European Commission

Just Transition Platform Case study:

Transformation of the former Odense Steel Shipyard

Key information

Member State:
Denmark

Region:
Southern Denmark, subregion Funen

Sectoral focus:
Maritime, energy, construction

Beginning:
2010 (ongoing)[1]

Main activities:
Retraining/reskilling, diversification, and collaboration along the triple helix

This case study was prepared by conducting stakeholder interviews and desk research.

Background

The city of Odense is located in the region of Southern Denmark on the island of Funen. Southern Denmark is an active growth region in a central geographic location. In the region, approximately 1.2 million inhabitants live, while Odense itself has around 196 000 thousand inhabitants – making it the largest city in the region. A part of the region is a Just Transition Fund territory (Sydjylland, NUTS3), however, the sub-region around Odense, namely the island of Funen, is not.

At the regional level, the importance of the transition of the economy and society towards climate neutrality is anchored in the region's objectives. The strategy "Green transition in Region of Southern Denmark" (Danish title: Grøn omstilling i Region Syddanmark) illustrates the region's ambitions and outlines, amongst others, the road to net-zero emissions, the transition to a circular economy and other climate adaptation aspects.[2]Additionally, the region annually publishes a report on the green transition in Southern Denmark, including the overall energy and environmental impacts resulting from the region's activities.[3]

Southern Denmark is distinguished by a notable concentration of employment opportunities in social institutions, healthcare, industry, trade, construction, transportation, and the hospitality sector. Additionally, the business landscape in the region is significantly influenced by prominent companies such as LEGO, Danfoss, ECCO, and Ørsted. Renewable energies and energy

1 The year 2010 marks the beginning of the support of the EGF. The shipyard was established in 1918. Odense Port was established in 1803. The combined entity (Odense Havn) was created in 2014.
2 See https://regionsyddanmark.dk/media/mkyba4r3/klimastrategi.pdf
3 See https://regionsyddanmark.dk/klima-og-miljo/gron-omstilling/redegorelsen-for-gron-omstilling

efficiency are important aspects of the region's economic landscape as around 40 % of employment in the Danish offshore wind energy sector is located in Southern Denmark.[4]

Presently, 69 % of the workforce consists of skilled professionals or individuals with higher education, marking an increase from 67 % a decade ago. Meanwhile, 30 % of the employed population lacks formal training leading to qualifications. The unemployment rate is low with 2.6 % (as of July 2023).[5] Situated as a border region with Germany, the Southern Denmark region extensively relies on foreign labour, with a substantial portion involving cross-border commuting by employees.

Robotics city Odense

In Odense itself, a strong focus is put on the robotics sector as the city strives to become the top location for robotics-worldwide ('best robot city in the world'). The pre-conditions are given: a major robotics cluster has its home in Odense, called Odense Robotics, which is the national robotics and drone cluster in Denmark. Additionally, UAS Denmark, an international drone test centre, is located in Odense. Last but not least, the local university, the University of Southern Denmark (SDU), has the Maersk Mc-Kinney Moller Institute its robotics institute (and has just recently established a Large Structure Production centre). The Danish Technology Institute is another central institution for future technologies. Important to note here is that the robotics development of the city is strongly embedded in sustainability strategies: Not only has the city a climate-neutrality vision for 2030 and pursues various activities in this regard (for instance, the direct inclusion of the Sustainable Development Goals in its vision), but sustainability and climate-friendliness are seen as another factor that increases the attractiveness of the robotics sector of Odense.

The steel shipyard in Odense

The focus on robotics is strongly rooted in the city's past. The steel shipyard in Odense, established in 1918 by A.P. Møller–Mærsk, was working with robotics and automation on an advanced level in the 1980/1990s, which led to the foundation of the Maersk Mc-Kinney Moller Institute in 1999, focusing on research for robotics, which further fuelled the progressive nature of the shipyard.

The shipping industry used to be the largest in Denmark. The shipyard in Odense was one of the largest industrial employers of the region and for some time, built the largest container ships in the world. In 2009, the operator, A.P. Møller–Mærsk, decided that the yard would be closed also due to the increasing pressure on labour costs in Europe from the Asian market and the global financial and economic crisis. After the closure, the area was transformed into the Lindø Industrial Park.[6]

Description of Odense Steel Shipyard's transformation

The closure of the steelworks has meant the loss of an important employer in the region. The repurposing and retraining activities that followed can be seen as a showcase example of a successful redevelopment project with a strong reskilling perspective. When the Odense Steel Shipyard closed down, a concept was jointly developed (between the company, the city and the workers' union) on how to reskill the laid-off workers and get them back into employment again. The aim was to keep the labour force in the region – which was in line with the workers' wishes. With the help of the local unions, individual plans to reskill the workers were created. These ensured that every worker received bespoke training. To achieve this, not only the workers needed to be retrained but also, new employment opportunities needed to be created as the shipyard's closing signified the demise of the largest regional employer.

With government initiatives aimed at establishing different sectors in the region, it was ensured that economic diversification could be kickstarted. A couple of years after the closure, more jobs were created than the number of jobs lost, and more people were employed at the old site than when the steel shipyard was still running. The shipyard was transformed into a large industrial area, housing many different companies.

Now, the industrial area around the port is driven by the port company. Odense Havn (the Danish name of the port company) has evolved into a key player in the region, housing not only a wide range of innovative companies but also hosting the new centre (Large Structure Production) of the robotics cluster that has evolved around the University of Southern Denmark (SDU).

The current structure in Odense is coined by a **triple helix approach:** the cooperation of businesses, academia and the public. While in the phase after the closure of the shipyard mainly the operator of the former steel shipyard (A.P. Møller–Mærsk), the municipality and the labour union were the key players, the cooperation between the port company (Odense Havn), the municipality (City of Odense) and the local university (SDU) is key.

The different groups look as follows:

- **Political side:** City of Odense
- **Industry:** A.P. Møller–Mærsk, Odense Havn
- **Worker representation:** Dansk Metal
- **Academia:** University of Southern Denmark (SDU)

4 See https://web-archive.oecd.org/2020-03-11/547908-Southern-Denmark-Issue-Note.pdf
5 See https://eures.europa.eu/living-and-working/labour-market-information/labour-market-information-denmark_en
6 See https://www.maersk.com/about/our-history/explore-our-history

Type of activities

The activities can be clustered into three main phases: first, the direct activities to cushion the closure of the Odense Steel Shipyard (OSS), second, the strategic measures aiming at ensuring the attractiveness of the region around the former shipyard and third, more recent developments that build on regional strengths. All strands of activities are highly interconnected and ensure a holistic transformation approach.

1. Activities related to the closure of OSS

First, the skills aspect is one central characterising factor – namely the offer to retrain the workers from the shipyard to be able to find work in different sectors. This should also ensure that the employees could stay in the region. The education and training measures for the laid-off workers that were funded by the European Globalisation Fund for Displaced Workers were oriented toward future growth sectors that were identified in the national Growth Plan. Those sectors included energy technology, welfare technology, robots and automation, technology, and construction. Workers were supported with individualised plans that contributed to faster re-employment due to the adaptation to individual strengths and needs.

2. Strategic measures with a long-term perspective

Secondly, the jobs creation aspect was crucial to re-employ the workers and ensure a general attractiveness of the region. Central to this aspect was the further use of the large industrial site of the former shipyard. When the current port company bought the industrial area of the former OSS in 2014 (from the previous owner A. P. Møller/Mærsk Group) and merged the port activities with the industrial area-related activities in 2017, this was a key step. Three main strands were developed by the owner company for the industrial area. The first focus is heavy industrial production, focusing on on- and offshore wind energy generation. The second strand is the marine industry and lastly, the use of the site as a port business. Taken together, those strands ensure a sustainable business model for the site.

3. Recent developments, building on regional strengths

In the last years, the port could further utilise the regional strengths and attract further pioneering industries. A new development has been the cooperation with the university leading to the establishment of the Large Structure Production Centre, a robotics research & development facility. The university as a key player, supplemented by the support of the municipality, is a main driver of the robotics cluster that evolved in Odense and further enhances the region's attractiveness.

Goals and approach

In the first phase, the main goal of the project was to ensure that the laid-off workers would resume employment in an appropriate timeframe after the closure. In addition, the new employment opportunities should be, in the best case, in the same region, i.e. Odense and surroundings, as many workers expressed the wish to stay in the region.

To achieve these objectives, the project followed an **individualised approach for the laid-off workers**. That means that individualised plans for workers were developed that should ensure that re- or upskilling programmes reflected the individual needs. The high degree of unionisation of the labour force was a supporting factor in this regard. Reskilling training was a special focus as it was needed to enable the workers to find employment in other sectors. The activities related to the closure were supported by funding from the European Globalisation Adjustment Fund for Displaced Workers (see box below).

Box 1: Support by the European Globalisation Adjustment Fund for Displaced Workers (EGF)

The reskilling activities were supported by two funding rounds of the European Globalisation Adjustment Fund for Displaced Workers. The EGF is an EU instrument to help displaced workers who lost their jobs due to restructuring. The fund supports various activities to help workers find new jobs, including career advice, (re-)training, and mentoring/coaching. Single workers can benefit from the support. Support by the EGF can be activated when: one company lays off more than 200 workers, or small and medium-sized enterprises in various sectors in one region or a particular sector in one or several neighbouring regions.[7]

The closure of OSS received EGF support in 2010 and 2011. The application for support was handed in by the workers' representatives, the municipalities of Odense and Kerteminde and the region of Southern Denmark. In the first round, the budget was approx. EUR 21.8 million from which EUR 14.2 million was EGF contribution. The support was addressing 950 workers with advisory/guidance services, vocational training, youth attraction measures, employment incentives, and incentives/training in business creation/ entrepreneurship.[8] In 2011, the EGF provided an additional EUR 6.5 million (total budget EUR 9.9 million), aiming at providing the same offers to 550 workers this time.[9]

To fulfil the goal of keeping the laid-off workers in the region, it was a necessity to **create new and additional employment opportunities with a long-term perspective**. Therefore, the regional diversification aspect was a decisive factor. The government plans to establish an offshore wind energy sector in the region and other sectors were therefore important inputs. Moreover, the development of the port area, from an industrial park towards a modern port with many employment opportunities that attract new companies to the region was then the decisive factor for the successful transformation.

Both aspects of this story worked well together so that only three years after the closure of the OSS, the **number of jobs lost was restored**. Now, more people are employed at the old site than before, and the further development of the port (including an extension) has the potential to employ around 6 000 people. The speed with which people got back into work again was also higher than in previous, comparable experiences in Denmark. The port houses around 100 companies in the offshore (wind) sectors. Odense Havn is actively standing for a contribution to the green transition.[10]

The workforce in the region is no longer strongly dependent on a single company. Nowadays, if a company closes or decides to move, many other employment opportunities exist. Moreover, the activities around the port contributed to creating an appealing economic environment which attracts companies and investments to the region. For this development, the triple helix approach of the company, the university and the municipality was a decisive factor.

Another notable achievement is that with the project's approach, combining the skills perspective with economic diversification, people could find **employment in green and digital sectors** before these took to the limelight in Europe. Now, work in these future-proof sectors is widespread, people's skills are already adapted and consequently, they can earn a higher wage. Due to the sectoral shift to more digital and automated technologies, it is now possible again to build ships at the shipyard, largely thanks to the efforts of SDU in research on automating production processes (see Box 2).

7 See https://ec.europa.eu/social/main.jsp?catId=326&langId=en
8 EGF/2010/025
9 EGF/2011/008
10 https://odensehavn.dk/

Box 2: Centre for Large Structure Production

The local university (SDU) is the main authority responsible for the Centre for Large Structure Production (LSP). The centre started in 2022 and received a grant of DKK 88 million (around EUR 11.8 million) from the Danish Board of Business.[11] The two main partners of LSP are Odense Havn and NextGen Robotics. Other partners of LSP include companies, research and technology organisations, clusters and associations.

The LSP is a **novel approach to robotics** as it focuses on large structure production in the maritime, construction, and energy sectors. The centre works together with partners from the industry and focuses on automation aiming at helping workers, creating sustainable outcomes and efficient production.[12] The need is given: large structures in industry are still manually manufactured in many cases while other sectors have shown that automatisation and digitalisation can lead to efficiency and productivity gains. The LSP centre is addressing this need by aiming at systematically developing Industry 4.0 technologies for the three sectors (maritime, construction, and energy).

Although the LSP's building still has to be realised (planned for early 2024), the centre is already working on a portfolio of projects. Those projects are partly public and partly privately funded. There are three main projects, called use cases, at the moment. Those are conducted in collaboration with large industry partners and have a long-term perspective:

1. ***Robotic 3D concrete printing for construction 4.0*** (aiming at more complex concrete buildings with lower carbon footprint)
2. ***Smart robotic welding of offshore structures*** (automate the construction of large off-shore structures)
3. ***Multi-robot SuperCell for shipbuilding 4.0*** (more efficient and green production)

In addition, the LSP pursues several smaller projects.

The LSP builds on **existing strengths and long-standing developments** in the region: Already in the 1980s/1990s the OSS was progressive in terms of automation and robotisation. The company behind the shipyard subsequently founded an institute (the Maersk Mc-Kinney Moller Institute) to substantiate the developments with academic knowledge. When the shipyard closed, the practical counterpart of the institute was missing but due to the knowledge available in the region, it was possible to establish a robotics cluster. Now, the centre continues with this thought: supporting industrial developments with practical academic research.

11 See https://www.sdu.dk/en/om_sdu/fakulteterne/teknik/nyt_fra_det_tekniske_fakultet/millioner-sikrer-groent-lys-til-lsp-paa-lindoe
12 https://largestructureproduction.sdu.dk/

Key success factors and lessons learnt

A positive factor of the first phase after the port closed was the **cooperation between the municipalities, the region and partners representing the labour market**. This cooperation was especially valuable as it contributed to future employment possibilities. The cooperation was enshrined in a joint secretariat that worked as a hub for partners, e.g. jobcentres, and enhanced the effectiveness and efficiency between the partners. The role of the union has also been an essential factor as this was the driving force in ensuring that everyone could get support tailored to their personal needs.

In addition, the fact that the region of Odense experienced above-average growth and provided a generally good economic environment is a factor that contributed to the faster re-employment of the retrained workers as it contributed to better job opportunities. For the later developments, the fact that there was already a **skilled and trained workforce** was very beneficial for the attraction of new companies to the port area. Another more independent development was that the wind turbine industry experienced growth as it is one central pillar for the green energy transition – this helped further positioning of the port as this was a key industry for the port.

On a more operational basis, the **management of the port** was mentioned during the interviews as an important driver for the port's success. Although the port is owned by the municipality, the public authorities left enough space for the management to operate the port with their vision, enabling independent development. The management was then successful in landing the right tenants for the port. Taken together with the general conditions (skilled workforce, university in the region) and general developments (growth of the region, positive sector development) a striving ecosystem was created that – in a way – was able to build a **self-sustaining circle** (attractive companies are present in the port/region and attract further promising companies and sectors).

Scalability and transferability

Concerning scalability and transferability, one should distinguish between the different aspects of the transformation from the Steel Shipyard into the current Odense Havn.

For the first phase, the direct activities related to the closure of the shipyard, one specificity is that in Denmark there is a **high degree of unionisation** which was decisive for the implementation of the project. Reskilling is a crucial aspect of the collective bargaining system in Denmark. For workers, retraining courses are free of charge and the Danish education system is well-developed, providing qualitative reskilling opportunities. This simplified many things for achieving the project's goals. For transferability, this means that a comparable amount of collective agreements in the form of unions' support should be given to achieve similar results. The case at hand could provide some interesting learnings for other regions as it is an example of how the closure of a large company was successfully managed, especially for the workers.

For the second and third phases, one important specificity is that the transformation and evolution were heavily relying on **capitalising on regional strengths**. This enabled a specialisation and a niche where the regional stakeholders could be clear in their communication ("precise value proposition"). However, regional stakeholders stressed that for a broader dissemination of the project, there needs to be an idea beforehand of how to communicate later about it – meaning that there must be a "story to tell" to be interesting and inspirational – to other regions but also to attract investments and talents. To achieve that regional stakeholders representing different sectors and organisational forms need to collaborate to identify the main strengths. For Odense, the "niche" was quickly found: building on the shipyard story and sharpening the robotics profile.

In addition, as already mentioned, the **triple helix approach** is a necessity for the success of such endeavours. In Odense, the exchange between the city, industry and academia is given and considered strong to further support the transformation. Moreover, flat hierarchies and direct ways of making decisions where people are involved trust each other and share risks is another crucial factor for Odense's story.

The first phase of the project is also scalable to the extent that with the approach a higher number of people could be addressed. For the first phase, the funding of the European Globalisation Fund was of course a decisive financial support, however, with more funding and a higher number of workers this approach could be upscaled – given that the individualised support for retraining still stays feasible. Nowadays, the potential to scale the approach up is even higher than 10 years before as the green and digital sectors strongly increased in importance.

Key challenges

Due to the sectoral shift and digital evolution the **requirements for work have shifted** as well. With the establishment of a broad range of industries, different skill sets are in demand, however, they mostly refer to more advanced skills and competencies which might exclude parts of the workforce. The lack of qualified labour and a comparatively low unemployment rate could pose a challenge. So far, however, this has not been a factor hindering the location's progress.

On a more practical level, an **infrastructural challenge** exists: the fairway of the port needs to be deepened for future projects which is a complex undertaking. Furthermore, for the initiatives that rely on/apply for EU funding, the accompanying administrative procedures can be burdensome, as some stakeholders stressed. This applies mainly to the start of the funding procedures and the type of funding in question (e.g. Horizon Europe funding is perceived as less complex than REACT EU funds).

Strengths and weaknesses

In short, the **strengths and weaknesses** are summarised as follows.

- One of the main strengths of the approach is the **triple helix** between industry, municipality and academia which was decisive for shaping the story.
- In general, European regions are well suited for **building clusters** with a triple helix approach which is a good model for the European context.
- Closely related is the **dimension of social dialogue and collective agreements**. Being one of the central drivers for the success of the case, this can be considered as a strength.
- In addition, one should not underestimate the **effects of a success story** for the region (i.e. pride and positive energy) and how this enables to creation of a self-sustaining circle.
- On the other hand, success also has its downsides. Due to the growth of the port, more space is needed, and the challenge exists on how to overcome those **infrastructural obstacles**. The process of enlarging the harbour also comes with bureaucratic difficulties. The port already received DKK 15 million from the EU Infrastructure Fund to carry out a feasibility study on the expansion of the fairway and quays.
- In addition, **talent and qualified staff are needed** to cope with the growth. Many efforts are made concerning the attraction of new talents. This problem was not present 10 years ago when the former shipyard closed its doors.

Outlook

The story of turning a closing shipyard into a vibrant economic hub for future-proof technologies and sectors while keeping the talents and building on regional strengths is a success story for Odense. The triple helix between industry, public authorities and academia was a driving force for the successful development and one can consider the transformation as an insightful example of building regional resilience.

The consulted stakeholders highlighted the impact of this transformation as well on the mindset of the region's population. Having a success story to be proud of can lead to a "mental" transformation which is further fuelling the region's attractiveness. The city council is building on this mindset and trying to further sharpen Odense's image as one of the leading robotics cities worldwide.

Odense Havn is building upon those developments and further plans to expand its area: the port will be expanded by 1 000 000 sqm, the fairway will be deepened, and a dry port will be developed. This last initiative is an important contribution to more regionalised supply chains and building local resilience as it aims at attracting sub-suppliers and a cheaper production of components (which then can be transferred to the port when needed).

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