

“Staircase to growth” in the Fehmarn Corridor

Rapport by Oxford Research for STRING



Study of “Staircase to growth” in the Fehmarn Corridor

Report by Oxford Research
Conducted for STRING

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1. Executive summary

FROM A CONSTRUCTION SITE TO A CORRIDOR AND A CROSS-BORDER GROWTH REGION

The construction of the Fehmarn Belt fixed link is set to begin in 2018/20 and the construction costs are estimated to be EUR 7 billion. In addition, massive investments will be made to upgrade the rail and road infrastructure in the area. Naturally, an investment of this magnitude will have a major positive influence on the economic developments and activities in the surrounding area. Further, the creation of the fixed link will shorten transportation times by road and rail in the corridor considerably and increase mobility within and throughout the region. The importance of the corridor as the gateway to Northern Europe and beyond will increase significantly and more goods will be transported through this corridor. Goods from within the corridor area can easier and faster reach destinations in Northern, Central and Eastern Europe, and particularly those companies manufacturing or transporting fresh produce and other time-sensitive goods will experience a boost as their products and services can reach destinations previously out of range. Also, the fixed link will promote sustainable transport by providing a more competitive rail transport option compared to other modes of transport such as air or road.

Most importantly, the fixed link will provide the possibility of developing from being a transportation corridor towards the development of a cross-border region with an increasingly complimentary labour market and collaboration within research and education where companies recruit highly skilled workers from the entire corridor and people are willing to commute or move within the corridor for a new job or for finding relevant education. The regions connected by the Fehmarn link will be of a size comparable to Europe's prime innovation hubs such as Greater London, Paris and Amsterdam, and the region has the potential of being successful in the fierce competition for the most qualified and skilled workforce, the most interesting new companies, the largest foreign direct investments as well as the most tourists. Currently, neither Hamburg nor Copenhagen are able to compete in this category on their own but an integrated Fehmarn Corridor offers the opportunity to move up the value chain and compete with the top regions in Europe. A movement towards a coherent corridor and functional cross-border region of this size will obviously also create new growth potential in many of the existing industries in the corridor. In particular, this analysis points to potential within the areas of transport and logistics, advanced manufacturing and production, and tourism and culture – industries in which the regions along the corridor are already quite strong.

But the making of a Fehmarn Belt Region also presents severe challenges. The Fehmarn Belt Corridor covers three different countries with different rules, regulations, languages and traditions, and as it is now it makes no sense to talk about a Fehmarn Belt Region. Further, we also know from several other cross-border regions with similar large infrastructure projects that the economic benefits and the growth potential do not always live up to expectations. Actually harvesting the large growth potential of a cross-border region depends on an early-stage proactive approach to cross-border integration and economic development. The construction of the fixed link will in itself create economic activity but the degree to which we manage to realise the potential beyond the construction itself depends to a large degree on how well we prepare for the opening of the link.

With this in mind, the study attempts to illustrate what an integrated Fehmarn Belt Corridor could look like, drawing the contours of a common vision for everyone to strive for and providing a roadmap for realising the full potential of the Fehmarn Belt investments. If we want to reach the full potential we must already now start preparing for the fixed link and create the conditions that will allow a new integrated cross-border region to flourish. Therefore, the vision is also followed by a description of the major steps necessary to reach the full potential and a roadmap describing what needs to be done, and how.

THE VISION: TOWARDS A DIGITAL, SUSTAINABLE AND LIVEABLE FEHMARN BELT REGION

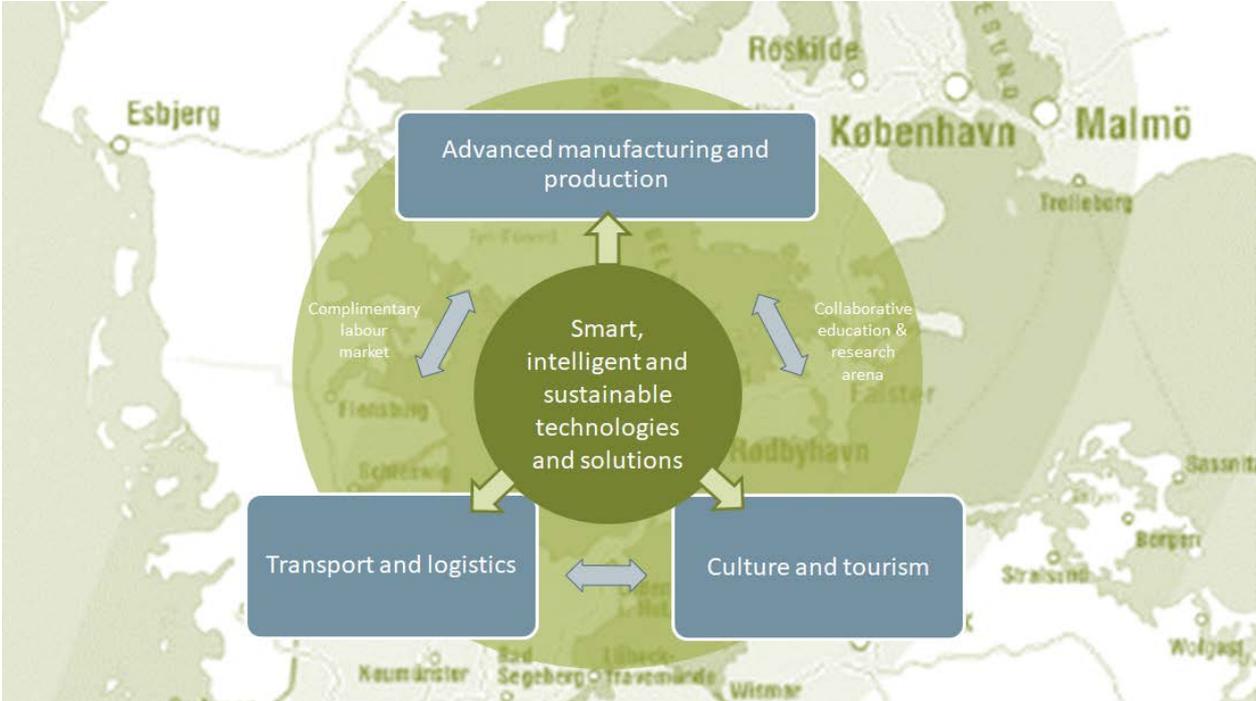
The investments in the fixed link itself, the movement towards a cross-border region and the new options for growth in existing strongholds are all well-known and already described. Competition for attracting and retaining companies, investments and talents will be fierce and many other regions and cross-border regions will also invest in infrastructure and international visibility. Finally, there is a need for a shared vision and a common goal that can gather, enthuse and reengage the stakeholders all along the Fehmarn Belt Corridor. Our proposal is therefore to aim for a cross-border region with a strong value proposition which offers something more and different than ‘just’ being a large (cross-border) region with efficient and coherent infrastructure.

Looking ahead, growth seems to a large extent to be driven by new technological and digital developments combined with an increasing focus on sustainability and liveability. Digitisation and automation, Internet of Things, the use of big data, artificial intelligence, self-driving vehicles, drones, etc. will be used to create smart and integrated solutions that will disrupt many industries but also offer growth potential and potentially improve sustainability and liveability for people.

Even if competencies are unevenly distributed within the Fehmarn Belt Corridor, in general, these areas are strongholds with many leading companies and a proactive public sector driving the development. Our analysis suggests that the growth opportunities and the unique value proposition for the corridor lies in the combination of technology, digitisation and sustainability on the one hand and on the other hand the creation of a fixed link and a coherent cross-border region which will create new opportunities within exiting strong sectors such as **transport and logistics, advanced manufacturing and production, and tourism and culture**.

Thus, the future value proposition of the Fehmarn Belt Corridor should be to provide state of the art infrastructure and framework conditions synchronised throughout the corridor which will allow companies, entrepreneurs, researchers and organisations to develop, test, implement and use the newest digital and sustainable technologies and solutions across three countries.

Figure 1.1. The future Fehmarn Belt Region – a hub for digital and sustainable solutions



Source: Oxford Research

FIVE STEPS TOWARDS INTEGRATION AND GROWTH

Based on the development in other cross-border regions and our analysis we foresee that the road towards growth and integration will require five steps. Each step contains certain key dynamics and possibilities as well as challenges, and it is important to keep those in mind to move from one step to the next as smoothly as possible.

Step 0: the preparatory phase

We are currently in the preparatory phase. At this stage, we have not yet seen actual growth starting to materialise. Instead, the preparatory work is driven by expectations regarding the effects of the fixed link as well as experiences from other regions showing that a large part of the potential does not materialise automatically but requires a well-planned and coordinated effort to develop a functioning and well-integrated cross-border region. This phase is important since this is where the foundation for realising the potential is laid and it provides an opportunity for eliminating barriers for individuals and businesses working across borders in the three countries. The next generation of the STRING cooperation structure should also be developed in this phase.

The key challenge at this stage is to maintain momentum and re-establish enthusiasm and commitment among the many different stakeholders at regional, national and local levels because the inauguration of the fixed link is still far away and has been delayed several times. At this stage, there is also a need to take current collaboration and coordination structures to a new level and make sure that we start addressing the key issues related to free movement across the corridor early enough.

Step 1: the construction phase

The next phase is the construction phase where the key dynamic in the corridor is growth in the construction sector and related industries. The opportunity to work on a large-scale project such as the fixed link with very advanced engineering and construction companies possess a chance for local companies to upgrade their skills, competencies and networks which might lead to additional work. If some of the construction workers – and their spouses – can be persuaded to stay in the area once the construction is completed, it will also be beneficial for this region which is currently experiencing outflow of people.

The key challenge in this phase is the lack and drainage of qualified labour in the areas with relevance to the construction sector as well as handling the massive inflow of foreign workers. We know from other regions that this is not always an easy task for the local communities. It is also important to make sure that construction efforts will lead to continuous growth once the construction is completed and most jobs directly related to the work disappear.

Step 2: the curiosity and corridor phase

Once the fixed link is inaugurated, an actual corridor will start to form and there will be an initial curiosity among people and businesses to explore the new opportunities posed by the fixed link. Increased transportation and logistical activities, as well as tourism, will generate economic activity and especially time-sensitive goods will start taking advantage of the reduced travelling times. The key challenge is to keep the momentum generated by the inauguration of the fixed link. Also, it will be a challenge to find new jobs for the workers who previously worked on the ferries across the Fehmarn Belt and related activities as these sectors will experience a drop in demand.

Step 3: the complementarity phase

In the next phase, cross-border integration and mobility will be driven by differences in wages, prices, employment, real estate, etc. between the regions of the corridor. This is how mobility was created across borders in the Oresund region. As mobility increases, it will be a key challenge to address cross-border barriers quickly and effectively. Even if a lot of preparatory work has been done to remove barriers, new barriers are certain to emerge once mobility increases and many new combinations of residency, job location, tax liability, pension savings, social security needs, etc. emerge.

Step 4: the similarity phase

In the fifth and final step, the regions' central actors will start exploiting common strongholds. Cooperation between industrial clusters, research and educational institutions etc. will intensify to further strengthen the comparative advantages of the clusters and research institutions in the region.

A key challenge is to strengthen the notion of an emerging Fehmarn Belt Region and to start the move towards a more binding type of collaboration, to devote more resources to larger and more complex common initiatives and projects, and to discuss transferring more resources and maybe also more decision-making power to the collaborative structure of the Fehmarn Belt Region.

Table 1.1: The five growth steps

Growth steps and key dynamics in creating a cross border growth region					
Growth step	Step 0	Step 1	Step 2 Inauguration	Step 3	Step 4
	Preparation phase	Construction phase	Corridor & Curiosity	Complementarity	Similarity
Key dynamics	<i>Expectations of the coming growth potential should drive preparatory actions.</i>	<i>Growth in construction and related industries close to the Fehmarn Belt.</i>	<i>Fixed connection creates corridor effects and curiosity increases tourism and leisure visits.</i>	<i>Differences (in prices, regulations, labour market, etc.) drives cross-border integration and growth.</i>	<i>Similarities (also meaning synchronisation of regulations and infrastructure) drive the last growth step.</i>
Growth potential	<ul style="list-style-type: none"> • This phase is not so much about growth – but about preparing for it. • There is a clear need to be well prepared to harvest growth potential and be able to address challenges as they occur as soon as the construction takes off. • Taking the collaboration and coordination structure to next level is key. 	<ul style="list-style-type: none"> • Up-grading of local businesses – they get international experience and build up relations with large players. • Attracting inhabitants and labour to the areas around construction site. 	<ul style="list-style-type: none"> • Increased transport and logistics activities. • Easier market access for producers of time-sensitive goods. • Sprouting interregional tourism and leisure market. 	<ul style="list-style-type: none"> • Decreased regional labour shortages as well as regional unemployment. • Increase in tourism and leisure visits across the regions – ‘to see something different’. 	<ul style="list-style-type: none"> • Cluster formation and increased triple helix collaboration. • FDI driven by attractive synchronised framework conditions across the corridor. • Increase in international tourism volume based on joint tourism products and branding.

Source: Oxford Research

ROADMAP TO AN INTEGRATED GROWTH CORRIDOR

The work aiming at maximising the benefits of the fixed link started many years ago: many important steps have been taken and important initiatives have been launched. As we get closer to the inauguration of the fixed link – and the time following the inauguration – preparations should intensify with additional initiatives being launched and new cross-border organisations being established. But what exactly needs to be done, how should it be done and when should it be done?

What needs to be done?

In order to facilitate the movement towards a thriving and sustainable Fehmarn Belt Region driven by cross-border dynamics, collaboration and new smart and intelligent technologies, we see the need for four types of action:

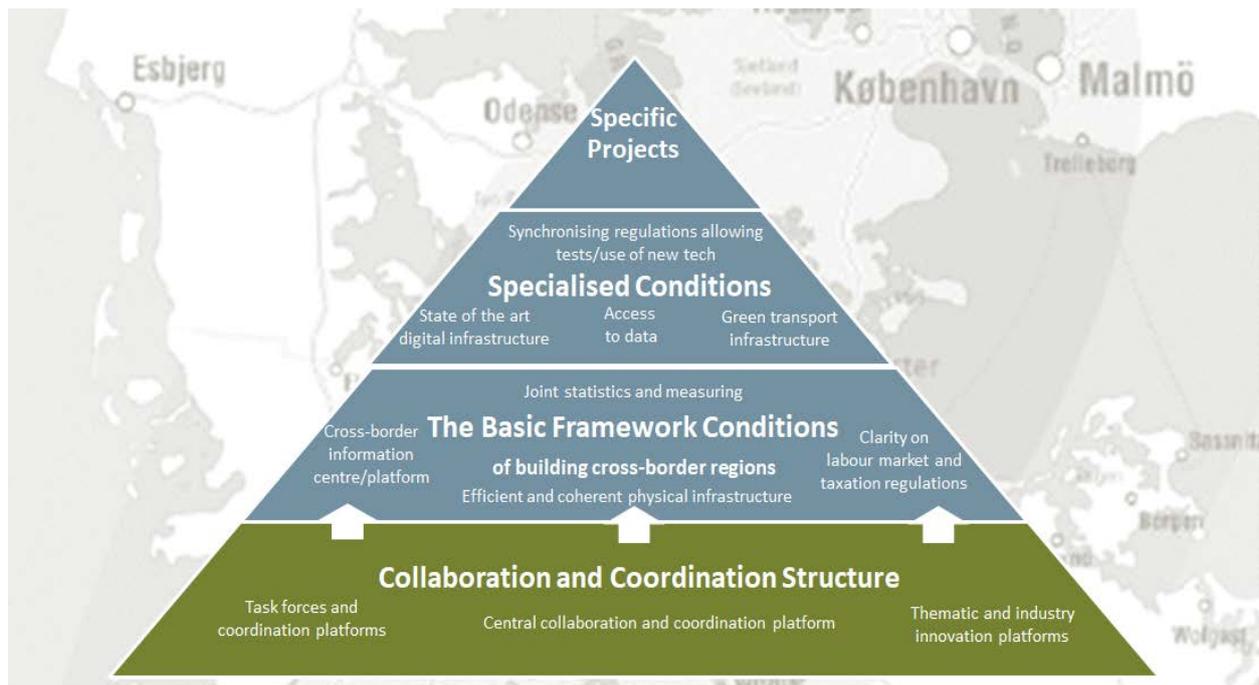
- **strengthening the collaboration and coordination structure** in order to have the needed organisational set-up that can efficiently address barriers and possibilities as and when they occur during the journey towards a cross-border region. This means taking the central collaboration platform to a higher level and creating what we call task forces and innovation platforms.
- **establishing basic framework conditions** for allowing the fundamental cross-border dynamics to increase in the region, including establishing an efficient physical infrastructure, and

clarification and synchronisation of conditions for commuters, companies and students living, working and studying across national borders within the corridor.

- **creating specific framework conditions** for achieving the ambition of turning the region into a cutting edge digital and sustainability hub. This includes elements such as state of the art digital infrastructure, the newest green infrastructure, open data access, synchronised regulations that allow testing and using latest digital technologies across the corridor, and access to sustainable energy sources.
- **initiating new specific projects** to facilitate collaboration and innovation across borders between key stakeholders in the region. This could be new collaborative innovation projects bringing together academia, businesses, public institutions and civil society organisations in developing, testing and implementing new sustainable solutions.

As illustrated by the figure below, **the most urgent and important task** is to strengthen the collaborative structure. Without a clear structure that facilitates systematic collaboration and coordination on both policy and operational levels, it will not be possible to take any coordinated actions to create neither basic nor specialised framework conditions in the corridor.

Figure 1.2: What needs to be done – four levels of actions



Source: Oxford Research

How should it be done?

As explained, the most important step now, in order to move forward, is to strengthen the collaboration and coordination structure that will be at the core when driving the corridor towards integration and becoming a cross-border digital and sustainable innovation hub.

Based on the analysis, **we have identified three levels of interacting platforms that would be essential** to address when it comes to overcoming barriers and exploiting potential and possibilities: 1) a central collaboration and coordination platform deciding on the overall focus of collaboration, 2) technical task forces and coordination platforms working on coordination and synchronisation of infrastructure and regulations at operational level, and lastly, 3) innovation platforms gathering academia, R&D facilities, businesses, public institutions and civil society organisations.

Figure 1.3: Suggested collaboration and coordination structure



Source: Oxford Research

The central collaboration and coordination platform

At the overall level, it is essential to develop the already mentioned collaboration and coordination platform where issues of relevance at an overall policy level can be discussed to create a prosperous cross-border region. This includes issues on coordination of regulations, policies, strategies, priorities, investments and specific initiatives in the region as well as identifying and addressing cross-border barriers that hinder free movement of people, businesses, goods and services across borders. The regions will be the main drivers in setting up, driving and financing the platform. We recommend that national government representatives get involved; however, we also recognise that this might be difficult in praxis. Finally, the central platform should also reach out and get input from the political level in municipalities, industry associations and other relevant stakeholders in the corridor.

As a point of departure, collaboration should be dialogue-oriented and consensus-driven. A supranational body is neither a technically nor a politically viable solution; however, several key stakeholders interviewed pointed to the need for taking the already existing collaboration in the Fehmarn Belt Corridor to a higher and more intensive level which would mean giving the central collaboration platform a clearer mandate and more decision power followed by economic means related to specific tasks. As an example, the central platform could be given the mandate to set up, fund and monitor

the suggested innovation platforms. The central platform should also be responsible for information, branding and visibility initiatives – maybe in the form of a physical or virtual information centre.

Before deciding on the mandate and form of the central collaboration platform, a more in-depth mapping and discussion of possible tasks, mandates and resources is clearly needed. Focusing primarily on interregional development and collaboration, the first key task is to identify the areas that regions and *bundesländer* in the three countries are responsible for and may act within without being dependant on the local or national level. Related to this, it is important to obtain an overview of the differences in governance structure in the three countries. From our Oresund experience, we know that responsibilities can vary from country to country at a local or national level.

Task forces and coordination platforms

A central collaboration and coordination platform with key stakeholders from the corridor should deal with the most general and political questions. The platform will set the agenda and decide on issues to focus on and work with. Under the central platform, there will be a number of task forces and coordination platforms that might be temporary or permanent. The task forces deal with more specific issues that have been identified by the central platform. For example, a task force could be created to clarify tax regulations for cross-border workers in the corridor and shed light on possible solutions. Such a task force would pass their analyses and recommendations on to the coordination and collaboration platform for further consideration. The members would typically be civil servants from the relevant operational authorities and bodies with deeper, specialised knowledge about specific issues.

Innovation Platforms

The third type of platform is **innovation platforms** which are cluster-like triple or quadruple (where the users are included too) helix organisations within, as an example, advanced manufacturing and production, transport and tourism. The platforms will facilitate cooperation between existing national and regional clusters and innovation networks. The innovation platforms might have seed funding to initiate cross-border innovation projects such as general projects for the regional cluster organisations and the members.

The timing: when should it be done?

In our view, taking the collaboration and coordination structure to the next level is the most urgent challenge to focus on already now. Next to this, there are several other areas in need of action – some in the short run, others long-term:

- **upgrading the physical infrastructure** is already happening and must continue to be a key priority to ensure faster, more punctual and more reliable movement of people and goods along the corridor. As we move closer to the inauguration of the fixed link, it is crucial to increase focus on improving digital infrastructure and sustainable, green transportation systems in the corridor.
- **clarifying and synchronising regulation and framework conditions:** As we approach the inauguration of the fixed link, there is a need to provide more clarity and coordinate regulations on tax, labour, social security, pension etc. in the corridor. Currently, a key priority is to clarify the regulation and legislation differences, find out how this affects mobility within

the cross-border region, and identify those responsible for regulations and legislation in the three countries. As we come closer to the inauguration date, specific challenges must be brought to the attention of the relevant authorities at national, regional or local levels, and efforts to remove barriers must intensify. We are aware that the three countries cannot harmonise their tax, pension, social security regulations but it is important to reach agreements – similar to, as an example, double taxation agreements between countries – which will allow free movement in the corridor.

- **providing information and raising visibility:** During the construction phase and prior to the inauguration of the fixed link, the demand for **information** from businesses and commuters in the corridor will increase significantly and – as happened in the Oresund region – it is important to have an information centre that can deal with cross-border issues fast and effectively, and where people can gather information about employment opportunities and differences in regulations, tax, etc. Also, the provision of information on regional corridor developments and cross-border indicators will become a key priority.
- **joint public services:** In the longer run, the possibilities for joint public services must be investigated and discussed. Cross-border collaboration on public services such as health and employment services holds a very large potential for improving quality, specialisation and efficiency by coordinating investments and exploiting complementarities in competencies and cost structures across regions and countries in the corridor. However, we recognise that it is very difficult and complex to do this in praxis and such efforts require a high level of maturity in terms of collaboration, both structural and relational, between the involved regions and countries.

HOW DO WE GET STARTED? SUMMARISING THE MAIN RECOMMENDATIONS

In the table below we have summarised the main recommendations. These are all recommendations that are crucial for securing long-term, sustainable growth and integration in the Fehmarn Belt Corridor, and which must be urgently addressed already now and leading up to the initiation of the construction phase.

Table 1.2: Summary of the main recommendations

Main recommendation	How?
Strengthen the collaboration and coordination structure	Establish a collaboration and coordination structure with a <i>central collaboration platform</i> supplemented by more practical oriented <i>task forces</i> and <i>innovation platforms</i> .
	Interregional collaboration will be the foundation of the collaboration structure – thus, start by mapping out the areas that regions and <i>bundesländer</i> in the three countries are responsible for, and identifying where resources and decision power is held.

	<p>Take the central collaboration and coordination platform to a new level by:</p> <ul style="list-style-type: none"> • involving national government – for example by appointing national ministers for STRING/Fehmarn Belt collaboration in Denmark, Sweden and Germany. • giving the platform resources and decision-making power to handle specific tasks such as setting-up cross-border innovation platforms and running an information, branding and visibility centre.
<p>Establish and improve infrastructure and a green transport system</p>	<p>Upgrade and modernise hinterland connections.</p>
	<p>Develop a joint strategy for efficient, green and coordinated transport infrastructure with high-speed trains, green transportation alternatives and self-driving vehicles. This means stronger collaboration between responsible authorities in each country and between central transportation stakeholders such as airports, harbours and transport centres, train operators etc.</p>
	<p>Start discussion to establish world class digital infrastructure – throughout the corridor.</p>
<p>Inform, brand and raise visibility</p>	<p>Establish a physical or virtual information centre that provides information on business and employment opportunities, differences in regulations and taxation, where and whom to go to at the national/regional level, etc.</p>
<p>Deal with main regulatory barriers for ‘cross-borderers’</p>	<p>Clarify and make joint agreements on how to handle differences in taxation, social security, pension and vacation systems in the three countries when people, employees and businesses start living, moving and working across the national borders on a daily basis.</p>
<p>Make the most out of the construction phase</p>	<p>Make sure local contractors are well prepared and help them tap into international consortia that will get most of the large contracts.</p>
	<p>Attract relevant labour to the region to meet demand for labour stemming from the fixed link. Offer welcoming and employment services for spouses of construction workers.</p>

2. Introduction

Over the next 10-20 years, the corridor between Southern Sweden and Northern Germany will undergo dramatic changes due to the massive investment in infrastructure that the fixed link across the Fehmarn Belt and the hinterland connections in Germany and Denmark will bring about.

The Fehmarn Belt Corridor covers Northern Germany, Denmark and Southern Sweden. It stretches from Hamburg across Schleswig-Holstein and the western part of Mecklenburg-Vorpommern, the Danish islands of Lolland, Falster and Zealand to Scania in Southern Sweden. The corridor has a total population of 8½ million people, including a work force of about 4.5 million people, 56 universities, 18 research institutes, 325,000 students and 70,000 scientific staff members.

The construction of the fixed link is estimated to cost around EUR 7 billion and investments in improved rail and road connections is estimated to cost more than EUR 1 billion in Denmark alone.¹ An investment of this size present an enormous potential for renewed economic growth and development in the area and the improved infrastructure presents a unique opportunity to create a new cross-border region spanning three economically very strong countries. Total DGP in the Fehmarn Belt Corridor is more than EUR 300 billion and GDP is about EUR 40.000 per capita – more than 50 percent higher than the EU average. The unemployment rate was below 7 percent in 2013 which again was significantly lower than the EU average of almost 11 percent.²

The fixed link will bring economic gains worth millions of euros as soon as it opens and transportation, travel, tourism, commuting and market access will become faster and cheaper. The investment is also an opportunity to go from a region comprised of three countries and separate regions through a phase where the construction site will attract a large number of workers to a rural region which is currently experiencing an outflow of people, on to another phase where the transport corridor is strengthened, and goods and people can be transported much faster from A to B, to the end goal which is an integrated Fehmarn Belt Region where borders are increasingly erased and not only the physical but also the mental distance is shortened considerably.

The new integrated regions will be of a size comparable to Europe's prime innovation hubs such as Greater London, Paris and Amsterdam, and the region has the potential to be successful in the fierce competition for the most qualified and skilled workforce, the most interesting new companies, the largest foreign direct investments as well as the most tourists. Currently, neither Hamburg nor Copenhagen are able to compete in this category on their own but an integrated Fehmarn Corridor offers the opportunity to move up the value chain and compete with the top regions in Europe.³

But the making of a Fehmarn Belt Region also presents severe challenges. The Fehmarn Belt Corridor covers three different countries with different rules, regulations and as it is now it makes no sense to talk about a Fehmarn Belt Region. Such a region does not exist yet. The corridor is also very long. Even if transportation times will be shortened considerably, it will take about 2.5 hours to get from

¹ <https://www.trm.dk/da/temaer/femern-baelt-forbindelsen/finansiering>

² http://www.stringnetwork.org/media/65933/str_fact_sheet_dk_1_250814.pdf

³ <https://ec.europa.eu/jrc/en/news/new-study-identifies-europes-34-ict-hubs>

Copenhagen to Hamburg. The corridor also includes sparsely populated areas which have struggled economically recently and have higher unemployment rates than the rest of the corridor. The shortened transportation times might mean that fewer people will stop in these areas when they drive through.

Experience from similar projects in other cross-border regions also show that the large infrastructure investments represent opportunities but also a risk of disappointment. The construction of the fixed link will automatically create economic activity but the degree to which we manage to achieve the potential beyond the construction itself is to a large degree dependent on how well we prepare for the inauguration of the fixed link and how quickly we address unforeseen obstacles after the fixed link has opened. Preparations have already started and many important initiatives have been launched but it is important to keep momentum and enthusiasm even if the process has been delayed several times and the fixed link is not set to open until 2028.

In order for the new corridor to prosper we need more than just enthusiasm and a new, integrated cross-border region. An integrated cross-border region is not a goal in itself but a tool to boost competitiveness and growth. We should aim for a cross-border region with a clear and strong value proposition which offers something more and different than other cross-border regions and innovation hubs. In order to keep momentum – and as we move towards a more integrated region with a strong value proposition – we paint a picture of what this could look like, the steps on the way and what needs to be done in order to realise the potential.

We also propose a value proposition for the Fehmarn Belt Corridor that combines the formation of a cross-border region, existing regional strengths and future drivers of growth. Hopefully, this can serve as a common reference for future work by the many different stakeholders involved and pave the way for a coordinated and broadly supported effort to realise the full potential related to the fixed link.

In the analysis, we use the terms Fehmarn Belt Corridor and Fehmarn Belt Region. Fehmarn Belt Corridor refers to the stage of development where increasing transport through the area takes place and integration is starting to intensify but where the area does not yet possess the characteristics of a region. We use the term Fehmarn Belt Region about the end goal for the area where cooperation between authorities and businesses is intensifying and mobility of people across the area is high. We are aware that it will take a very long time to achieve a fully integrated labour market and educational systems, and the area will most likely not have a regional government anytime soon, so we use the term “region” to describe how the area might function in 20 or 30 years – even if the area will not fulfil some of the criteria often used to characterise a region.

2.1 OBJECTIVE AND METHODOLOGY

The report has been commissioned by STRING which is a political cross-border partnership between Hamburg and Schleswig-Holstein in Germany, the Capital Region of Denmark, Region Zealand, the

City of Copenhagen in Denmark, and Region Skåne in Sweden. STRING brings these partners together to develop joint policies and initiatives as well as to jointly strengthen regional development by working together for a common agenda concerning infrastructure, green growth, cross-border barriers, science and research and tourism.

The overall purpose of the study is to illustrate what an integrated Fehmarn Belt Corridor might look like and to provide a roadmap for realising the full potential of the Fehmarn Belt investment. The vision will illustrate what we can achieve if we realise the full potential stemming from the fixed link. The extent to which the potential will be realised depends to a large extent on the decisions that are made within the next 20 years. The construction of the fixed link itself is guaranteed to create economic activity but if we want to realise the full potential we must start preparing for the fixed link and creating the conditions that will allow a more integrated cross-border region to flourish already now. Therefore, the vision is also followed by a description of the steps involved in the achievement of the full potential and a roadmap describing what needs to be done to reach this potential.

As the overarching principle for the analysis we have used the “staircase to growth” model. We have applied this model to focus the study on critical stages and interlinkages in the development of the Fehmarn Belt Corridor. The staircase model points to the most important steps and interdependencies and can serve as a common point of reference for future coordination: what is possible if we do this right, are we on the right track and what is necessary to achieve the next step of growth?

The key element in the data collection process was in-depth qualitative interviews with more than 20 key stakeholders with both practical and theoretical insights into the Fehmarn Belt Corridor. To challenge the interviewees to “think big” but at the same time be concrete and action oriented, we used a technique called back casting. Back casting starts with asking the respondent to describe a desirable future and then work backwards to identify policies and programs that will connect the future with the present. The fundamental question of back casting is: “if we want to attain a certain goal or certain future, what actions must be taken to get there?” Back casting is the opposite of forecasting which is the process of predicting the future based on current trends. Back casting approaches the challenge of discussing the future from the opposite direction. Thus, in back casting the interviewees try to envision a desired future condition and required steps are then defined to attain those conditions, rather than taking steps that are merely a continuation of present methods extrapolated into the future.

We have supplemented the interviews with desk research of studies of the Fehmarn Belt Corridor as well as of other regions with similar large infrastructure projects. We have collected results and inspiration from comparable cross-border regions and projects such as the Oresund region, the Danish-German border region and Dover-Calais. The knowledge and lessons learned from these cross-border regions have been included as background information and they helped form the vision and roadmap presented in this study.

3. Towards a digital, sustainable and liveable Fehmarn Belt Region

Looking ahead, growth seems to a large extent to be driven by new technological and digital advances combined with an increasing focus on sustainability and liveability. Digitisation and automatisisation, Internet of Things, the use of big data, artificial intelligence, self-driving vehicles, drones, etc. will be used to create smart and integrated solutions that will disrupt many industries but also offer growth potential and potentially improve sustainability and liveability for people. Even if competencies are unevenly distributed within the Fehmarn Belt Corridor, these areas are general strongholds with many leading companies and a proactive public sector driving developments.

All three countries have a long tradition for **sustainability** and are home to world-leading companies within the areas of green and sustainable technologies and solutions. All three countries are also highly involved in developing and implementing the newest **digital solutions**. Both the public sector and the population are generally open to new technologies and several companies in the region are front-runners within new digital solutions. If the region offers state-of-the-art infrastructure and framework conditions synchronised throughout the corridor, that will allow companies, entrepreneurs, researchers and organisations to develop, test, implement and use the newest digital and sustainable technologies and solutions across the three countries, and this will further boost growth potential and attractiveness.

Our analysis shows that the fixed link will create new opportunities particularly within the areas of **transport and logistics, advanced manufacturing and production⁴, and tourism and culture**. The industrial strongholds in the corridor are well-known and documented elsewhere. Our analysis suggests that the combination of technology, digitisation, sustainability and existing strongholds, which will benefit from the fixed link in terms of **transport and logistics, production and tourism etc.**, represents a particularly strong growth opportunity and that by combining the traditional regional strongholds with the future drivers of growth, the region can develop a strong and unique value proposition that can increase the region's competitiveness and growth prospects to a new level.

An integrated cross-border region with a shared labour market as well as an integrated educational and research arena will further support the development of new cutting-edge solutions in the region and create one of the world's most attractive and highly skilled workforces.

The Fehmarn Belt Corridor is also unique in that it contains two large metropolitan areas – Greater Copenhagen and Hamburg – with highly qualified workers, leading universities and research institutions, and cutting edge global businesses but the corridor also contains sparsely populated areas where

⁴ Here, advanced manufacturing and production is used as a broader term than the more narrowly defined “manufacturing” and includes industrial jobs, automatisisation of production processes and a focus on high value products and services.

space is still relatively easily available and affordable. Thus, the corridor does not only offer opportunities for knowledge-intensive businesses in the urban areas but also for businesses that need a lot of space and which will benefit from being located away from the large metropolitan areas.

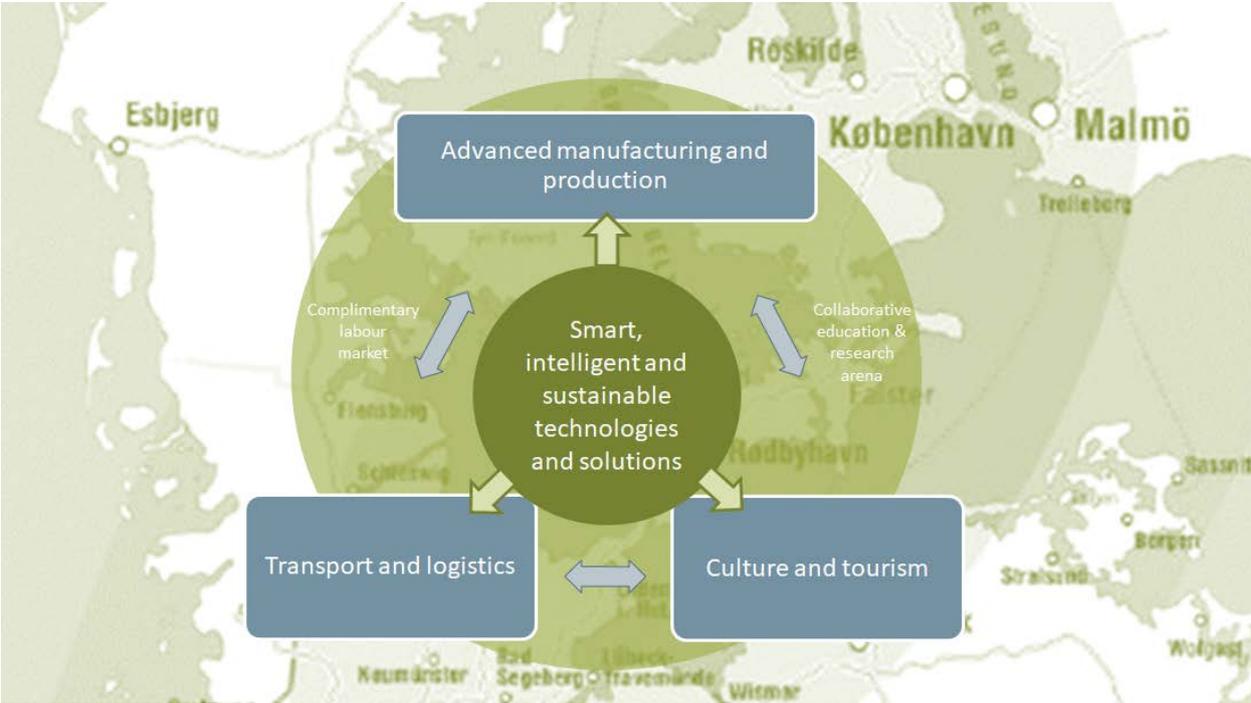
Thus, everything taken into account, the region offers a unique location for developing the smart and sustainable production, transport and logistics and tourism services and solutions that we need in the future, and it has the potential to become one of the worlds’ leading hot spots if the right decisions are made and preparatory work is done within the next decade. The figure below illustrates the potential and our proposed value proposition for the region.

A Future Fehmarn Belt Region

Fehmarn Belt will be a unique cross-border region where the newest digital and sustainable solutions are developed, tested, implemented and used.

The region is part of an important European corridor and gateway to three countries – all of them leaders in technology, digitisation and sustainability. The area offers a varied landscape of both densely populated urban areas and rural settings where space is still relatively plentiful. The region offers a unique location for developing the smart and sustainable manufacturing and production, transport and logistics and tourism services and solutions that we need in the future.

Figure 3.1. The future Fehmarn Belt Region – a hub for digital and sustainable solutions



Source: Oxford Research

The different elements in the figure, and how focus on digital and sustainable solutions help boost sectors such as production, transport and logistics as well as tourism, are described further below.

An overarching focus on sustainability and digital solutions supported by a coherent physical and digital infrastructure across the region

As mentioned earlier, we suggest for the region to have a strong focus on sustainability and on intelligent and smart digital solutions. The value proposition of the Fehmarn Belt Corridor should be to provide state-of-the-art infrastructure and framework conditions synchronised throughout the corridor, allowing companies, researchers and organisations to develop, test, implement and use the newest digital and sustainable technologies and solutions.

In order to be a leader in sustainability and digital solutions it is important to have the right digital and sustainable infrastructure in place, including:

- effective, fast, green and coordinated transport infrastructure with high-speed trains, green transportation alternatives and self-driving vehicles
- state-of-the-art digital infrastructure throughout the region, including the latest and fastest high-speed internet available and free WIFI access for everyone to be able to access the digital solutions
- open access to data throughout the region for researchers, companies, etc.
- state-of-the-art test and demonstration facilities that provide the opportunity to test, demonstrate and apply new solutions across three countries
- flexible legislation which can be adapted quickly to allow the introduction of new disruptive solutions, which current law does not take into consideration, in order for new digital businesses to challenge more conventional businesses and grow
- one-stop-shop to obtain all necessary permits to test and demonstrate solutions across borders in the region
- a public sector which is leading the way in introducing digital and sustainable solutions, including the production of green energy, green transportation, digital communication with citizens, etc.
- programmes in place which facilitate the first market application and scaling up of new solutions and create a level playing field with conventional solutions

As mentioned above, we see a particular – and unique – value in synchronising infrastructure across all regions of the corridor to allow companies to use it across borders.

In the sections below, we further explain how the combination of sustainability and digital solutions can help create new solutions and growth in some of the industries that are best situated to benefit from the opening of the fixed link.

Transport and logistics

The fixed link creates an obvious new potential for the transport and logistics sector because goods can be transported easier and faster within and through the corridor. The importance of the corridor as the gateway to Northern Europe and beyond will increase and more goods will be transported through the corridor. Goods from within the corridor can reach destinations in Northern, Central and Eastern Europe faster and especially companies selling fresh produce will experience a boost as their products can be transported faster and thereby reach destinations previously out of range.

Transportation can take place via road, freight and sea. New high-speed railways will reduce transportation times and improve the competitiveness of sustainable rail options compared to other modes of transportation such as road or air. The Port of Hamburg and Copenhagen Malmo Port will be even better situated as transportation hubs and they can work together to improve transportation options in the corridor.

Transportation and logistics will undergo massive changes caused by digitisation, automation, self-driving vehicles, drones, etc. as well as the focus on sustainable transportation alternatives. These developments will create new growth opportunities for the frontrunners but they also make up a challenge for the ones that are not able to transform their businesses and meet the new demands. The Fehmarn Belt Corridor is well situated to take advantage of new opportunities because all three countries are at an advanced level with regards to transportation and logistics.

To establish potential state-of-the-art testing and demonstration facilities and create green transport infrastructure, economic incentives must be provided to help bring new solutions to the market, reduce production costs and improve competitiveness compared to traditional forms of transportation. The public sector must be willing to take risks with new green transport solutions by being the first customer purchasing new innovative solutions as seen already in Hamburg, Copenhagen and Malmö.

As a result, the newest green transport solutions are being demonstrated and tested in the corridor, the latest form of green transportation is widespread and the necessary infrastructure for sustainable transportation solutions has been put in place. Charging stations running on electricity, hydrogen etc. facilitate green transportation across borders in the corridor and the production of renewable energy is high and complements the green transport infrastructure.

Advanced manufacturing and production

The countries of the Fehmarn Belt Corridor are all high cost countries that have nonetheless embraced globalisation and focus on maintaining jobs through innovation, automatisisation of production processes and focus on high value products and services. The creation of an integrated cross-border region will create a world-leading cluster of advanced manufacturing and production companies across various sectors such as renewable energy, life science, food, smart city, etc. They will benefit from having access to a highly skilled workforce and a wide selection of universities and research institutes, and from being part of an efficient and intelligent transport infrastructure that facilitates fast and sustainable transportation of their products as well as input materials.

Further, the general focus on and competencies within digitisation and sustainability in the region provide the ideal platform for developing the smart production solutions of the future. Highly specialised engineering firms and digital companies, along with first-class digital infrastructure throughout the corridor, help companies with automatisisation and incorporation of digital solutions into the production processes through frequent use of AI, IoT, automation, 3D printing etc. In that process, many of the more classical manufacturing companies will also be pushed from being mainly manufacturers of goods towards becoming solution and service providers.

Here, advanced manufacturing and production is used as a broader term than the more narrowly defined “manufacturing” and includes industrial jobs.

Culture and tourism

The faster and more frequent travel options as well as the focus on sustainability and digitisation will also present new options for tourism. Already today, the region has about 60 million overnight stays per year but the Fehmarn Belt Corridor will open new marketing and branding options and it will be easier for tourist coming to Hamburg to stop by Copenhagen and Malmö too.⁵ Thus, more tourists will come to the region and they will stay longer to see other parts of the region and not only one city or area.

The corridor also has a thriving cultural life, many businesses and entrepreneurs in the creative industries and many strong cultural institutions that contribute to the attractiveness and creativity of the region. This can both help attract tourists to the region as well as boost innovation.

The tourism industry can also embrace the new digital technologies and the green solutions being developed, tested and used in the region. Sustainable transport and accommodation options should be made easily available for tourists throughout the region and they will be easy to access and use across borders. The electrical vehicle which is available at the high-speed train station in Scania can be driven through the corridor, charged in Denmark and returned in Hamburg. Digital solutions will also be integrated into tourism offers and they will contribute to enhancing the experience at museums, castles, amusement parks, festivals and other tourist attractions. High speed WIFI will be widely available throughout the region and digital solutions will also help the tourists access green transportation options easily such as bikes, electrical cars and public transportation.

The focus on sustainability and digital solutions will also lead to new options for business tourists who will come to see the latest solutions being demonstrated, tested and implemented, learn from leading clusters and companies, test and demonstrate their own solutions and take part in some of the worlds’ prime conferences.

In order to succeed with the common branding activities, the different actors must accept that tourist attractions are a plus sum game and not a zero-sum game. Pooling resources in common branding activities will provide economies of scale and even if some tourists or a large conference might sometimes end up in another part of the corridor, all in all the common effort will benefit everyone in the corridor. Also, the common branding activities will supplement individual branding activities and not replace them.

A cross-border region with a complimentary labour market and a collaborative education and research arena

In order for a true cross-border region to develop, it is fundamental to move towards a complimentary labour market and a collaborative research and educational arena. We are aware that a fully integrated

⁵ <http://femern.com/en/Benefits/Cross-border-cooperation/Tourism>

labour market and educational arena is extremely difficult to achieve but it is important to move in that direction and increase the flow of workers and students across borders.

Moving towards a complimentary labour market and collaboration within educational and research is fundamental to boost the region's attractiveness and this will increase the chances of not only retaining existing businesses but also attracting new businesses who often rank access to cutting edge knowledge and a well-educated labour market as their number one location criteria.

In an integrated labour market, the labour moves freely within the region and, as an example, a company on Zealand recruits their employees from the entire region. This increases access to highly skilled employees and reduces labour shortage. Furthermore, there are no administrative obstacles – such as tax, social security and pension regulations - to living in Denmark and sharing one's time between the offices in Malmö and Hamburg.

In addition, effective transport infrastructure with high speed trains and self-driving vehicles will facilitate the movement of labour within the region and increase mobility. In order to achieve the necessary coordination, a common transportation strategy must be worked out for the corridor and different transportation modes must be synchronised, including roads, railways, harbours etc.

Similarly, an integrated educational arena with cooperation amongst educational institutions and increased student mobility in the corridor will boost the quality of research as well as the educational supply, at the same time providing more students with access to their preferred education. The educational institutions will coordinate their supply of education and offer joint courses. They will also offer relevant sustainability and digital educations to give the businesses access to the right skills and to support the overall strategy being pursued in the region.

Therefore, more students will have access to their preferred education in the region and more students from outside the region will be attracted by the supply of education. A university in Copenhagen and Hamburg will offer joint programs and degrees delivered in Southern Denmark and a student in Sweden can select classes in Denmark and Northern Germany that are of special interest to the student. In addition, degrees and certifications are acknowledged across the region and workers can work across all three countries.

The large-scale research infrastructures ESS, MAX IV (in Lund) and DESY (in Hamburg) carry special potential for cooperation and for attracting researchers and business to the region. The research infrastructures are world-leading in their area and one entry point for all three infrastructures would increase their uniqueness even further. The research infrastructures are so advanced that many companies do not know how or where to conduct their experiments but one entry point would help guide companies to Hamburg and/or Lund, thereby increasing the value provided. Further, the scientific staff at ESS and MAX IV and the staff at DESY can work together. Staff can be exchanged and they can have a common laboratory and data centre located halfway between the large-scale research infrastructures.

We are aware that it is challenging to achieve a shared educational arena too but as for the labour market the goal should be to move towards a better coordinated educational arena with a higher degree of student mobility and increased supply of relevant knowledge.

A future providing growth opportunities throughout the corridor

As mentioned earlier, the region contains both two large urban areas and some more sparsely populated areas in between. Naturally, the potential for these two types of areas are very different from each other. It is important to help facilitate economic development in the urban areas but many of the new opportunities will be exploited by highly skilled people and new and established businesses automatically. In the sparsely populated areas, the stakes are higher: less will happen automatically and it is even more important to focus on making sure that the sparsely populated areas benefit from the new opportunities. If not, economic growth could bypass the rural areas.

In the large urban areas, knowledge intensive services will dominate and focus on digital solutions and sustainability is well aligned with the strategies pursued by many businesses. The urban areas will be digital, creative hotspots and businesses focusing on smart city solutions will both develop and test new solutions in the cities.

A significant share of the businesses will pursue R&D activities and work closely with the universities and research institutions in the region. Further, new technologies and businesses will emerge from the universities and research institutes that play a prominent role in driving growth and innovation in the region.

Many tourists will continue to come to the urban areas and there will be a large potential for business tourism through business people coming to the region to participate in conferences and visit world-leading companies and research institutes to learn about the newest developments and trends in digital and sustainable solutions.

The sparsely populated areas will not have the same access to highly qualified people and R&D-intensive companies to drive innovation but they have other opportunities that might be to their advantage. The areas can host businesses that require a lot of space or need to be placed away from residential areas. As an example, this includes manufacturing companies, data centres, warehouses and distribution centres. Retention and attraction of warehouses and distribution centres in particular is well aligned with the focus on intelligent transport and logistics.

A focus on sustainable solutions will also provide new opportunities for sparsely populated areas in terms of sustainable energy production where space and access to shoreline are also important factors.

Even if technology will be an important driver of growth in the region, technology alone is not enough. What the region is good at – and must remain focused on – is application of technology, turning technology into smart solutions, holistic solutions, human centred solutions, and sustainable solutions; how it can be combined with design; and how design thinking can help solve the problems that we face in our everyday lives. Thus, technology is not the end goal but a tool to improve liveability and sustainability in the corridor.

On a broader scale, focus in the corridor will be more on knowledge intensive industries and not only on technology. The corridor will compete on knowledge, innovation and high value solutions and not on price. Therefore, it is more important to secure good framework conditions for these industries and support R&D and technology transfer rather than to provide tax breaks, low corporate tax rates and low production costs.

3.1 FIVE STEPS TOWARDS AN INTEGRATED GROWTH CORRIDOR

One thing is the long-term vision. But how will we get there and which growth steps will we experience on the way towards a high-tech, sustainable cross-border region? Having analysed the development of other cross-border regions such as Oresund and Eurotunnel, we foresee five main growth steps on the road to the end goal – Northern European Digital and Sustainable Growth Hub. Each step will have its own primary growth dynamics as well as key challenges that must be addressed as we move along in the development process.

We are currently in the preparatory phase which will be followed by the construction phase. Once the construction opens, an actual corridor will start to form. In the next step, cross-border integration and mobility will be driven by differences in wages, prices, employment, real estate, etc. In the fifth and final step, the regions and central actors will start exploiting shared strongholds and industrial clusters to further increase the comparative advantages of the strong industries in the region. The five steps and the key dynamics within each step are illustrated in the figure below.

Figure 3.2. The five growth steps

Growth steps and key dynamics in creating a cross border growth region					
Growth step	Step 0	Step 1	Step 2 Inauguration	Step 3	Step 4
	Preparation phase	Construction phase	Corridor & Curiosity	Complementarity	Similarity
Key dynamics	<i>Expectations of the coming growth potential should drive preparatory actions.</i>	<i>Growth in construction and related industries close to the Fehmarn Belt.</i>	<i>Fixed connection creates corridor effects and curiosity increases tourism and leisure visits.</i>	<i>Differences (in prices, regulations, labour market, etc.) drives cross-border integration and growth.</i>	<i>Similarities (also meaning synchronisation of regulations and infrastructure) drive the last growth step.</i>
Growth potential	<ul style="list-style-type: none"> • This phase is not so much about growth – but about preparing for it. • There is a clear need to be well prepared to harvest growth potential and be able to address challenges as they occur as soon as the construction takes off. • Taking the collaboration and coordination structure to next level is key. 	<ul style="list-style-type: none"> • Up-grading of local businesses – they get international experience and build up relations with large players. • Attracting inhabitants and labour to the areas around construction site. 	<ul style="list-style-type: none"> • Increased transport and logistics activities. • Easier market access for producers of time-sensitive goods. • Sprouting interregional tourism and leisure market. 	<ul style="list-style-type: none"> • Decreased regional labour shortages as well as regional unemployment. • Increase in tourism and leisure visits across the regions – ‘to see something different’. 	<ul style="list-style-type: none"> • Cluster formation and increased triple helix collaboration. • FDI driven by attractive synchronised framework conditions across the corridor. • Increase in international tourism volume based on joint tourism products and branding.

Source: Oxford Research

3.1.1 Step 0: the preparatory phase

We are currently in the preparatory phase. At this stage, we have not yet seen actual growth starting to materialise. Instead, work is driven by expectations related to the fixed link and the effects it will create as well as experiences from other regions showing that a large part of the potential does not materialise automatically but requires a conscious effort to develop a functioning and well-integrated cross-border region. This phase is important since this is where the foundation for realising the potential is laid and it provides an opportunity for eliminating barriers for individuals and businesses working across borders in the three countries. In order to address challenges and cross-border obstacles, it is important to have the collaboration and coordination structure in place by which to identify challenges, put them on the political agenda and push to have them removed.

The key challenge at this stage is to maintain momentum and re-establish enthusiasm and commitment among the many different stakeholders at regional, national and local levels because the inauguration of the fixed link is still far away and has been delayed several times.

Information and branding activities aiming at providing visibility to the potential which the corridor will bring for businesses and people are among the activities that can help address this challenge.

At this stage, there is also a need to take current collaboration and coordination structures to a new level and make sure that we start addressing the key issues related to free movement across the corridor early enough.

3.1.2 Step 1: the construction phase

In the construction phase, we start seeing growth in the construction industry and other related industries close to the Fehmarn Belt. The growth will emerge from companies and workers coming to the region and from local companies – especially small and medium sized businesses – getting orders related to the construction of the fixed link. To maximise growth, it is important to inform local companies about upcoming tenders, about bidding and supplier requirements related to the fixed link, and about how to become part of consortia with other companies to bid for orders that they cannot bid for themselves.

While the most immediate possibilities for the local companies are directly related to the fixed link, it also opens up possibilities beyond the construction work. Being part of a project with the size and complexity of the Fehmarn link, and with the participation of large international players, provides an opportunity for local companies to learn new skills and create new networks that they can use to acquire additional projects in and outside the corridor.

Another option to maximise growth related to the construction phase is to try to attract inhabitants and labour to the (sparsely populated) areas surrounding the construction site. Often, many workers leave the area when the construction work is completed; however, the areas around the construction site have many available jobs in the service sector that could make it attractive for spouses to move with the construction workers into the region. This would create additional activity during the construction phase and it would also increase the likelihood of retaining people afterwards.

The key challenge in the construction phase is the lack and drainage of qualified labour in the areas close to the construction site as well as handling the massive inflow of foreign workers. We know from other regions that this is not always an easy task for the local communities. It is also important to make sure that the construction efforts will lead to continuous growth once the construction is completed and most jobs directly related to the construction disappear.

3.1.3 Step 2: the creation of corridor and initial curiosity

As soon as the corridor is finished, the first effects will be visible. The main purpose is the creation of a transport corridor where goods and people can move faster from one end to the other. In particular, this will have a positive effect on the movement of time-sensitive goods and services because fresh food and services can be delivered faster across the corridor.

There will also be an emerging curiosity to do business within the corridor and beyond from export businesses with growth ambitions. The fixed link will shorten transportation times within the corridor but it will also – and perhaps this is even more important – shorten the psychological sense of distance between the actors and countries in the region.

It is important to be ready to take advantage of the initial curiosity when the fixed link is inaugurated to maintain momentum and generate positive effects that can help create a positive spiral of actions and a spurt of energy to take advantage of these new opportunities. Thus, at this early point, it will also be important to have effective infrastructure in place to help facilitate the increased flow of goods and services and allow people to move faster within and beyond the corridor.

A key challenge is also to keep the momentum generated by the opening of the fixed link and to start exploiting the possibilities that it generates. At the same time, it will be a challenge to find new jobs for the workers who previously worked on the ferries across the Fehmarn Belt and related activities as these sectors will experience a drop in demand.

3.1.4 Step 3: exploiting differences

Following the initial curiosity – but also caution – people in the corridor will start exploiting the differences between the three countries. The driver behind the movements in this phase will be the people more than the companies. As it becomes easier to travel throughout the region, more people in low wage regions will start looking for jobs in high wage regions, people in regions with expensive real estate will start looking for houses, flats and summer houses in cheaper regions, and people in regions with high unemployment rates will start looking for employment in regions with lower employment rates. The fact that it is easier to travel throughout the region will increase the mobility but – as mentioned before – the psychological factor will also be very important: Copenhagen will feel a lot closer if you live in Hamburg and the other way around.

The effect described above has been very strong in the Oresund region where the opening of the fixed link led to an influx of Swedish labour to Copenhagen and an influx of Danish residents to Sweden. The mobility across the region revealed a number of barriers for living and working across the Swedish-Danish border related to taxation, social security, pension, etc., and such barriers were more significant than expected. As the Fehmarn Belt Corridor comprises three countries, there will be even more barriers in the Fehmarn Belt Corridor. It is important to have removed as many of these barriers as possible before the fixed link opens but it will most likely not be possible to anticipate all barriers in advance. Therefore, in this phase it is also important to employ information services that inform people about these issues and can help address them as quickly as possible. Such information services have been important for facilitating the flow of people in the Oresund region.

As mobility increases, it will be a key challenge to address cross-border barriers quickly and effectively. Even if a lot of preparatory work has been done to remove barriers so far, new barriers are certain to emerge once mobility increases and many new combinations of residency, job location, tax liability, pension savings, social security needs etc. emerge.

3.1.5 Step 4: exploiting similarities

The increased mobility in the corridor created by the fixed link and the differences between the regions will increase the supply of labour and potentially increase the purchasing power of people who either work in higher wage areas or live in areas with lower real estate prices. Access to highly qualified labour

is very important for companies but the next phase – when similarities in the three Fehmarn Belt Corridor countries are exploited – is even more important for boosting innovation and competitiveness in the region.

The most significant part of exploiting similarities will be the potential collaboration between industrial strongholds and clusters throughout the region. Sustainability and digital solutions has already been highlighted as common strongholds and it has also been identified that the fixed link will particularly create new growth potential within the sectors of manufacturing, transport and logistics, and tourism. But the regions also have other common industrial strongholds where increased cooperation can create even stronger clusters. Examples include life science, the food industry and gastronomy, ICT, the maritime industry and the plastic industry.⁶

In this phase, the labour market, education and culture will also become more integrated. People will not only look for a job in another part of the region because the wage is higher but will look for jobs throughout the region, and businesses will recruit labour from the whole region. Similarly, students will apply to educational institutions throughout the region and the educational institutions will advertise for students throughout the region.

Within the tourism sector, branding and tourist organisations will take advantage of the Fehmarn Belt Corridor in their marketing efforts towards companies and individuals, and the tourism agencies will pool resources in joint branding efforts for the Fehmarn Belt Region as a supplement to their own branding. This has already happened and will also happen in the previous phases but the focus on the common good of the region, the willingness to pool resources in joint campaigns and acceptance of the fact that sometimes a conference or tourist will go to another part of the region will increase.

A key challenge is to strengthen the notion of an emerging Fehmarn Belt Region and to move towards more binding forms of collaboration, to devote more resources to larger and more complex common initiatives and projects, to discuss transferring more resources and maybe even decision-making power to the collaborative structure of the Fehmarn Belt Region, and to keep moving towards synchronised regulations and laws.

3.1.6 Phases are not set in stone

The phases we have described above are not set in stone and the development can vary from one area to another. Some areas might relatively quickly get to step 4 whereas others might need more time to reach that level of integration. Therefore, it is also difficult to predict how long it will take to reach a given phase. For the Oresund Region, it has taken 17 years to reach a stage that in most aspects is similar to step 3. Some similarities are exploited and many cross-border initiatives are underway but there is still some way to go before the region is integrated. The Fehmarn Belt Corridor can learn from many of the challenges encountered in the Oresund Region to speed up the integration but the process might also be more complicated since this new corridor involves three and not just two countries.

⁶ http://forskning.ruc.dk/site/files/33063368/Business_Opportunities_in_the_Femern_Belt_Region_1_.pdf

4. Roadmap to an integrated growth region

In the previous chapter, we described what the Fehmarn Belt Corridor can turn into if we succeed in establishing a cross-border region and combining existing strongholds with new opportunities, developments, trends and technologies that will drive overall economic development. We have also highlighted that even if the construction of the fixed link itself will generate billion of euros in economic activity, the benefits to the corridor will to a large degree depend on the efforts to reap the benefits. The work aiming at maximising the benefits of the fixed link started many years ago: many important steps have been taken and important initiatives have been launched. As we get closer to the inauguration of the fixed link – and the time following the inauguration – preparations should intensify with additional initiatives being launched and new cross-border organisations being established. But what exactly needs to be done, how should it be done and when should it be done? Our roadmap to an integrated growth region describes the answers to these questions.

4.1 WHAT NEEDS TO BE DONE

In order to facilitate the movement towards a thriving and sustainable Fehmarn Belt Region driven by cross-border dynamics, collaboration and new smart and intelligent technologies, we see the need for four types of action:

The most fundamental action is to **strengthen the collaboration and coordination structure** in order to have the needed organisational set-up that can efficiently address barriers and possibilities as and when they occur during the journey towards a cross-border region. This means taking the central collaboration platform to a higher level and creating what we call task forces and innovation platforms.

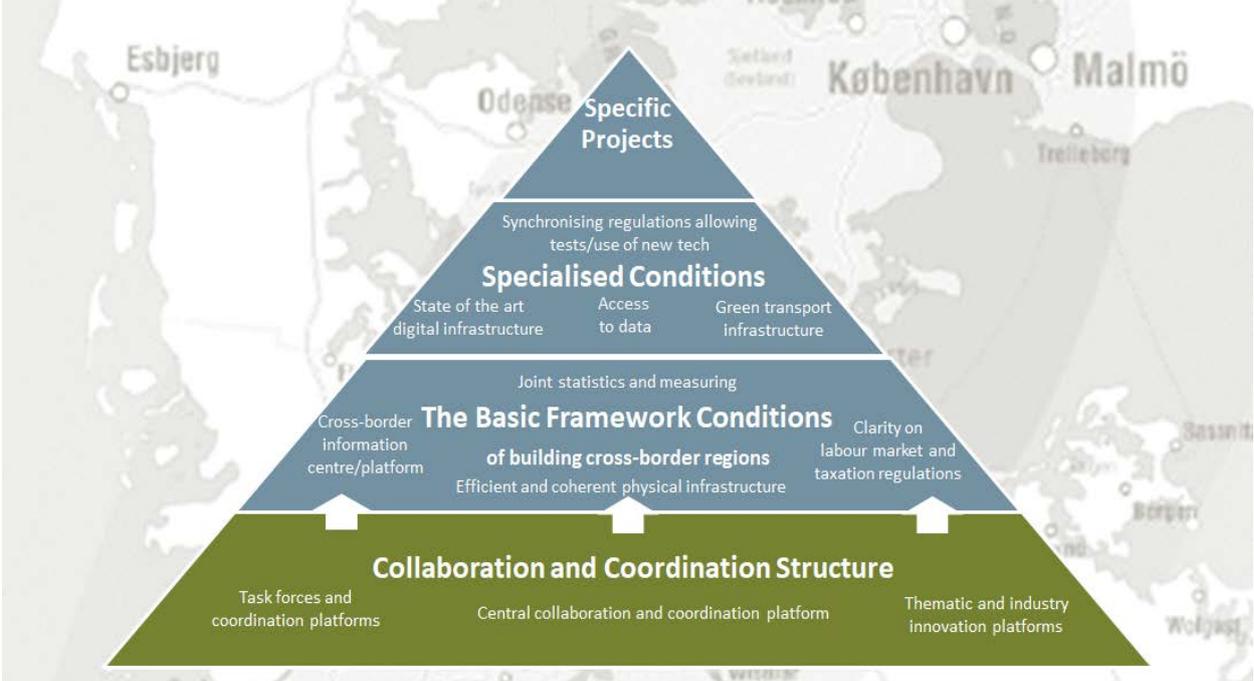
Actions also needs to be taken to support the **creation of basic framework conditions** for allowing the fundamental cross-border dynamics to increase in the region, including establishing an efficient physical infrastructure and clarification and synchronisation of conditions for commuters, companies and students living, working and studying across national borders in the corridor. These actions are fundamental to creating any cross-border region and do not specifically relate to the strengths and possibilities in the Fehmarn Belt Corridor.

The next set of actions is the **creation of specific framework conditions** for achieving the ambition of turning the corridor into a cutting edge and sustainability hub. These actions relate more specifically to the value proposition of the Fehmarn Belt Corridor. This includes elements such as state-of-the-art digital infrastructure, the newest green infrastructure, open data access, synchronised regulations that allow testing, demonstrating and using latest digital technologies and access to sustainable energy sources all along the corridor.

The last set of actions is the **initiation of new specific projects** to facilitate collaboration and innovation across borders between key stakeholders in the region. It is not possible to predict exactly which projects will be relevant but it is important that they are demand-driven and developed in close cooperation with key stakeholders in the corridor. This could be new collaborative innovation projects

bringing together academia, businesses, public institutions and civil society organisations in developing, testing and implementing new sustainable solutions. The four types of actions are illustrated in the figure below.

Figure 4.1 What needs to be done in the Fehmarn Belt Corridor – four types of actions



Note: The elements mentioned at each level are only examples of themes and actions and not a complete list of actions. Source: Oxford Research 2017

4.2 HOW SHOULD IT TO BE DONE

In the Fehmarn Belt Corridor we see a need to act upon a variety of challenges but as explained earlier, the most important step now, in order to move forward, is to strengthen the collaboration and coordination structure that can drive integration and address both the basic framework conditions and more specific conditions and projects in a strive to create a cross-border digital and sustainable innovation hub. We imagine such a collaboration structure as STRING 2.0. Based on the analysis, we have identified three levels of interacting platforms that would be essential to address when it comes to overcoming barriers and exploiting potential and possibilities.

Figure 4.2 A possible collaboration and coordination structure in the Fehmarn Belt Corridor



Source: Oxford Research 2017

4.2.1 Central collaboration and coordination platform

At the overall level, it is essential to develop the already mentioned central collaboration and coordination platform where issues of relevance at the overall policy level can be discussed in order to create a prosperous cross-border region. We imagine such a central collaboration and coordination platform in the shape of a *STRING* Committee.

For many years, the political cross-border partnership between the regions in Fehmarn Belt has fostered many important initiatives and helped to strengthen the regional development of the area. But – as we get closer to the opening of the fixed link – we have identified a need to intensify the joint political collaboration in *STRING*, make it more systematic and delegate more responsibility to a central collaboration and coordination platform within carefully selected and defined areas. Several of the key stakeholders interviewed pointed towards the need of taking the already existing collaboration in the Fehmarn Belt Corridor to a more intensive level by giving the central collaboration platform a clearer mandate and more decision power followed by economic means related to specific tasks. However, in the context of the Fehmarn Belt, it is not realistic to believe that neither the national, regional or local authorities would be willing to delegate a large degree of decision-making power to a collaboration and coordination platform. A supranational body is neither a technically nor a politically viable method. Therefore, a point of departure for collaboration must continue to be dialogue-oriented and consensus-driven and build on a flat structure with equal influence from all partners.

Before deciding on the mandate and form of the central collaboration platform, a more in-depth mapping and discussion of possible tasks, mandates and resources is clearly needed. Focusing primarily on interregional development and collaboration, the first key task is to identify the areas that regions and bundesländer in the three countries are responsible for and may act within without being dependant on the local or national level. Related to this, it is important to obtain an overview of the differences in governance structure in the three countries. In our view, a central collaboration platform must deal with the most overall and broad questions, but it may also be responsible for specific initiatives in the corridor such as information, branding and visibility of the corridor, and setting up and development of task forces and innovation platforms in order to act on different challenges and needs for action in the corridor as and when they occur. Through the work of task forces that deal with specific issues identified by the central collaboration and coordination platform, they will feed information back into the central platform, thereby raising issues and carrying out lobbying towards relevant national and regional authorities.

As a catalysator for regional development, the central collaboration and coordination platform must continue to be a platform for political collaboration similar to the STRING board. The regions will be the main drivers in setting up, driving and financing the platform. At a regional level, this means that the elected chairman of the councils and the elected minister president from the bundesländer in the corridor are involved but having analysed other cross-border regions and consulted stakeholders in this study, we recommend that also national government representatives are included in order to leverage the discussions and actions on the national agenda. At the same time, however, we recognise that making the responsible ministers for trade, foreign affairs or industry from each country to take part in the discussions might be difficult in praxis. Therefore, we encourage lobbying for the three countries to appoint a minister for the Fehmarn Belt collaboration in order to provide strong incentives for the ministers to show actual results and progress in creating an integrated cross-border growth region. Finally, the central platform must also obtain input from local municipalities, industry associations and other relevant stakeholders in the corridor. Combined with physical meetings, an online forum for discussion and collaboration might also be fruitful as a means of providing key policy stakeholders throughout the corridor – including local municipalities – the opportunity to share ideas on new initiatives and actions.

In our view, funding a central collaboration and coordination platform can be done through regional development funds and national innovation and cluster programs as well as EU/Interreg funds eventually. However, in praxis, the basic funding of the central collaboration and coordination platform will probably be done by the regions and bundesländer located in the corridor based on their strong interest in regional developments within the corridor. The regions would also be drivers in the collaboration due to their competencies within business and regional development and the chairman/spokesperson would probably be a representative from the regional/bundesländer level.

4.2.2 ‘Task Forces’ and Coordination Platforms

The central collaboration platform must be able to appoint ‘task forces’ and coordination platforms that can deal with more specific issues identified by the central collaboration platform. As an example, a task force might be created to clarify tax regulations for cross-border workers in the corridor and shed light on possible solutions. The task force would pass their analyses and recommendations on to the central collaboration platform for further consideration.

The members of a task force or coordination platform would typically be civil servant representatives from relevant authorities and bodies in each national ministry, agency or council with deeper specific knowledge of the specific issues. The actual composition of the task force will vary depending on the issue.

In a cross-border region, there might be a number of relevant framework conditions to address but having consulted a number of key stakeholders in this study, it is our view that three key areas need to be addressed as soon as possible:

- 1) **physical infrastructure and traffic systems:** Effective transport of persons and goods is a necessary condition to achieve the full potential in the Fehmarn Belt Corridor. Whereas the fixed link in itself is important, it cannot achieve anything on its own. The infrastructure all across the corridor should be modernised in accordance with the needs to accommodate an uninterrupted flow of persons and goods between the Oresund region and Hamburg. Many initiatives are already in progress but having consulted many of the stakeholders in this study, it is our view that there is still a need to jointly formulate unanimous quality standards in the Fehmarn Belt Corridor. This means a stronger collaboration between not only the responsible authorities in each country but also between the hub-stakeholders such as airports, harbours, transport centres, train operators etc.
- 2) **clarity on taxation, social security and labour market:** In order to reach the full potential of the new infrastructure, focus must be on clarifying and synchronising framework conditions within the labour market. Transparent labour market conditions include not only transparent conditions for family benefits but also tax regulations, reduction of double taxation on labour pensions etc. Setting up task forces does not lead to a shared labour market or more harmonised tax legislation in the cross-border corridor directly. What we are suggesting is that the responsible operative authorities must identify barriers and provide clarity and knowledge – not only to the central collaboration and coordination platform but also to commuters and businesses in the corridor. More clarity on regulations is also a good starting point for the central collaboration and coordination platform to create pressure and drive regulatory changes in an effort to move towards a synchronised labour market.
- 3) **digital infrastructure:** In a viable cross-border region where the newest digital and sustainable solutions are developed, tested and used, effective and liable digital infrastructure plays a significant role. Therefore, we suggest that the relevant operative authorities and industry stakeholders work collectively to commit to actions that provide knowledge on barriers and opportunities to improve the digital infrastructure in the rural areas of the corridor. This is also a good starting point to pressurise national authorities into modernising policies and encouraging them to invest in the improvement of digital infrastructure – for example in the 5th generation of wireless systems (5G) that might be a necessity for test and demonstration facilities all along the corridor.

4.2.3 Innovation Platforms

To reach the possible future in the Fehmarn Belt Corridor where the newest digital and sustainable solutions are developed, tested and implemented, the central collaboration and coordination platform must be able to develop and support the launching of innovation platforms for multi-stakeholder

collaboration in the corridor. The platforms must be a framework for activities and projects that can inspire companies, researchers, civil society etc. on new trends, technologies and sustainable approaches, and can be used as a basis for developing and testing ideas.

In order to create an innovative environment for developing and testing new ideas, it would be important to reach out to a wide range of regional and national networks, clusters and innovation programs. Therefore, the platform for innovation must either comprise the triple helix concept where researchers from universities can meet with industry and government in a knowledge-based collaboration or in a quadruple helix concept where users and civil society organisations are also included.

One of the advantages of organising the platform as a triple or quadruple helix concept is that it enables firms and businesses to use university research infrastructure for their R&D objectives and encourages civil society players such as NGOs to become an active part of the innovation system. In particular, it would be important to involve NGOs and civil society organisations in terms of developing and implementing new sustainable and human-oriented solutions. There are already many examples of philanthropic organisations that are part of social innovation projects around the world.

In our view, the innovation platform activities and meetings must be funded by regional development funds and national innovation programs. In addition, the innovation platforms must be able to provide knowledge and support to the stakeholders to seek funding for large-scale innovation collaborations, for example gearing the regional funds with innovation and funding programs in the EU.

4.3 WHEN SHOULD IT BE DONE

One thing is all the actions and tools that need to be utilised to tackle different challenges and achieve an integrated high-tech and sustainable cross-border region. But when is the right time to act on these challenges? In our view, **taking the collaboration and coordination structure to the next level is the most urgent challenge to focus on now.** As a point of departure, collaboration should be dialogue-oriented and consensus-driven, and in the beginning, the regions will be the main drivers of the collaboration and coordination efforts. In the long term, following in-depth mapping and discussion of possible tasks, mandates and resources, the platforms could be given a clearer mandate and more decision power, followed by economic means related to specific tasks.

Next to a strengthened collaboration and coordination platform several other areas require action – some in the short run, others long-term:

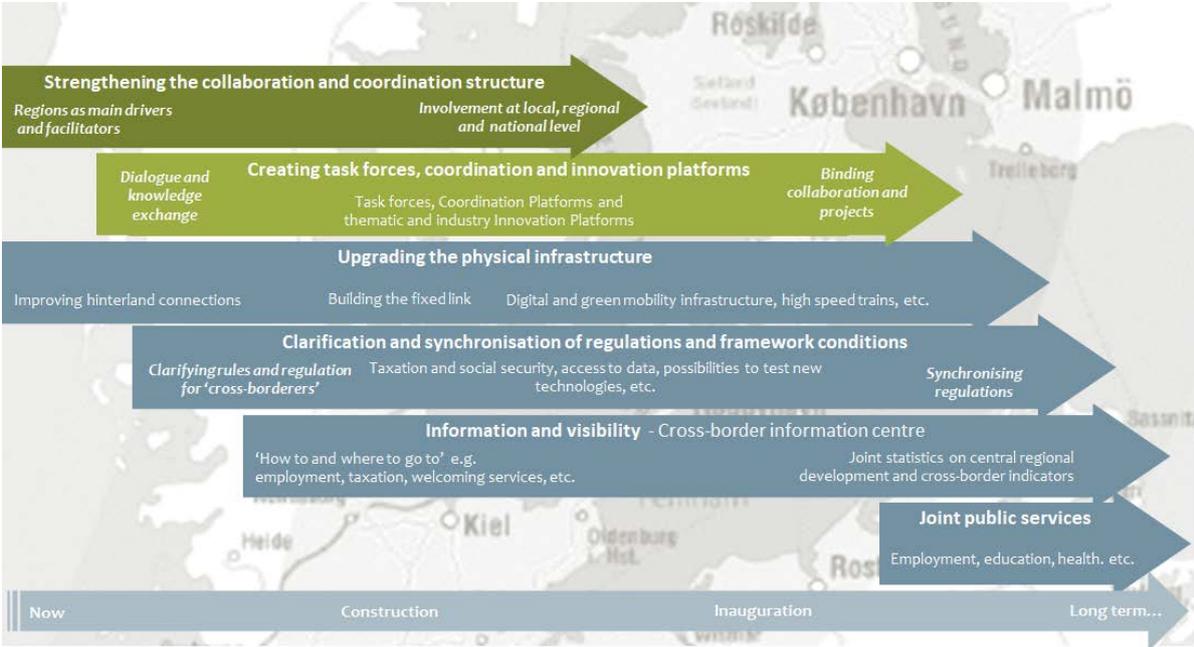
Upgrading the physical infrastructure: Having consulted many stakeholders in this study, it is our view that hinterland connections still make up a key priority to ensure better punctuality and reliability with regards to movement of people and goods all along the corridor. However, due to all the actions and efforts that are already in progress for the purpose of building infrastructure in Fehmarn Belt and its hinterlands, it is important to aim for synergies and interlink new initiatives to ongoing efforts. As we move closer to the inauguration of the fixed link, it is crucial to increase focus on improving digital infrastructure and sustainable, green transportation systems in the corridor.

Clarification and synchronising regulation and framework conditions: As we approach the inauguration of the fixed link, there is a need to provide more clarity and coordinate the different framework conditions on tax, labour, social security, pension etc. in the corridor. Currently, a key priority is to clarify the regulation and legislation differences, find out how this affects mobility within the cross-border region, and identify those responsible for regulations and legislation in the three countries. As we move closer to the inauguration of the fixed link, specific challenges must be brought to the attention of the relevant authorities at national, regional or local levels, and efforts to remove barriers must intensify. We are aware that the three countries cannot harmonise their tax, pension, social security regulations but it is important to put pressure on relevant actors to reach agreements which will allow free movement in the corridor.

Providing information and raising visibility: During the construction phase and towards the inauguration of the fixed link, the demand for information from businesses and commuters in the corridor will increase significantly and – as happened in the Oresund region – it is important to have an information centre that can deal with cross-border issues fast and effectively, and where people can gather information about employment opportunities and differences in regulations, tax, etc. Also, the provision of information on regional corridor developments and cross-border indicators will become a key priority in the long run.

Joint public service: In the longer run, the possibilities for joint public services must be investigated and discussed. Cross-border collaboration on public services such as health and employment services holds a very large potential for improving quality, specialisation and efficiency by coordinating investments and exploiting complementarities in competencies and cost structures across regions and countries in the corridor. However, we recognise that it is very difficult and complex to do this in praxis and such efforts require a high level of maturity in terms of collaboration, both structural and relational, between the involved regions and countries.

Figure 4.3 Timeline of key actions related to establishment of the Fehmarn Belt Corridor



Source: Oxford Research 2017

5. Appendix A – list of people interviewed for the project

The experts interviewed for the project are listed in the table below. We greatly appreciate their very valuable contributions to the study.

Name, title and organisation
Christian Wichmann, Professor, University of Copenhagen, Geography
Britt Andreasen, Chief Analyst, Øresundsinstituttet
Jesper Bengtson, Regional Manager, Horesta
Finn Lauritzen, Former CEO of Øresundskomiteen
Michael Svane, Branch Director, DI Transport
Jan Laustsen, CEO, Handel, Marked & Ernæring, Danish Agriculture and Food Council
Petter Hartman, CEO, Medicon Valley Alliance
Jan Serup Hylleberg, Managing Director, Danish Wind Industry Association
Martin Bender, CEO, Visit SydSjællandMøn
Claus Lønborg, CEO, Copenhagen Capacity
Sara Pezzolato Ipsen, Head of Secretariat, Greater Copenhagen
Rüdiger Schacht, CEO, IHK Lübeck
Jörg Knieling, Hafencity University, Member of the Academy for Spatial Research and Planning
Bernd Jorkisch, CEO, Hansebelt
Pia KINHULT, Strategic Advisor, ESS
Stina Nilsson, Strategy Infrastructure and Swedish negotiations
Gitte Wille, Head of Culture, Kultur Skåne
Per Bondemark, Näringslivets transportråd
Håkan Jönsson, Food Researcher and University Lecturer, Lund University
Pia Jönsson Rajgård, CEO, Tourism in Skåne
Leo Huberts, Policy Coordinator, European Commission, DG Move

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