permission for this provided by political decision-makers.

The next stage can be assumed to require around 4 to 6 million euros for carrying out more detailed reports and drawing up more detailed plans. It must be ensured that these funds can be secured quickly and some of this funding should clearly come from businesses.

6 Keeping the project neutral

It must be ensured that it is possible to keep the project neutral with regards to both the technology and the implementing parties. All stages of implementation should be based on open tendering.