Nordic Innovation

CASE CATALOGUE

Nordic Smart Government & Business 2021–2024

Contents

This publication is also available online in a web-accessible version at:
https://pub.norden.org/us2024-463

CASE 1

Cross-border eInvoicing in the Nordic Region: benefits, challenges, and new initiatives

For many SMEs, invoice management is a burden that takes time away from their core business. Electronic invoices processed by ERP systems with virtually no manual handling are gaining ground and saving SMEs time. However, there are still problems with divergent data formats for both national and cross-border trade. NSG&B has proven that it is possible to send eInvoices across Nordic borders using the EU network Peppol BIS 3, designed to streamline digital transactions, such as eInvoicing, across-borders.

At its facility in Hallingdalen, Norwegian company Hallingplast produces its plastic pipes and parts to the Nordic market. They use eInvoices but experience challenges when it comes to sending eInvoices cross-border.

eInvoicing, or electronic invoicing, is a digital method of processing and exchanging invoices. Instead of sending paper or PDF invoices – that need to be entered manually which increases the risk of errors – eInvoices are automatically created, sent, received, and processed directly between systems. This automation can make financial transactions faster, more accurate, and more secure. However, despite the benefits of eInvoicing, there are challenges related to interoperability meaning that many eInvoicing systems cannot work together.

The interoperability challenge

Hallingplast is a family-owned Norwegian company that specializes in the production of plastic pipes and pipe parts, primarily serving the Nordic market. The company has embraced eInvoicing for both incoming and outgoing invoices, though they still handle a mix of eInvoices and PDF invoices.

"

We are registered in Peppol but some Norwegian companies are not in Peppol. They are in the Norwegian Elma system. There are some difficulties with the invoicing between Elma and Peppol. So because the two systems are not interoperable we have to choose between the Norwegian and the European system. It shouldn't be a problem to choose between Europe or Norway.

Peder Romslo, Chief Finance Officer, Hallingplast

NSG&B pilots on eInvoicing – a path toward smoother and safer trade within the region

To address the cross-border issues, NSG&B has made a pilot project focused on cross-border eInvoicing.

The NSG&B pilot has shown that it is technically possible to send eInvoices from one Nordic country to another using Peppol BIS 3 if the ERP-system support the Peppol standard for data. The pilot demonstrated a path toward smoother, more unified financial transactions within the region.

Hallingplast sees significant potential in the ability to send cross-border eInvoices. If such a system were universally available and interoperable with other systems, it would streamline invoicing processes across all markets. Therefore, Hallingplast welcome the result of the NSG&B pilot: *"It will be an advantage for us to send everything as eInvoice. But some of our customers are just not ready for it yet"* says Peder Romslo.

Moreover, he highlights another valuable advantage that comes with eInvoicing: *"We have a better dialogue with our customers because we quickly can check whether and when an invoice has been sent and whether it has been received by the customer. This strengthens our working relationships and mutual trust [...] it will be advantage for us to send everything as eInvoice".*

The future of eInvoicing in the Nordic region

The future of eInvoicing in the Nordic region looks promising, but full efficiency and automation will require further work to bridge the gaps between national systems. The NSG&B's pilot shows that with commitment and a coordination of standards, a fully interoperable eInvoicing ecosystem can be within reach.

Learn more about NSG&B's pilots on cross-border eInvoicing and other digital business documents at https://nordicsmartgovernment.org/digital-business-documents

CASE 2

Faster processing time and fewer errors using eInvoicing for Íslenskir Aðalverktakar

Íslenskir Aðalverktakar (IAV) specializes in a wide range of projects, including construction of buildings, roads and tunneling. IAV has embraced digital business documents, particularly eInvoicing, to streamline its bookkeeping and administrative processes.

IAV is the constructor of Harpa, the award-winning concert and conference hall in Reykjavík, Iceland.

IAV has combined their general bookkeeping system with an app to handle the full lifecycle of eInvoices. This includes importing, OCR-processing, registering, approving, and archiving invoices and other business documents.

Currently, IAV sends and receives eInvoices from its customers and vendors. The company estimates that 85–95% of its invoices are electronic, reflecting the growing shift towards eInvoicing in Iceland. Most of the invoices IAV receives are already electronic, and the company has automated much of the process. This has significantly reduced manual data entries and improved efficiency across its finance department.

Automation and efficiency gains

Extracting and mapping critical data from eInvoices, such as vendor numbers, prices, and due dates through automatically reading and categorizing this information, have reduced the need for manual data entries.

In many cases, IAV's finance team only needs to review the data that has been digitally mapped before sending the invoice for approval, rather than manually entering the data or searching for project-related information from other sources.

Future opportunities for cross-border eInvoicing

While IAV primarily operates within Iceland, the company acknowledges the potential for using eInvoicing for cross-border transactions within the Nordic region and sees a potential in the NSG&Bs pilot on cross-border eInvoicing. Ásbjörn Guðmundsson points out that:

"

Currently, when we do cross-border trade, we are not using digital business documents. I'm optimistic that we will be able to do so soon, because we see many advantages in using eInvoicing when we work with Nordic partners. It provides faster processing time, fewer errors, and more transparency when we manage both incoming and outgoing payments. We are optimistic about the future of cross-border eInvoicing, especially because more and more people in the Nordics are adopting electronic invoicing standards.

Ásbjörn Guðmundsson, Chief Financial Officer, IAV in Iceland

Learn more about NSG&B's pilots on cross-border eInvoicing and other digital business documents at https://nordicsmartgovernment.org/digital-business-documents

CASE 3

eInvoicing freeing up time for other tasks at Norwegian craftsmanship company, Øyo AS

With roots dating back to 1882, family-owned Øyo AS blends heritage with modernity. By adopting eInvoicing, the small team has streamlined administrative tasks, saved time and resources while enhancing accuracy and efficiency in financial reporting.

One of the steel knives in the Øyo collection.

How Øyo streamlines its operations through eInvoicing

Øyo specializes in producing high-quality products such as knives and other tools for kitchen and outdoor use that are rooted in Norwegian craftsmanship and tradition. A family-owned company established in 1882 and located in Geilo, Norway, it is currently run by the fifth generation of the Øyo family, with Karianne Øyo and her sister at the helm.

Øyo and its small team of seven employees are actively adapting modern solutions to streamline their administrative processes, particularly in bookkeeping: *"When we started using eInvoicing, we found that we spent less time handling paper invoicing. We have not exactly measured how much time we have saved, but we have clearly noticed the decrease in time spent on paperwork".*

"

Previously, we had to print out all the papers, fill in the necessary information in the system and then make notes so that we could match the system with the papers. Now it's just a few clicks and everything is sorted. This has allowed us as a team to spend more resources on other important tasks instead of manual data entries and paperwork. In addition, electronic invoicing has also improved both the accuracy and efficiency of our financial reporting.

Karianne Øyo, Head of Administration at Øyo

Learn more about NSG&B's pilots on cross-border eInvoicing and other digital business documents at https://nordicsmartgovernment.org/digital-business-documents

CASE 4

NSG&B's contribution to the EU Digital Wallets: structured data makes cross-border interoperability possible

With the implementation of the European Digital Identity Framework, the EU is paving the way for secure and efficient cross-border identity verification. Discover how NSG&B's API and Business Register Information Vocabulary are supporting the EU Digital Identity Wallet Consortium (EWC) in advancing interoperability and aligning with evolving EU legal standards.

The European Digital Identity Framework, which came into effect in May 2024, aims to provide EU citizens, residents, and businesses with a secure and efficient way to verify their identity. By 2026, each EU Member State should offer a standardized digital wallet, enabling digital authentication for both public and private sector services.

As part of this initiative, four large-scale pilot projects were launched in 2023 to test the so-called "Common Toolbox", which serves as the base for the EU Digital Identity Wallet. One of these pilot projects is the EU Digital Identity Wallet Consortium (EWC), focusing on developing digital travel credentials across member states.

NSG&B providing a common Nordic API and a vocabulary for business registry data

NSG&B's work has been divided into four core solution areas, with one focused on reliability and data quality, aligning closely with EWC's objectives for the EU digital wallet. More specifically NSG&B has contributed with two primary resources that the EWC can use directly:

1. **A Business Register Information Vocabulary**: Developed through semantic alignment, this vocabulary offers standardized definitions for business data, making it suitable for machine-to-machine communication. It is essential for ensuring clarity and consistency across borders.

2. **A common API specification**: This API provides unified access to basic company information across the public business registries of all Nordic countries, reducing the need for separate integrations to each country's business registry.

## EWC's use of the structured data from NSG&B

Michelle Ludovici, a business developer at Bolagsverket, the Swedish Companies Registration Office, and a member of EWC, highlights how NSG&B's contributions can be seen as valuable to the current projects in the consortium: *"There is a semantic group within this consortium that has already used the NSG&B's work and build upon it because they have use cases that are a little bit different, but mostly the same. One such use case currently being tested involves creating a company branch in different countries using an EU digital wallet. For this process, you need data elements about the parent company, such as its name, organization number, signatories of the company, the company address, and other basic information—all of which the NSG&B API provides. This makes the API very useful for our work".*

Michelle Ludovici further highlights that, without NSG&B's common API specification, EWC would have needed to undertake this work on its own:

"

If the NSG&B had not done this API yet, then we would have to do the same work from scratch basically. So now we can build on the work that already has been done and perhaps add some more attributes to it. So that is very good for us. It saves us a lot of time.

Michelle Ludovici, a business developer at Bolagsverket, the Swedish Companies Registration Office, and a member of EWC
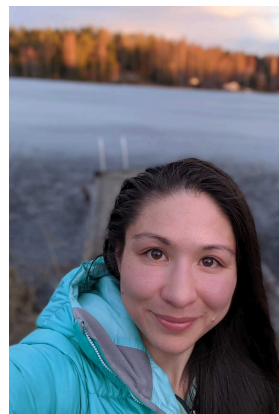
In addition to the API, NSG&B's vocabulary for business register information has also proven valuable for EWC, as it proposes definitions aligned with existing harmonized terminology in EU law: *"As you can imagine, each country needs to find out the answers to questions such as "what is the company address and which components does it consist of?"; "what is this NACE code and do we understand the same thing by this definition?" These very specific definitions are key for this standardization work. Now all this work has been done and has been defined by the NSG&B and there are documents that we can follow."*

Integrating Nordic innovation with EU Law: NSG&B's role in shaping digital compliance

The significance of NSG&B's work extends to EU legal compliance. The provisional agreement to expand the use of digital tools in the EU company law will mean that data elements provided through the NSG&B API will be partially required by law under the EU Company Law Directive. Michelle Ludovici notes: *"The EU Company Law Directive requires that these data elements or attributes must be compatible with the EU digital wallet. Consequently, all company registration offices in Europe, including ours, must adhere to this law. The directive defines a European company certificate, which encompasses all the data attributes provided by the NSG&B API".*

NSG&B contributing to the EU Single Market for the digital economy

In summary, NSG&B's contributions—particularly the API and vocabulary for business register are valuable for EWC and will provide a solid foundation for the upcoming work related to the EU digital wallet. By fostering cross-border interoperability, and alignment with the evolving EU legal landscape NSG&B's work supports the EWC and the EU Single Market more broadly.
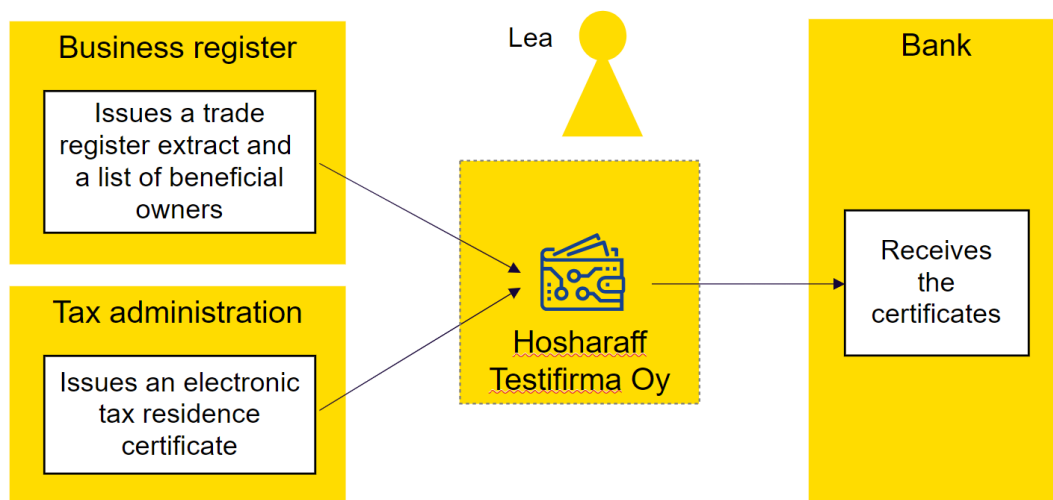
Learn more about the next steps for the EU digital wallet and the large-scale pilot project EWC here: https://eudiwalletconsortium.org/

CASE 5

A faster, safer way to open a bank account in another country

Opening a bank account for a company involves the Know-Your-Customer (KYC) process, which can be time-consuming, especially across borders. Companies must submit various documents, such as business registration extracts and financial plans, often in a PDF format. This manual handling can create inefficiencies and delays.

Delivering certificates to a bank

Business register	Lea	Bank
Issues a trade register extract and a list of beneficial owners	Hosharaff Testifirma Oy	Receives the certificates
Tax administration		
Issues an electronic tax residence certificate		

An example of a KYC process: In this example, the company Hosharaff wants to open an account in a new bank. Lea manages Hosharaff's bank issues. The bank needs Hosharaff's trade register extract, the list of their beneficial owners and the tax residence certificate. Lea downloads the certificates from the relevant authorities to Hosharaff's digital wallet. Then she presents the certificates to the new bank, which automatically can verify the validity of the certificates.

Streamlining KYC across borders with digital solutions

In the Nordic countries, government business registries assign business registration numbers and are working to simplify KYC processes, both nationally and internationally. Mikael af Hällström, Development Specialist at the Finnish Tax Administration that has worked in the EWC Large Scale Pilot and the national Finnish Real-Time Economy programme explains that many banks already have direct access to national registries, reducing the need for companies to submit documents: *"Many banks have direct access to the national business register, so they don't need to ask the company to provide PDFs. They can access the business register directly, which is, of course, more secure."*

However, cross-border access remains a challenge. Mikael af Hällström points out, *"If the company is from another country, it's unlikely that banks have access to all European registers. That's where a digital wallet working across the Nordics and Europe can help. The principle is that you, as a company representative, go to the home country's business register with your digital wallet, receive the business register extract to your wallet, and it's digitally signed. Then you present the extract from the wallet to the bank, with your consent."*

Improving security and efficiency with digital wallets

A digital wallet not only saves time but also enhances security by allowing automatic uploads and document verification. The EU digital wallet aims to standardize business registry data across the EU, creating an EU Company Certificate that simplifies processes like opening bank accounts.

Overcoming legal differences in business data

Legal differences between countries can complicate cross-border data exchange. Mikael af Hällström notes, *"The semantic model for different certificates is the most challenging aspect, as definitions and legal practices vary widely across countries even within the EU Single Market."* The Nordic countries, with their standardized business identifiers, are well-positioned to implement a digital wallet, building on a common vocabulary for business data developed in the NSG&B programme.

Standardizing data for seamless exchange

This common Nordic vocabulary allows machine-to-machine data exchange, enabling seamless access to Nordic business register data through an open API. This can be used for a range of domestic as well as cross-border use cases like the KYC process related to opening a bank account in another country.

Mandate for a digital wallet for cross-border use by the end of 2026

The EU regulation mandates that all Member States shall provide at least one European Digital Identity Wallet for cross-border use by the end of 2026. Most countries focus on implementing a digital wallet for citizens firstly, and for businesses secondly. The aim is that all natural and legal persons in the EU have secure, trusted and seamless cross-border access to public and private services, while having full controll over their data.

"

It's unlikely that banks have access to all European registers to verify the company that wants to open a new account. That's where a digital wallet with a company certificate working across the Nordics and Europe can help.

Mikael af Hällström, Development Specialist at the Finnish Tax Administration

Learn more about the NSG&B work in the field here:
https://nordicsmartgovernment.org/node/4133

Learn more about the work on KYC in the Finnish RTE project here:
https://www.yrityksendigitalous.fi/en/blogs/digital-wallet-streamlines-opening-a-companys-bank-account/

Learn more about the findings from the Large Scale Pilot EWC pilot here:
https://www.linkedin.com/pulse/eu-digital-wallet-simplifies-opening-business-account-hannula-m06pf

CASE 6

A touchless process for reporting VAT data

One of the main aims of the EU's ViDA legislation (VAT in the Digital Age) is to digitalise VAT for trade within the EU from 2030. This can simplify and automate VAT reporting in real-time, reducing fraud and administrative costs. By using their existing digital business systems, small and medium-sized enterprises (SMEs) can continue their operations as usual without the need to create new systems.

E-invoicing and DRR: Intra-EU scenario
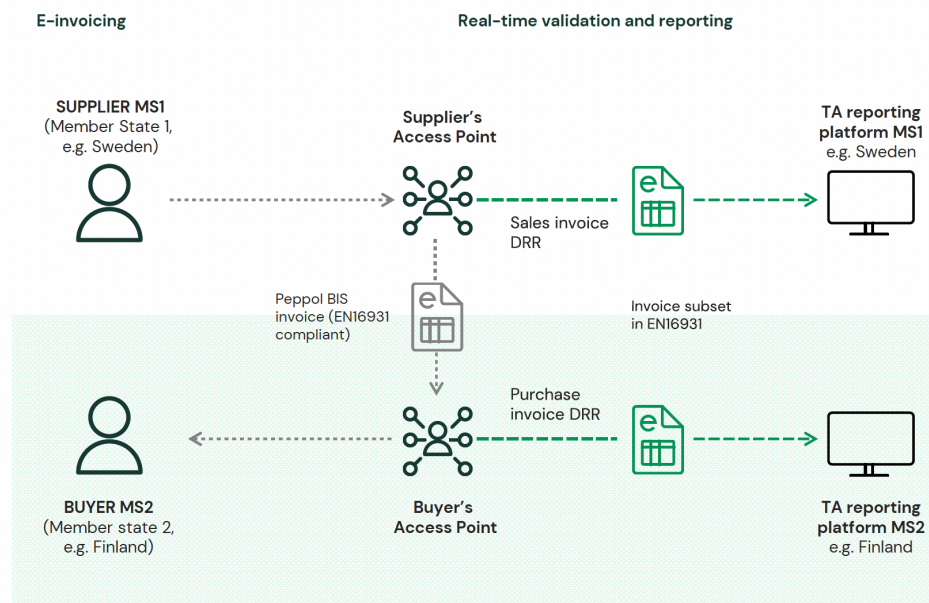
The NSG&B and PEPPOL model for a ViDA-report: Here a company in one country (Sweden) sends an eInvoice to a buyer in another country (Finland). The eInvoice goes via the corresponding Access Points and next, an extract of the relevant VAT data from the sales eInvoice is sent to the tax administration in Sweden, and at the same time the relevant VAT data from the purchase eInvoice is sent to the tax administration in Finland. Source: Pagero, 2024.

NSG&B's work – a model for ViDA implementation

NSG&B has demonstrated how ViDA requirements can be implemented by tax administrations and system providers. Nazar Paradivskyy, Director of Regulatory Affairs at Thomson Reuters/Pagero, leader of Peppol's Continuous Transaction Control (CTC) Community and representative in the GENA Public Policy and Compliance Working Group (PPCWG), explains: *"The NSG&B pilots on ViDA were probably the first of their kind, showing how already existing frameworks, including Peppol specifications, can fulfill ViDA's requirements."*

The NSG&B pilots demonstrated that it's possible to implement ViDA with limited impact on governments, software industry and foremost businesses, achieving a touchless real-time reporting of VAT data for cross-border trade as well as domestic trade.

Peppol – key to efficient eInvoicing

Peppol is a framework that combines governance, legal and fiscal standards that allow businesses to exchange electronic invoices and other supply chain documents. It was initially deployed for exchanging eInvoices with the public sector across the EU, but has expanded both into the private sector and beyond the EU. Nazar Paradivskyy highlights: *"The technology and standards are in place already. There's no need to create new frameworks and infrastructures when the existing ones can do the job."*

Automation and standardization for touchless VAT reporting

Using existing standards such as Peppol Interoperability Framework and the European Norm (EN 16931) for eInvoicing and digital reporting, combined with the Peppol CTC (5-corner model) architecture businesses will be able to achieve automated and touchless reporting of their VAT data from their business systems. This approach can simplify and ensure accurate real-time VAT reporting for both cross-border and domestic B2B transactions.

A collaborative effort for the future

The NSG&B pilots have gained significant attention, highlighting the need for a standards-based and collaborative approach to the work between tax authorities and system providers. Nazar Paradivskyy adds: *"it was a very successful proof of concept in an open and collaborative multi-stakeholder environment, involving several governmental agencies (i.a. tax administrations, treasuries, digital agencies, statistical bureaus) and system providers."*

Since the pilots were completed in Autumn 2023 and Spring 2024, the NSG&B pilots have sparked interest from additional European tax authorities. In Autumn 2024, Peppol launched a larger ViDA pilot to test Peppol CTC (5-corner model) with more countries, software providers and businesses.

With ViDA and the digitalisation of VAT reporting, businesses can have a simpler and more efficient way to manage cross-border and domestic trade without the need for entirely new systems or solutions. By leveraging existing frameworks, such as Peppol's network, that build on a multi-stakeholder participation involving government agencies such as tax administrations, system providers, and business users, SMEs can benefit from a more streamlined and secure VAT reporting environment in the coming years.

Nazar Paradivskyy emphasizes that:

"

By definition, the implementation of a cross-border real-time reporting requirement for VAT cannot be done by each country in isolation developing their own solutions in silos. One needs to explore all kinds of use cases, situations and approaches with the participation of as many countries and other stakeholders as possible.

Nazar Paradivskyy, Director of Regulatory Affairs at Thomson Reuters/Pagero and the CTC Community Leader of Peppol

Nazar Paradivskyy is Director of Regulatory Affairs at Thomson Reuters/Pagero and the CTC Community Leader of Peppol, that launched a larger pilot on eInvoicing and DRR requirements under ViDA in Autumn this year, building upon the NSG&B pilots in Spring 2024. Source of picture: Pagero, 2024.

Learn more about the NSG&B ViDA pilots here:
https://nordicsmartgovernment.org/guidelines-and-specifications

See if you are connected to the Peppol Network & join the ViDA pilot here:
www.peppol.com

CASE 7

Testing the world's first ViDA reporting pilots

Danish service provider mySupply participated in the NSG&B pilots for implementing EU's ViDA legislation aiming to digitalize VAT for trade within the EU from 2030. The pilots were the world's first attempt to generate a so-called ViDA report by testing a receiver system for tax administrations in the Peppol eDelivery network.

MySupply is based in Denmark with its headquarters in Nørresundby, where it helps clients with eInvoicing.

The NSG&B receiver system for ViDA reports was developed through two pilot projects that sent digital business documents across ERP-systems and tax administrations in the Nordic countries.

Coordination of national efforts gives great value

In both pilots, mySupply has had the role of service provider and also serving in the role of a national tax authority. Charlotte Skovhus, Consultant Manager, mySupply emphasizes that: *"For service providers like us, it is of great value that countries and authorities coordinate their efforts and have interoperable standards, so that our solutions can work across countries".*

The first pilot focused on sending eInvoices from one Nordic country to another through the Peppol network. The ViDA-relevant part of the pilot was to digitally extract relevant data from the eInvoice and reporting them to the tax administration of two countries in real time. The second pilot was more advanced and contained also digital handling of credit notes related to the ViDA directive.

mySupply participated in these two pilots with its background as a service provider, receiving digital business documents – or PDF documents scanned by AI – on behalf of customers. These documents are validated and converted into the desired format before being sent to the customers business system – for instance their ERP-system.

Many years of finding common solutions for eDocuments

Charlotte Skovhuus is positive for the next steps for the ViDA implementation as well as the wider digitalization and automation in the region using the interoperable eDocuments:

> **"**
>
> **The Nordic countries have a strong footprint in electronic document exchange and many years of experience to draw on when it comes to solving common challenges and finding shared solutions that can work across national borders. Similarly, cooperation between different authorities within digitalization, taxation, business, and economics can contribute with integrated solutions across various domains and I look forward to follow the efforts the coming years.**
>
> Charlotte Skovhuus is a managing consultant at Danish eInvoicing company mySupply ApS

Learn more about mySupply here: https://mysupply.dk/

About this publication

Nordic co-operation

Nordic co-operation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, and the Faroe Islands, Greenland and Åland.

Nordic co-operation has firm traditions in politics, economics and culture and plays an important role in European and international forums. The Nordic community strives for a strong Nordic Region in a strong Europe.

Nordic co-operation promotes regional interests and values in a global world. The values shared by the Nordic countries help make the region one of the most innovative and competitive in the world.