

Market Research

The Nordics



Introduction



This market research has been created by IRP Delft as internal research to update the team on the current business affairs in the Nordic region. It consists of four general *technology trends* impacting multiple industries, followed by a *sector specific analysis*.

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01. Trends



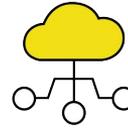
Electrification and Decarbonisation

The Nordic states are committed to be carbon neutral by 2050 and electricity prices are decreasing due to new renewable energy technologies and the abundant availability of green power. Pumped hydropower storage in Norway plays an important role in large-scale energy storage.



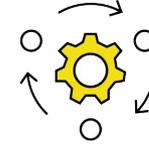
Circularity and Materials

Global population growth and the corresponding increasing demand for products urge the need for more efficient use of materials. The Nordics are at the forefront of developing innovative solutions and circular strategies in order to create sustainable materials.



Digital transformation

Nordic companies are focussing on digital maturity meaning that they think and act "digital first" in everything from customer interaction (e-commerce) to product development to the optimization of operational processes by using data-driven analytical tools.



Automation

With its promise of significant savings in staff costs, reduced repetitive work, and fewer errors and rework, robotic process automation is becoming increasingly common in all sorts of organizations in the Nordics.

02. Infrastructure & Construction



Developments

The market is undergoing transformation into more sustainable practices, both in construction and production of circular materials.

Opportunities

Electrification in the construction industry.

Large scale production facilities are switching to the use of **renewable** energy.

Developments in **electric road systems (ERS)** where electric vehicles can be charged during transportation.

Norway has a zero emission construction site and carbon neutral vision.

CCS usage in cement production in **Norway** and a carbon neutral steel factory in **Sweden**.

Various tests with electric road systems are developed in **Sweden** and **Denmark**.

IRP Focus

IRP should focus on sustainable developments across the entire value chain, the call for a transition to **circularity** and increased use of **renewable energy**.

Market consists of:

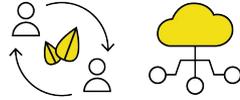
1. Residential housing
2. Commercial investments
3. Public infrastructure

Steady market growth (3 - 4%)



¹ Trends active in specific sectors are indicated by the icons.

03. Forestry



Developments

The forestry industry is of high importance in **Sweden** and **Finland**, and also present in surrounding states. Main drivers are growth in **packaging, biofuels** and **biomass energy plants** that can be exported to Europe and the rest of the world.

Timber is used:

1. Construction material
2. Manufacturing of furniture & other products
3. Paper products
4. Bioenergy production

Opportunities

Growth in **chemical pulp** production used in e-commerce shipping (cardboard) and for renewable fuels.

Biomass plants such as pellet plants are replacing fossil energy plants.

Growth of **innovative forest products**, for example soft drink and health products.

Threats

Domestic forest industry appears **nationally focused**, creating difficult working conditions for IRP (eg. language barriers).

The forest industry is highly dependent on export, the **COVID-19 pandemic** may have damaged supply chains.

IRP Focus

IRP could focus on **supply chain optimization** projects for international companies as well as **feasibility studies** for innovative energy products.



04. Oil & Gas



Developments

Two recent developments in the sector are the use of **Liquefied Natural Gas (LNG)** and **Carbon Capture and Storage (CCS)**.

Norway is the third largest **gas exporter** in the world, with almost all gas being sold on the European market.

Most governments and companies aim to be **carbon neutral** and stop exploration by **2050**.

Opportunities

LNG use is expected to grow both for **export** as for use in **heavy-duty vehicles** throughout the **Nordics**.

Development of **renewable gas** and other petrochemical product replacements is currently ongoing.

Nordics are on the forefront of methanol production facilities as **hydrogen carriers**.

CCS projects for example Northern lights in **Norway** in which Shell is involved are being developed.

Threats

Downturn of oil & gas prices has been unlike any other. Therefore a large decrease in capital investments is seen across the industry. In the medium term, growth is expected to take up again.

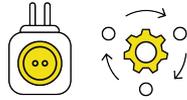
Nordic countries accepted the **Paris Climate agreement** and therefore have to act against global warming.

IRP Focus

IRP could support bringing **petrochemical product alternatives**, including renewable gas, to the Nordics market.



05. Mining



Developments

First mining company has invested significantly to go **carbon-neutral** by 2045.

Norway has conducted its first **offshore mining** exploration.

Mining **robots** to take over the most dangerous jobs.

The **Norwegian** mining and quarrying industry had a turnover of approximately NOK **8.2 billion**.

The mining industry contributed about **3%** (11.4 billion euros) to **Sweden's GDP**.

Opportunities

Rising demand for metals and minerals used for **renewable energy technologies** and **batteries**.

Deep sea mining is being successfully explored in Norway.

New technologies are being developed to make **mining more sustainable**.

Experimenting with **carbon-free iron** production.

Traceability of metals and minerals is increasingly popular topic.

Threats

Increased awareness of the environmental impact of mining.

Natural resources are becoming more **scarce** due to **over-extraction** to deal with demand

Conflicts over the **use of land** for example, the Swedish town Kiruna will be moved by a mining company.

General **public opinion** is not in favour of mining in the Arctic.

IRP Focus

As the markets in the Nordic countries are already developed, possibilities for IRP could for instance include **technology roadmaps** for more sustainable mining, **demand projections** for minerals of the future or **feasibility studies** for deep sea mining.



06. Renewables Industry



Developments

Lowest power prices in the Nordics since 2000.

Norway is the first country where **50%** of all new cars sold in 2020 were **electric**.

Finland is constructing the world's first permanent geological **repository for radioactive waste**.

The Nordics are regarded as the **front-runners** in the energy transition. Norway is the largest **hydroelectricity producer** of Europe.

Opportunities

Problems to solve in the energy-transition include, **building heat** and grid-balancing using **large-scale energy storage**.

Major potential of **exporting green (hydro) power** to the rest of Europe.

Decarbonising industry will go hand in hand with **increased power demand**. If all of Sweden's steel output shifts to carbon free, Sweden's power demand could grow with 10%

Threats

Large hydro resources in Norway **decrease** the need for innovation in **other renewable energy technologies**.

Decarbonising industry, transport and buildings will be significantly **harder** and **more expensive**.

Bio-energy still plays a large role in the power sector, however in the future **other use cases for biomass** will become more high-value.

IRP Focus

IRP Delft could:

1. Perform **feasibility studies** of certain technologies or **market analyses** to determine where to deploy these technologies first.
2. Study the **coupling** of the power market in the Nordics with the West-European power market, and make **projections** for future threats and opportunities in power trade.



07. IT & Telecom



Developments

The Nordics have made great contributions to the field of **IT & Telecom**.

Several of the world's most known **programming languages** and **software platforms** originated from the Nordic countries.

7% of all global tech startups with a unicorn validation originate from the Nordics.

Opportunities

All countries are currently implementing their **5G** networks.

Climate of Nordic countries combined with availability of (cheap) renewable energy make it good locations for **data centers**.

Further **digitalization** of society.

Cloud services are becoming more important for companies which results in more companies offering cloud services and new IT infrastructure.

IRP Focus

IT & Telecom is a very broad sector with numerous opportunities. For example, IRP could look into the **opportunities** that arise from 5G or help with creating **tools** that help with analyzing a company's data. Since the Nordics are ideally located for data centers, IRP could do feasibility studies for data centres.



08. Financial Sector



Developments

Large traditional banks are accelerating their **digital transformations** as the regional fintech sector makes its presence felt.

Opportunities

Apart from being the most **progressive and dynamic** financial sub sector, **Fintech firms** are also the fastest growing branch of startups in the Nordics

Most of the fast growing companies are located in **Stockholm**, Sweden

Threats

Banks, insurance companies and real-estate firms operate in financial sub sectors with **consolidated markets**.

IRP Focus

IRP Delft should mainly focus on the Fintech sub sector in the Nordics.

The projected capital spending by **Nordic banks** on digital transformation and artificial intelligence is expected to exceed **€1bn by 2024**



09. FMCG

Developments

A **speedy recovery** from low sales due to COVID is expected.

Also, there is a big shift to online shopping and companies focus on **improving customer loyalty** by digital and personal engagement.

Opportunities

Organisations are working on **improving customer loyalty** because of a tightening market.

E-commerce is growing rapidly in all nordic countries.

Big retailers are focussing more on their **environmental responsibility**.

Logistics is a major issue for retailers in the more **remote parts** of the Nordics

Threats

The FMCG sector is very consolidated and shows **moderate growth**, the tight market forces companies to economize on costs.

About two thirds of the population of Norway, Sweden and Finland combined show concern about the **use of personal data by companies**.

IRP Focus

IRP should focus on the **data-driven consumer analytics, the sustainability trend** and logistic issues for retailers is the **remote parts** of the Nordics.

Fast moving consumer goods (FMCG) consists of:

1. Food and beverages;
2. Personal care;
3. Cleaning products



10. Transport & Logistics

Developments

The impact of transport & logistics on the **environment** is becoming a bigger issue.

Furthermore, with **data analysis and machine learning**, transport routes and supply chains can be optimised.

Opportunities

New infrastructure needs to be installed and expanded for **electric vehicles**.

To reduce the carbon footprint of companies, **transport routes can be optimized**.

Due to COVID-19, **more and more packages** need to be delivered.

Threats

More awareness of the impact global shipping has on the **environment**.

The European Commission has set targets for percentage of **renewable energy in transport**.

IRP Focus

IRP Delft should focus on **supply chain optimization** and new methods to **make transport more sustainable**.

Transport & Logistics consist of:

1. Transport of persons,
2. Transport of goods

Over sea, land and air.



11. Agriculture & Fishing

Developments

In the agricultural sector in general the latest big innovations are the use of **data analysis and automation, urbanisation, vertical farming, and genetic editing.**

The percentage of total export that consisted of fish products in 2018

Iceland: 30% - \$2 B
Norway: 9% - \$12 B
Denmark: 4% - \$4 B
Sweden: 2.5% - \$4 B

Opportunities

Electrifying fishing industry.

Sustainable foods in the Nordics.

Vertical farming and **automation in greenhouses** with robots and AI.

Algae agriculture used as biofuel, animal feed and aquafeed.

IRP Focus

The opportunities in the agricultural sector are very **diverse**, so there are several topics an IRP project could focus on such as **vertical farming or algae agriculture.**



12. Manufacturing

Developments

An important trend is the increased customer expectation for **customized system solutions**.

Also, customers favor **comprehensive service offerings after sale** and demand higher environmental standards.

Opportunities

Nordic countries occupy three spots in the **top 7 of the Global Innovation Index 2020**.

Only 20 percent of all manufacturing companies are perceived to be on an advanced level of **digitalisation**.

Promising sub-sectors as **3D-printing, Agile Manufacturing and Digital Manufacturing** show upcoming trends in the Nordics.

Threats

Due to COVID-19, the **rules and guidelines** for production companies are being tightened to prevent infections.

IRP Focus

IRP Delft should focus on strategies concerning the **digital transition** and investigate **emerging production technologies**.

Big **manufacturers** from the Nordics are:

- Volvo
- SKF
- Vestas



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