

MINISTRY OF FOREIGN AFFAIRS OF DENMARK Invest in Denmark

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PURSUING RESILIENT & SUSTAINABLE SUPPLY CHAINS IN DENMARK

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WHY DENMARK

PURSUING RESILIENT AND SUSTAINABLE SUPPLY CHAINS

Record high freight rates, supply delays, global shortage of drivers and industrial labour, rising energy prices and shortages of goods are among the most prominent symptoms of the challenges in global supply chains.

Today's supply chains are a complex nexus of actors and interests intertwined across the globe. As a consequence, it has in recent years become evident how fragile global supply chains are when facing disruptions.

Furthermore, external pressure from public institutions, corporate investors and customers put forward new demands to a modern business that require companies to revisit the way they are managing their supply chain activities. Companies are at a crossroad: Continue global supply chain operations as before or adapt to new demands and anticipate some of the above mentioned supply chain risks.

Denmark offers framework conditions, which allow your business to transform supply chain operations into new resilient and sustainable ones. "It is obvious that our future supply chains are going to be structurally different from the ones existing today. While some might argue it is complicated to move or to "unplug" an ecosystem from one country to others, the reality is that this exactly what companies have done over the last decades. Thus, we are going to see a movement towards more local and regional supply chains over the next years"

Carlos Cordon (IMD) and Jørn B. Andersen, Head of Trade Saudi Arabia, Kuwait, Oman, Bahrain & Regional TC Coordinator MENA Region

A GLOBAL GREEN DRIVER FOR YOUR BUSINESS

MANUFACTURING & SUPPLY CHAIN ACTIVITIES IN DENMARK

- 1 Strategic location for manufacturers in Europe with access to top tier distribution and logistics network
- 2 Advanced manufacturing facilitates a resilient and sustainable production environment
- 3 End-to-end supply chain efficiency driven by early adoption of digital technologies
- 4 Sustainable footprints across supply chains minimise risks, reduce input, and meet consumer demands
- 5 The willingness to collaborate enables a transparent and sustainable value chain
- 6 Flexible and highly skilled labour force throughout the supply chain guarantees robustness

FUNDAMENTALS OF A RESILIENT AND SUSTAINABLE SUPPLY CHAIN

Multinational companies are exposed to a rising and changing risk image, creating the need to increase the resilience and prepare their future supply chains accordingly.

Risks are a consequence of exposure to shocks and disruptions, which may take different shapes and magnitudes. While local disruptions occur daily, our attention is to the more systemic ones. In broad terms, risks can come as demand risks, supply risks or operational risks (Rodrigue, 2020). The World Economic Forum (2012) has categorised four main factors from which the risks arise:



ENVIRONMENTAL RISKS

Climate changes was considered a black swan event a just a few years ago, but is now an actual risk where shocks from natural disasters are expected to occur more frequent. Consequently, a growing demand for environmental consciousness and sustainable responsibility in supply chains must be addressed if not to develop into another systemic risk. If businesses fail to attend this topic, investors, future talent and consumer groups will react negatively.



GEOPOLITICAL RISKS

Conflicts and trade restrictions are increasing in probability and while such may be categorised as brewing storms rather than black swan incidents (McKinsey & Company, 2020), they force companies to rethink the way they organise supply chains.



ECONOMIC RISKS

Economic risks are often associated with other risk factors. It usually results in increased prices on production inputs or sudden changes in demand. In the Spring of 2021, the world experienced a global shortage of semiconductors as factories had been forced to shut down. The shortage has led to disruption of production lines, increasing lead times and increased production costs.

TECHNOLOGICAL RISKS



While digitisation plays a positive role in the resilience and sustainability of supply chains, new menaces follow. The rapid development of digitisation in the supply chain poses a new and digital threat to supply chain operations. The digital resilience factor must be addressed and will demand more attention from supply chain management in the future.

A SUPPLY CHAIN FIT FOR THE FUTURE

In light of the risk image and the growing uncertainty in global supply chains, businesses must take a critical and systematic view on their supply chain activities and adapt accordingly to avoid significant consequences. Investing in measures, strategies and capabilities can advance companies to a proactive position prepared to manage new risks.

NEARSHORING AND REGIONAL PRODUCTION

Sourcing of components and production of goods happens in a global network where customers and suppliers interact and coordinate in multiple ways and manners. Today, 70% of international trade includes global value chains where services, raw materials and components are crossing borders, and at one point is shipped as a finalised product to customers globally (*OECD*, 2021).

This setup is not calibrated to the emerging risk image and companies have realised that mitigating risks, even if it requires increased costs, is a better choice of action.

Nearshoring of supply chain activities is a way to mitigate many of the risks and shocks associated with a complex supply chain. It is not a phenomenon born by the recent Covid-19 crisis, but a response to market changes.

Albeit not being born by the consequences of the pandemic, the crisis has acted as a catalyst accelerating this trend. This is why 75% of companies answered to a survey that as a response to the Covid-19 crisis, they will widen the scope of existing reshoring plans. In addition, 67% think reshoring is the most dominant shift in post-covid-19 supply chains (Bank of America, Global Research, 2020). Nearshoring is here to stay.

TOP TRENDS AND STRATEGIES TO MITIGATE SUPPLY CHAIN RISKS ARE:

- Nearshoring and regionalisation
- Digitisation and automation of supply chains
- Sustainability in supply chains

SOME OF THE REASONS FOR NEARSHORING ARE:

- Changing labour costs
- · Advances in automation of supply chains
- Rising protectionism and geopolitical conflicts
- External shocks and disasters

DIGITALISATION AND AUTOMATION OF SUPPLY CHAINS

Traditional supply chains have limited visibility as companies lack realtime data updates and therefore cannot adapt to or are less responsive to changing market conditions. In effect, limited visibility and transparency makes it difficult to implement sustainable and circular initiatives together with supply chain partners.

According to reports, introducing digital initiatives can lower operations costs with up to 30 %, and minimise lost sales and maintenance costs with up to 75%.

Introducing a fully or partial digital and/or circular supply chain makes it possible to manage and execute on supply chain activities real-time and across functions, companies. As a result, a digital supply chain increases agility, velocity, transparency and traceability enabling a green transformation of supply chains through partnerships.

ARGUMENTS FOR DIGITALISING THE VALUE CHAIN

AN ENABLING PLATFORM FOR SUSTAINABILITY & RESILIENCE

VALUE CHAIN	DIGITAL VALUE DRIVERS	OUTCOMES
RESOURCE & PRODUCTION PLANNING	Automating & digitalising stock by linking demand and supply	 Increased forecasting accuracy Optimised raw material input
PRODUCTION PROCESSES	Process and machine monitoring, using IoT, digital twins, simulation, etc.	 Reduced cost for quality Reduction in machine downtime Increased labour productivity
LOGISTICS FLOW	Intelligent warehouse systems and robots can track and handle products and ensure availability	 Improved logistics planning Reduction in time to market Reduced costs for inventory
SERVICE AND MAINTENANCE	Digital monitoring of equipment for customers	 Reduction in maintenance costs Minimizing downtime for costumers
END-OF-LIFE	Digital product history of entire value chain and material input enables reuse and recycling of product	• Return as new resource

(McKinsey, Force Technology and own input, 2021)

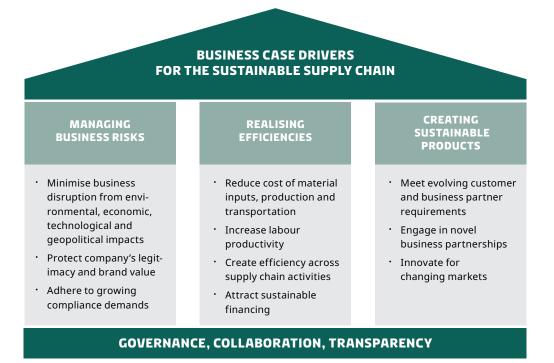
SUSTAINABILITY IN SUPPLY CHAINS

Some of the most significant impacts on the environment derive from supply chain activities. Research shows that supply chain emissions are 11.4 times higher than operation emissions (CDP Global Supply Chain Report, 2021). Consequently, it is imperative for companies to address the matter of sustainability in their supply chains to reduce the associated risks.

"As the transition accelerates, companies with a well-articulated long-term strategy, and a clear plan to address the transition to net zero, will distinguish themselves with their stakeholders – with customers, policymakers, employees and shareholders – by inspiring confidence that they can navigate this global transformation. But companies that are not quickly preparing themselves will see their businesses and valuations suffer, as these same stakeholders lose confidence that those companies can adapt their business models to the dramatic changes that are coming."

Larry Fink, CEO of BlackRock (2021).

BUILDING THE BUSINESS CASE FOR SUPPLY CHAIN SUSTAINABILITY



(UN Global Compact and Business for Social Responsibility, 2010 and own inputs)

The business case of supply chain sustainability is built on the principals of solid governance, collaboration and transparency in the operations. From this position, it is possible to manage the business risks associated, realise efficiencies and creating sustainable products. These are the business drivers for supply chain sustainability.

WAYS TO LEVERAGE DANISH SUPPLY CHAIN EXCELLENCE

The Danish supply chain excellence is built on a foundation where basic technological, scientific and human resources meet the needs of businesses. Supply chain players and the Danish supply chain conditions are among the best in the world and consequently Denmark tops the IMD ranking as the country with best distribution infrastructure in the world (IMD, 2021). This is not due to a single factor but comes down to two cross-cutting elements; transparency and collaboration, which act as a strong foundation and influence every part of the supply chain in Denmark.

Companies seeking to increase their supply chain resilience and sustainability performance should look for ways to increase and exploit the benefits of transparency and collaboration.

TRANSPARENCY ACROSS THE SUPPLY CHAIN

Transparency in the supply chain has a range of risk reducing capabilities as well as the ability to increase business efficiency and sustainability.

The performance enhancing abilities are predominantly related to increased knowledge in every step for each supply chain activity and thereby reducing risks.

SOME OF THE COMMON EFFICIENCIES ASSOCIATED WITH INCREASED TRANSPARENCY ARE:

- Reducing the need for excessive inventories
- Reducing lead times
- Reducing the working capital associated
- Reducing environmental risks and increase environmental footprint knowledge

The path to a transparent supply chain can be enabled by implementing digital tracking measures and mechanisms. When businesses can predict a near future outcome through data, decision making will be more accurate and the allocation process of resources can be improved and reduce the impact of shocks.

AREAS OF DANISH SUPPLY CHAIN EXCELLENCE:

- Advanced manufacturing
- Digitalised and automated supply chains
- Collaboration, trust and transparency
- No. 1 distribution infrastructure
- Top tier digital infrastructure
- · Value chain sustainability and recycling
- Flexible and highly skilled labour

"A transparent value chain is the foundation for a flexible, robust and sustainable supply chain in a complex world where conditions quickly change."

(Professor Charles Møller, Aalborg University, 2021).

A COLLABORATIVE APPROACH TO THE SUPPLY CHAIN

Collaboration shares many of the same benefits as transparency. Increased collaboration can allow supply chain partners to individually contribute to the value created and reduce redundancy. This can be in the form of innovative products, increased revenue and customer satisfaction. Lastly, collaboration act as a driving force in the transformation from a linear to a circular supply chain.

A RESILIENT DANISH BUSINESS ENVIRONMENT

Resilience has become an important factor for global businesses and in the process of planning and investing with a long-term mind-set, a country's risk and resilience profile is an important factor. In a historically disruptive Covid-19 era, the Danish business environment proves to be highly resilient. Not at any time has it been necessary to shut down the Danish industry. One major factor for staying open for business has been a high degree of digitisation and automation in the industry. When covid-19 closed down most of Europe in the spring 2020, more than 500 Danish companies, from global leaders to small start-ups, volunteered to quickly restructure and change production. Something that was only possible due to highly flexible and agile production setups. According to Eurostat (2021) Denmark is the EU country with the biggest proportions of highly digitalised companies (5 %).

A BUSINESS ENVIRONMENT INFLUENCED BY TRANSPARENCY & COLLABORATION:

- Highest level of social cohesion and social trust in the world
- #1 in the world for private-public partnerships as a driver to innovation and technological development.
- Denmark is a EU Innovation Leader and one of the reasons is due to a high level of public-private co-publications.

IMD Yearbook (2021), European Commission (2021), Pew Research Center (2021)

CASE: A RESILIENT PRODUCTION FACILITY

In 2020 Japanese FUJIFILM Diosynth Biotechnologies announced an investment of more than 900 mio. USD in expanding its biologics production facility in Denmark.

"Since the acquisition of the site last year, the facility's strong manufacturing track-record, coupled with FUJIFILM Diosynth Biotechnologies' technologies enabling a stable supply of high-quality biopharmaceuticals, has led to new orders not only from existing clients, but also new clients, contributing to our rapid business expansion."

Mr. Ishikawa, Director, Executive Vice President from FUJIFILM Corporation

STRONG DANISH RESILIENCE PERFORMANCE

FACTOR	DRIVERS	DENMARK RANKS
OVERALL SCORE	Equally weighted composite measure of the three factors	1 out of 130 countries
ECONOMIC	Productivity, political risk, oil intensity, urbanisation rate	5 out of 130 countries
RISK QUALITY	Fire risk, cyber risk, exposure to natural hazards, building code with respect to natural hazards	8 out of 130 countries
SUPPLY CHAIN	Control of corruption, quality of infrastructure, corporate governance, supply chain visibility	3 out of 130 countries

Source: FM GLOBAL Resilience Index, 2021

Denmark tops the FM GLOBAL Resilience index. The index provides a composite picture of 12 objective measures reflecting each country or territory's economic, risk quality and supply chain conditions. Top-ranked Denmark is known for its quality of life, education, health care and income equality. In this year's index, the nation has higher resilience rankings than last year in the measures for economic productivity, fire risk quality and oil intensity (less vulnerable to oil shock).

DIGITAL LANDSCAPE

Denmark continues to occupy the position as one of Europe's most digitalised societies. The foundation for this can be found in a highly skilled labour force and an advanced infrastructure, enabling companies to pursue a digital transformation of products, services and supply chains as well as implementing advanced and digital production processes.

Furthermore, Denmark is a leading country in digital security, thus offering a potentially low risk production environment and strong data security capabilities. Unauthorized changes to industrial processes can impact manufacturing productivity and cause substantial losses.

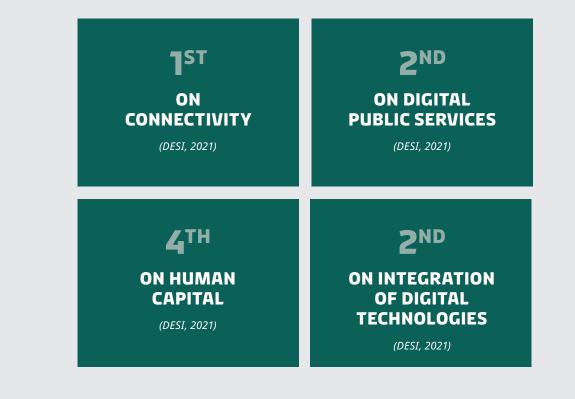


CYBER-SECURE COUNTRY IN THE WORLD

(Comparitech, 2020)



(UN, 2020)



SUSTAINABILITY

Denmark offers a world-leading business environment for companies that want to reduce their CO2 footprint and increase their sustainability performance. A strong political commitment supported by an innovative approach to develop new solutions have resulted in Denmark topping world rankings year after year. That is why some of the most sustainable companies in the world are born in Denmark.

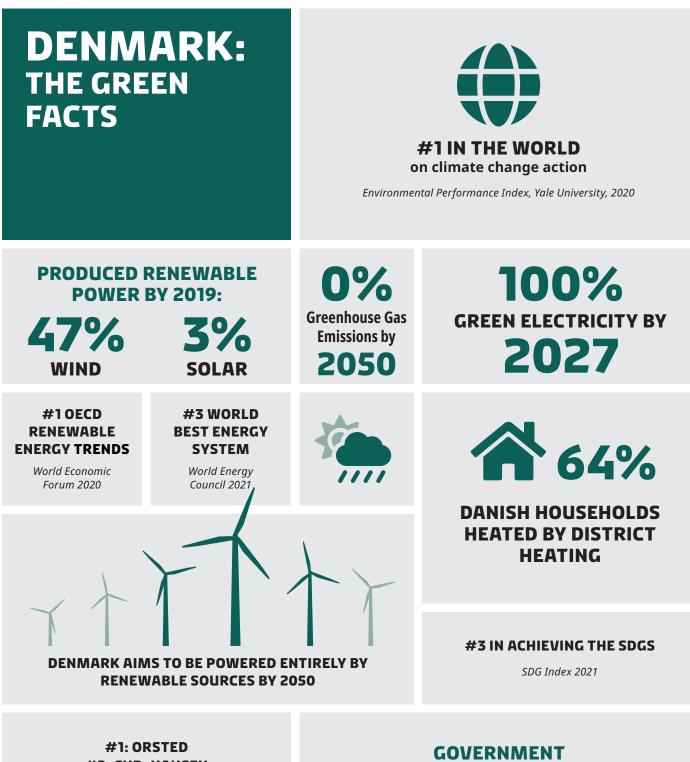
TOP REASONS WHY YOU CAN BUILD A SUSTAINABLE SUPPLY CHAIN IN DENMARK

- Green power accounts for 80% of the energy mix and 100% in 2027
- Denmark has the lowest electricity prices in EU-27 for non-household consumers
- The Danish public sector has committed to carry out public procure ment in a green way, pushing companies to offer sustainable products to all of the public sector
- The circular economy is on the rise and Denmark aims to recycle 90% of all waste by 2030

Several initiatives are put in place to reach the above goals. Among others is the opportunity for private households to directly hand in waste to private companies to be reused for production of new products. This opens for new innovative circular business models and partnerships such as the case of Norwegian company Quantafuel.



Quantafuel, a Norwegian energy company, has developed a technology that makes it possible to recycle the waste plastic that today ends up in incineration. The company has engaged in circular partnerships and are now ready to send synthetic oil products from chemically recycled plastic waste from its plant in Denmark to its partner BASF, a German chemical giant.



#1: OKSTED #2: CHR. HANSEN #6: NOVOZYMES Danish corporates receive top rankings on sustainability

CLIMATE ACT TARGET: 70% reduction of CO, by 2030

Corporate Knights 2020

MANUFACTURING IN DENMARK

DANISH MANUFACTURING ATTRIBUTES

- Agile and resilient supply chains
- · High productivity enabled by an effective, skilled workforce and flexible automation systems
- Reliable infrastructure and Europe's third best digital connectivity
- · Large amounts of green and stable energy sources available at a highly competitive price
- Ambition to be the world's first climate-neutral manufacturing industry in 2030
- Strong R&D culture with an open, positive attitude and a collaborative mind-set
- · Business-friendly and effective legal environment

DANISH MANUFACTURING INDUSTRY - FLEXIBLE AND AGILE

The Danish manufacturing industry is known for a flexible, modular and extremely adaptable production setup, which is ready to meet customised demands within short lead time. Agile production processes are supported by a digitalised production infrastructure, resulting in very resilient supply chains as well as high efficiency and productivity.

A flat hierarchy business culture combined with a talented tech-savvy and flexible workforce allows for a high pro¬duction and product complexity whilst having the ability to scale production up and down, following the constantly changing market demands. This calls for advanced and modular production systems where manufacturers are able to handle constantly changing routings as well as quick and frequent changeovers.

Moreover, a unique and transparent approach to collaboration and network across the manufacturing industry ensures agility and innovation. Such flexible and agile production processes are a good fit for global needs and increases manufacturing resilience. As a response to future demands, the Danish manufacturing industry is amongst others a frontrunner in high-mix low-volume (HMLV) manufacturing, which refersto a large variety of products in small quantities.

> (Björn S. G. Bøg, Sector Expert, Invest in Denmark)

DRIVERS FOR FLEXIBLE AND AGILE PRODUCTION IN DENMARK:

- Quick introduction to new products and production equipment.
- Optimising and modelling production processes and value chains
- Controlling and organising complex and modern manufacturing sites.

WHAT "MADE IN DENMARK " MEANS FOR YOUR COMPANY

- Few errors
- High & consistent quality
- High reliability & consistency of delivery
- Focus on sustainable & recyclable materials & products

WORLD-CLASS DISTRIBUTION INFRASTRUCTURE

- Jutland is an industrial hub for easy and fast access to Germany by road and train
- Copenhagen Airport has repeatedly been ranked the most efficient airport in Europe. Billund Airport is specialised in air cargo to the whole world.
- The Øresund Bridge between Copenhagen and Southeast Sweden makes a fast link to the Nordics.
- Expected by 2028, the Fehmarn Tunnel will connect Eastern Denmark (Zealand) and Germany offering improved connectivity and access.
- Danish ports with direct cargo routes to major ports in the Baltics, Middle and Southern Europe, North Asia and North America.
- Denmark is #1 in trading across borders in the world according to the World Bank 2020.

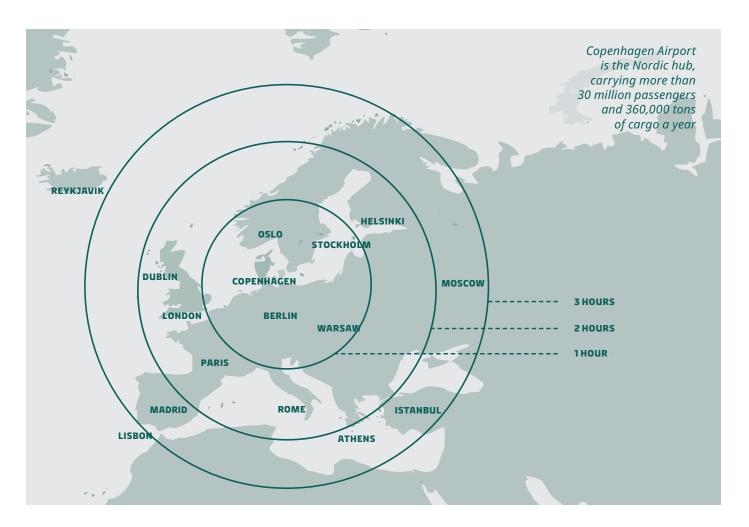
#1 IN THE WORLD ON DISTRIBUTION INFRASTRUCTURE

(IMD, 2021)



THE GATEWAY TO EUROPE

Denmark is perfectly situated between the UK, Norway, Sweden and Germany and offers excellent connectivity for accessing Northern Europe. 500 million consumers are reachable within 3 hours of flight and 100 million consumers in 24 hours by land or sea. Copenhagen Airport is the biggest airport in the Nordics with over 184 direct international routes as per January 2020 and 35% of the entire Scandinavian population is less than 3 hours away.



The strategic location is home to world-leading logistics companies taking advantage of the global reach and efficient delivery and sourcing capabilities in Denmark.

The proximity to large consumer groups has a positive impact on the resilience of goods to the end customers. By placing production or logistics hubs in Denmark you will be part of the best distribution infrastructure in the world, with low exposure to environmental risks and the second most resilient economy in Europe (IMD, 2021). The green and digitalised Danish production environments and shorter distribution time enable businesses to meet the changing consumer demands and reduce a potential economic risk.

DENMARK: BEST COUNTRY FOR BUSINESS



Gateway to the Nordics

Four international airports serve tourism, business and cargo. Copenhagen Airport has direct international routes to more than 184 destinations as per January 2020 making it by far the largest airport and logistics hub in the Nordics.

#1 IN EUROPE FOR EASE OF DOING BUSINESS

The World Bank (2008-2020)

#2 IN THE WORLD

FUTURE READINESS TO EXPLOIT

DIGITAL TRANSFORMATION

IMD (2021)

USD 60,195 GDP per capita *OECD (2020)*

22%

corporate

tax



#5 on the OECD Better Life Index (2021)

Strong infrastructure Denmark has a strong infrastructure including six international airports, sea ports, bridges and an integrated railway system. Together, they enable easy distribution of goods and services to the Nordic markets.

Denmark aims to be powered entirely by renewable sources by 2050

Lowest redundancy costs in the world Shared #1, IMD (2021)



Language

9 out of 10 people

speak English and

5 out of 10 speak German.

> #1 IN THE WORLD MOST FLEXBILE LABOUR MARKETS IMD (2021)

#2 IN THE WORLD ATTRACTING AND

RETAINING TALENTS IMD (2021)



SETTING UP IN DENMARK

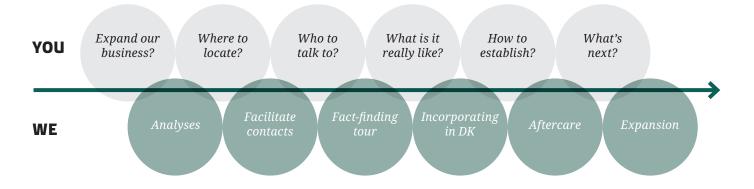
Invest in Denmark provides all the support you need for locating your business in Denmark. If you are considering setting up or expanding your activities, make us your first stop. Our specialised international staff can advise you on every aspect of locating a business in Denmark whether you want to set up or grow your business.

Our tailor-made solutions include connecting companies with key local stakeholders, arranging fact-finding tours and providing comprehensive benchmark analyses. We make sense of local legislation and the advantages of locating supply chain related activities in Denmark – all free of charge and fully confidential.

WE START WHERE YOU ARE

The process of expanding a business and supply chain activities takes many forms – depending on the type of business, organisational structures, resources and more – all unique to each company.

Use us whether your company is considering relocating, consolidating, setting up new production and logistics facilities, establishing R&D facilities or is looking for new innovative value chain partners. Invest in Denmark starts where you are – and assists you all the way to an establishment in Denmark and beyond.



GET ACCESS TO OUR SERVICE PROVIDER CATALOGUE

When establishing a company, getting professional advice and support is important to ensure the best possible solution for you. Invest in Denmark's local service providers can assist you in the process of setting up your business in Denmark. The non-exhaustive list covers all areas critical to getting your business off to a good start.

Our Service Provider catalogue connects you with a network of local service providers who can assist you in establishing your company in Denmark: from legal counselling and banking services to relocation agents and recruitment assistance.

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