

2 Seas Magazine

SPECIAL FOCUS

INTERREG IV A 2 MERS SEAS ZEEËN

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A cluster initiative:

SMALL AND MEDIUM SIZED PORTS AS HUBS FOR SMART GROWTH AND SUSTAINABLE CONNECTIVITY

2 Mers Seas Zeeën

INTERREG IV A

FRANCE - ENGLAND - VLAANDEREN - NEDERLAND



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Howard Holt

Director Seaports

It is of course true that the majority of the ports in the European Union area are small or medium sized and tend to serve local or regional markets rather than national or international ones. And yet **to read the maritime media it is difficult to find much reference to these vital parts of the European economy**, which so often underpin the local economy, ensure worthwhile employment opportunities and greatly assist towards local regeneration. It is timely to appreciate their strengths and acknowledge their valuable contribution.

For all ports the last few years have been difficult. In the early 2000's the mindset of many larger ports had become overly concerned with year on year trade growth, so when the European recession hit the effects were immediate and hard. The headlines were mainly concerned with the large container handling ports, but many small and medium sized ports felt much more pain with perhaps the loss of a regular ferry or cargo service. In addition, **all the necessary regulations apply just as much to small ports as to large ones, and the cost of compliance can be disproportionately high**. Without much in-house resource and with squeezed income, small and medium ports were often in a difficult situation.

How to respond? Within the pages of this document you will find many individual solutions, but the overall themes have very much in common. Often the process started with a critical examination of the actual resources available to the port and a serious look at the wider opportunities around and outside the traditional port trade flows. Port managements rose to the challenge with innovative ideas, engaging with their customers, stakeholders and cross-border partners to determine and then deliver some outstanding examples of best practice and sustainability.

In all the PAC2 project countries offshore renewable energy developers were bringing forward their plans for construction and maintenance of multi-million euro projects. Ports, however, often went beyond just providing land and quays, to engage more fully in providing back-of-port added value facilities and the development of renewable energy sources for the port itself and for its customers. Similarly, by looking into the upstream and downstream supply chains, often working across national borders, opportunities were seized to provide more sustainable solutions to the transport and logistics industry.

Finding new solutions, examples of best practice and benchmarking against peers can only be done by engagement with other ports, especially by drawing on the wider experience of those in other nations within the European Union. From time to time I have worked with all of the ports in the PAC2 cluster and have noted with pleasure that, despite their often being commercial competitors, they have recognised that at a strategic level the benefits of cross-border cooperation are immense.

I salute them all and wish them well.

Howard Holt

Introduction

Most ports can be categorised as Small or Medium sized Ports (SMPs), let's call it "have SMP status". Their importance, however, goes quite often unnoticed, because all attention goes to the larger ports that are engaged in the rat race for ever more tonnes, or ever more boxes. The investments needed to keep pace are as massive as they are frightful. However, it remains custom to judge ports on volume and growth.

It is doubtful that this is the right criterion. **It is essential that we look beyond these basic indicators to better understand the economic importance of a port in terms of added value, employment and return on investments**, criteria which can easily be compared to the performance of the local community or region as a whole and used to calculate the relative importance of the port in the wider economy.

Let us consider an example to illustrate this: **several SMPs are engaged in supporting the offshore industries, whether it is oil and gas or more recently windfarms. They simply disappear from the many tables published that rank ports based on volume only.** Too bad. We all know that the added value and employment in those ports just simply keeps local economy turning, creates direct and indirect job opportunities, supply chain connections that no world-sized container terminal can match.

The strategic choice of what business to engage in is often a very difficult one. Many if not most SMPs lack the available surface area for a diversified business and therefore rely on a very limited number of customers, which can be very risky. SMPs do not have the luxury of a great number of regular lines where if you lose one, you gain one.

In conclusion, an SMP needs to be smart. Do better than an average volume based port, find customers who are willing, and often need, to be equally smart to build their business in the hinterland of cross-border region and beyond. Cooperation between port authorities and maritime clusters present in the port area is key. Whilst cooperation between ports is obviously of prime importance, being smart means more than that. It starts with changing our thinking, sharing ideas and working together to make collaborations work. The PAC2 (PATCH-C2C Strategic Alliance) cluster, financed by the Interreg IVA Programme, demonstrates this perfectly.

PAC2 is looking to showcase a few examples of where SMPs can take the lead in adopting smart, sustainable and inclusive approaches and we are proud to present the successes of our former PATCH and C2C schemes which have already opened new doors for our partners.



Paul Gerard at a PATCH-C2C conference

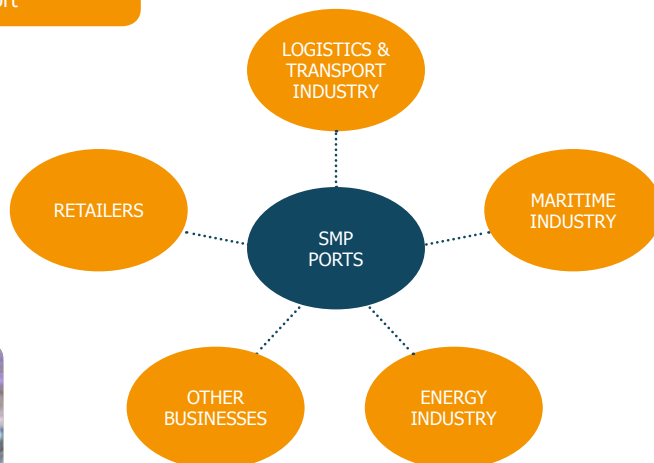
Cold ironing, i.e. shore electricity for ships in port, is an obvious example of how to decrease energy consumption as well as reduce emissions. In light of the size and number of ships in an SMP this can be relatively easy to organise. It requires investments, but it can also generate returns. For smaller ports it can be practically feasible, as the capacity of the national grid is in most cases sufficient to cope with the extra demand. This is not the case in large ports, where a cruise ship and a large containership would cause havoc to the national grid.

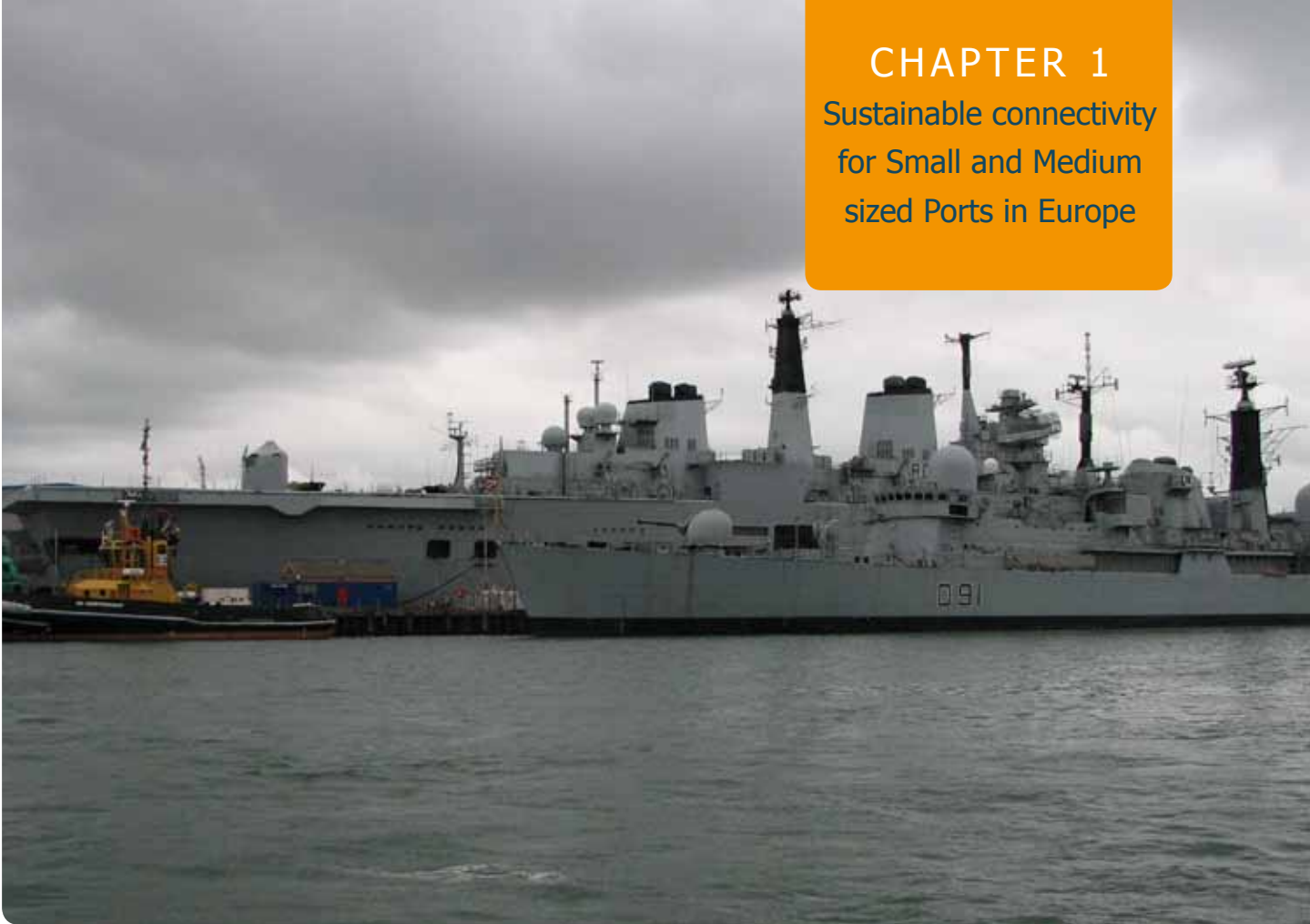
An issue many SMPs struggle with is access to the hinterland. Whereas billions are invested in a national road network, a minor investment in the 'last mile' is often very problematic. For some perverse reasons this vital link is left to local authorities or the ports themselves which often lack the necessary funds. An alliance of SMPs should create enough (political) influence to make European, national and regional authorities aware of this problem and include the last mile in the overall master plan. **SMPs can indeed play an important role in the local logistics, the fine mesh network of distribution to the retail trade. Although not immediately of maritime origin, these goods can be transported by multimodal means to the ports, where the connections (waterway, rail, road) are already present, as well as the facilities such as warehouses, truck centers etc., manned by experienced and skilled labour.**

As the cooperation between ports gets underway, many more ideas will develop into real practical solutions addressing today's logistical and ecological challenges. It is therefore vital that these cooperation programmes maintain their momentum, e.g. building on the important issues tackled by PAC2 with the know-how gained through the PATCH and C2C projects in a way that will allow us to react effectively to the changing markets as the global economy recovers from the economic and financial crisis. Let us hope for a further fruitful cooperation of the excellent results we have all achieved to date.

Paul Gerard

Managing Director
Port of Oostende





What are Small and Medium sized Ports (SMPs)? Why are they important? What does the future hold for them? No definitive answer to these questions can be given. Why? Because, like in fiction, also in real life 'minor' characters are often thought to be playing a secondary part. Therefore their logistics and socio-economic role is still largely undefined and underestimated in literature and in policies, too. In addition, their visibility is limited and their voice often weak. However, the function of SMPs is essential. And that is the reason for this story where SMPs through clusters can become the protagonists. The plot is based on their cross-border collaboration, going beyond competition. It starts in 2008 in Europe, between the Channel and the southern North Sea, it moves forward across four UK, French, Belgian and Dutch regions and it keeps on going on today, since the PAC2 cluster's partners have no intention to put an end to their voyage of discovery. Let us learn about how they did it, what were the challenges they have been facing together so far and which opportunities they might face together in the future...

The European transport framework and SMPs

The EU transport network is a chessboard with several inter-reliant pieces. Among these, SMPs are numerous and vulnerable pawns. They need clear and innovative strategies to be able to move forward to their advantage in a "game" where fair rules should always be granted.

In order to evaluate how SMPs can become more effective players, it is necessary:

- to understand the policy/financial background in which they find themselves;
- to identify the main threats they face;
- to assess the capacity that SMPs have and

work out how this can be best exploited in order for them to adapt and thrive in a rapidly changing environment.

Due to the complexity of the matter, this analysis can be done merely in a manner that is superficial and yet sufficiently documented to uncover their most pressing challenges and rising opportunities.

The example of the PAC2 cluster ports' cross-border cooperation will be used for this purpose. It seeks to raise awareness of the significance and value of SMPs to their cities and regions. Furthermore, it will present some of the key issues that they need to tackle in order to remain competitive and a number of solutions that the PAC2 partners have been looking into, by sharing experience and exchanging best practices.

TENT-T: the Trans-European Transport Network

So... what is the position of SMPs in the EU transport system? Does this really offer them a level playing field?

The majority of EU ports are part of the so-called Trans-European Transport Network or TEN-T.

The Trans-European Networks (TENs) — which comprise transport, energy and telecommunication — were envisaged in 1993 in Title XVI Articles 170-172 and Title XXI Article 194(1)(d) of the Lisbon Treaty on the Functioning of the European Union.

Specifically in the Transport sector, the first TEN-T guidelines were introduced by the European Parliament and the Council

in 1996 with the Decision No 1692/96/EC. Although the guidelines recognised the value of seaports, they initially identified only the 14 projects of common interest that were adopted by the Essen European Council. These were related to combined transport, rail, road and airports links.

Notwithstanding they are important components of the EU single market and transport system, **it was only in 2001 with the Decision No 1346/2001/EC that seaports, inland ports and intermodal terminals became fully incorporated in the network.**

The 2004 and 2007 enlargements later extended the number of the TEN-T Priority Projects that were eligible for funding, thus giving medium-to-large seaports more possibilities to implement their strategies thanks to EU financial support.

A further review, launched in 2009, came into force in January 2014 and led to a new legislative framework. This was meant to be not only a financing instrument (with a budget of **€26 billion up to 2020**), but also a transport infrastructure policy that connects the continent from East to West, North to South in order to support the development of a more integrated network.

It stills needs to be seen whether this will have positive impacts on SMPs.

How many seaports exist in Europe?

The revised TEN-T guidelines (Regulation (EU) No 1316/2013 & 1315/2013, O.J. L348 - 20/12/2013) have identified 9 main transport routes (Scandinavian-Mediterranean Corridor; North Sea-Baltic Corridor; North Sea-Mediterranean Corridor; Baltic-Adriatic Corridor; Orient/East-Med Corridor; Rhine-Alpine Corridor; Atlantic Corridor; Rhine-Danube Corridor; Mediterranean Corridor) and **329 key seaports** along Europe's coastline; **93 in the core network and 236 in the comprehensive network.**

However, the reality is that, according to the European Sea Ports Organisation (ESPO), Europe has **more than 1200 seaports.**



Lack of visibility for SMPs and policy / financial focus on EU major hubs

As TEN-T mainly focuses on the core network, only larger ports within it have benefited in these last years from EU financing, for example via its multi-annual work Programme Motorways of the Sea (MoS).

Later additional funding was made available through the Marco Polo Programme, whose concept was introduced in the 'White Paper. European transport policy for 2010: time to decide' of the European Commission, approved in 2001 in Gothenburg.

Also the European Investment Bank (EIB) has supported TEN-T projects through the Structured Finance Facility (SFF) and the Loan Guarantee Instrument for Trans-European Transport Network Projects (LGTT), e.g. for the €841m Antwerp port

rail tunnel under the Scheldt river. The EIB has allowed seaports to access funding if their projects' investment exceeded €25m, e.g. with the €394m import terminal for liquefied natural gas (LNG) and the €2160m port expansion on the Maasvlaakte area in Rotterdam.

It is obvious that these figures could not be matched by SMPs which, in the last decade, have had less financial assistance through the main EU transport strategies and connected financial instruments. In order to obtain EU financing, SMPs, such as the PAC2 partners, have had to engage predominantly in trans-national and/or cross-border cooperative schemes through:

- the Framework Programme, focusing on scientific, technical and feasibility research; or
- the Structural Funds (ERDF), with capital and revenue projects highlighting more their influence on the economic

development and local employment creation in their respective regions, rather than their transport node function.

But how much were they able to improve and remain competitive with the help of this small-scale funding? And will they have the chance of gaining a higher back-up in the years to come?

EU financing for transport infrastructure is expected to triple for 2014-2020 to €26.3 billion, through the newly created Connecting Europe Facility (CEF). The Communication from the Commission 'Ports: an engine for growth' states: "when allocating EU support, in particular under CEF, the added value of the project for attaining the objectives of the EU Transport Policy will be taken into account, including the rules on sound use of scarce public resources and respect of the Single Market core values." (COM/2013/0295 final)

Will SMPs be able (or allowed) to take advantage from the CEF, the Cohesion Fund, the European Regional Development

Fund or the funds of the Horizon 2020 Programme? Time will tell. PAC2 partners are also keen to explore further the impact of the new EU State Aid regime in order to understand the potential that notified schemes can play in improving the clarity around future investments in SMPs in future.

What are SMPs?

To take stock of the situation of SMPs and their current challenges, a preamble must be added which seeks to define, in the first place, what SMPs are.

There is no universally accepted definition for Small and Medium Ports. The most common approach is to use measurements based on annual volume of goods handled by the ports, specifically cargo tonnage handled (i.e. total weight of goods loaded and discharged) or shipping tonnage handled (i.e. total volume of ships handled).

The original TEN-T guidelines divide seaports as follows:

- Category A comprises seaports of international importance with a total annual traffic volume of not less than 1.5 million tonnes of freight or 200000 passengers. The list of Category A seaports comprises Europe, the Baltic Sea, the North Sea, the Atlantic Ocean and the Mediterranean;
- Category B concerns ports of EU importance with a total annual traffic volume of not less than 0.5 million tonnes of freight or between 100000 and 200000 passengers;
- Category C includes ports providing regional access situated in island, peripheral or outermost regions.

In order for maritime ports to be included at least in the new TEN-T comprehensive network: their total annual passenger traffic volumes must be 0.1% of the total annual passenger traffic volume of all maritime ports of the Union; or their total annual cargo throughput, either for bulk or for non-bulk cargo handling, should exceed 0.1% of EU total; or they must be located on an island and provide the sole point of access to a NUTS 3 region in the comprehensive network; or they must be located in an outermost region or a peripheral area, outside a radius

of 200 km from the nearest other port in the comprehensive network. Within the core and comprehensive network, maritime ports can be classified as Primary main nodes, Secondary main nodes or multimodal links connected to the former, depending on a number of factors.

In 'The ESPO Fact Finding Report: European Port Governance' (Patrick Verhoeven, 2010) the following definitions were produced:

- Small port authority: the annual volume of goods handled in all the ports managed by the port authority is less than or equals 10 million tonnes;
- Medium port authority: the annual volume of goods handled in all the ports managed by the port authority is higher than 10 million tonnes, up to and including 50 million tonnes.
- Large port authority: the annual volume of goods handled in all the ports managed by the port authority is more than 50 million tonnes.

In 'Small and Medium-Sized Ports in Multi-Port Gateway Regions: the Role of Yingkou in the Logistics System of the Bohai Sea' (Lin Feng and Theo Notteboom, 2011), it is proposed to classify SMPs taking into account seven key aspects: (a) volume/market share, (b) international connectivity, (c) relative cluster position, (d) hinterland capture area, (e) Gross Domestic Product (GDP) of the port city, (f) GDP of the hinterland, and (g) logistics and distribution function. This wider multi-dimension method allows us to make a step forward compared to a purely numerical description. Nevertheless, the PAC2 partners firmly believe that SMPs are much more than this.

"Port & port-related infrastructure projects of common interest should have one or more of the following specific aims:

- facilitating the growth of intra- and extra-Community trade,
- supporting the principle of sustainable mobility by helping to relieve congested land corridors and to reduce the external costs of European transport by, for example, increasing the maritime share of total traffic and in particular by promoting coastal navigation,
- improving accessibility and strengthening economic and social cohesion in the European Community by promoting the development of intra-Community maritime links, paying particular attention to island and peripheral regions of the Community,
- allowing permanent access to Baltic Sea ports located around and above 60 ° N normally ice-bound in winter."

('Community guidelines for the development of the Trans-European Transport Network')

"SMP should not be considered only in relation to the amount of traffic they handle. They are valid contributors to the economy of their region. Nevertheless, they suffer, because their economic function and their role in the logistic chain are not completely recognised. They suffer from lack of visibility, too. That is why collaborative initiatives such as PAC2 can give SMP a platform where to 'stand out' and, with a common voice, raise awareness of their added value, but also challenges."

(Wim Stubbe, Port of Oostende)

They have tangible but also intangible, soft value, non socio-economic assets (e.g. reputation, capabilities, organisational processes, heritage) and an economic remit. Thus, the cities/towns and regions where they are located should support more extensively their development, if they want to fully harness the potential that SMPs can offer.

Do SMPs operate in isolation in Europe?

Whichever definition for SMPs is accepted, the main objective for port authorities is that **SMPs need to be efficient and cheap in both management and operations**. This means carrying out their traditional (maritime and chemical industry, transport, construction) and emerging activities (energy, eco-innovation) effectively at low cost, possibly with reliable and modern infrastructure and skilled personnel.

It is evident that achieving this goal is, if not utopian, at least extremely complicated. **Their human and financial resources and capacity to influence are limited** in the first place. Secondly, time is scarce, as they are too busy in dealing with a wide range of stakeholders (other ports, diverse end-users and local communities), with various modes of transport connections (shipping, road, rail, inland waterways) and in enhancing their economic prospects or maximising their chances of success. Thirdly, compliance costs associated with increasing regulatory pressures (concerning, inter alia, noise, safety, dust and carbon emissions, etc.) place additional financial strain on SMPs.

Strategies to rationalise the expenditure and improve operations require access to funding, time and knowledge. This, in turn, requires staff time, but resources, as said before, are limited in SMPs. To escape this vicious circle smart thinking and creative solutions are essential.

Working in isolation does not work effectively for all aspects of port development. The PAC2 cluster has demonstrated that **exchanging know-how -within the limits of confidentiality- and engaging with larger targeted audiences and other ports is a profitable tool for SMPs to secure resources and**

financial savings. In light of reduced or often non-existent financial aid from Governments, EU funds and cross-border partnerships can help SMPs better survive and thrive in globalised markets where the free movement of capital, people, goods and services make efficiency and functional connectivity the cornerstone of economic growth.

The logistic role of SMPs in the Channel Region and southern North Sea

In North West Europe (NWE), the 2 Seas area combining the Channel and southern North Sea, especially between the South-East of England, North East France, Belgium and the Netherlands, is one of the main hotspots in terms of maritime activities contacting the Atlantic with Germany and the Baltic. Here many SMPs exist that are key nodes in the EU logistic network and maritime traffic. They play valuable logistic and economic roles in their regions or have the potential to be important components of the 2 Seas transport system.

A number of SMPs from the 2 Seas region are involved in the PAC2 cluster:



Oostende

- The **Port of Oostende** is a multi-functional shortsea green port. In recent years, identified as Blue Energy hub by the Flanders government and given recognition for its activities in the EU Maritime Strategy, it has been actively developing and sustaining renewable energy initiatives (i.e. the Thornton Bank offshore wind farm, the FlanSea wave test) and clustering energy related

companies, start ups or R&D centres (i.e. the Greenbridge science incubator, the Energy Box, REBO, Power-Link). It also hosts a marina, ro-ro berths, cruises and a heavy load quay.



Ramsgate



Newhaven

- The **Port of Ramsgate** is home to the operation and maintenance bases for the Thanet and London Array Offshore Wind Farms. Construction, operation & maintenance companies for the windfarms are located nearby, too, thus widening the port offer. Finally, its Royal Harbour Marina is used by fishing, angling and visiting boats.
- Although having a single direct ferry line with Dieppe, the **Port of Newhaven** is about to play a vital part in the Sussex's economy by housing the base required to operate and maintain the Rampion offshore wind park. The EU PATCH funded Master Plan, which acknowledges the energy challenge, sits at the heart of Newhaven strategy to kick-start the port and town regeneration. It seeks to identify space and encourage other businesses within the supply chain to relocate to the area, thus creating jobs for the local community.



Zeebrugge



Calais



Dover

- The **Port of Zeebrugge** is a relatively modern and versatile port with a strong container and cruise traffic market. Over the years it has grown from a pure transit point to a logistic platform comprising a large number of companies, 130 of which are affiliated through the Association Port of Zeebrugge Interests (APZI). Hence, the harbour area covers many activities and can be considered as an economic engine for the region.



Portsmouth

- The **Port of Portsmouth** is renowned for being a specialist in handling large quantities of fruit and vegetables. Also other products are exported/imported via Portsmouth, such as motor vehicles, construction materials and even containers of humanitarian aid, which highlights another less known added value that SMPs can contribute to our society more widely. The port infrastructure and land use plans include, among other things, bringing into commercial use redundant cold-war era infrastructure following the recent decline in defence related activities as berths for container and cruise ships which could on the longer term provide employment opportunities to the most socially deprived wards in the city.

- The **Port of Calais** and the **Port of Dover** are part of the busiest cross-Channel transport corridor for the movement of passenger and freight. They have also been implementing major expansion schemes (e.g. the Calais Port 2015), promoting transport modal shift and reducing logistical bottlenecks as well as evaluating the feasibility of becoming an energy centre (Dover) with induced positive effects in their local economies.
- **Zeeland Seaports** (Vlissingen and Terneuzen) have a substantial throughput of different types of goods and brings together more than 250 logistics and industrial businesses linked in clusters. It also plays an increasingly important role in the offshore sector when it comes to the storage and transshipment of parts for oil and gas platforms, as well as wind turbines to be built at sea.



Terneuzen

Overall, the PAC2 ports' business mix is diverse. They can handle various kinds of cargo (dry bulk, liquid bulk, breakbulk, general cargo and containers). They also provide a range of other services

(e.g. fishing, leisure, cruises, ferries, marine construction and recreation) and accommodate in their areas industries which are an important source of employment and can result in economic revitalisation. In addition, their more recent investment in the energy sector has been paying off, with the arrival of new skills, training opportunities and additional jobs.

Nevertheless, the impact of regional ports on interregional economic development, their strategic significance beyond their logistic centre function and their contribution in socio-economic terms to the wider economy are still not fully recognised in Europe. Acknowledgment for this standpoint is now vital beyond the excellent work of researchers and scholars that have come into contact with our projects.

Various EU SMPs have been trying for a number of years to raise awareness of their importance by creating temporary (informal) consortia which could evidence it. This has enabled them also to address several issues collectively by exchanging opinions, information and best practices.

Their cooperation has been possible through several trans-national and cross-border projects, utilising grants from different EU funding Programmes, or by indirectly benefiting from EU co-financed training courses, e.g.:

- Interreg (e.g. FINESSE, IMPACTE, C2C, PATCH, CAMIS, FLIP, InTraDE, Yacht Valley, Port Integration, Weastflows projects);
- Framework Programme (SPHERE)
- Leonardo - EU Lifelong Learning Programme (METPROM, Maritime Training, MarEng Plus).

These, including the PAC2 cluster, have identified intra-port and extra-port challenges and opportunities related to port development and expansion, accessibility, investment in innovation, management and skills upgrading. They have also analysed traffic flows and tried to identify how the logistic role of SMPs has changed over the years.

The study 'The economic importance of ports' produced by the Interreg IVB NWE IMPACTE (Intermodal Port Access and Commodities Transport in Europe) project

suggested that in France, the UK and Belgium “many traffic categories in most ports in each of the three countries can relatively easily move from one port to another as dictated by economic requirements. At the micro-level, this conclusion may be somewhat disturbing, as each port authority and port company operator would prefer to have international logistics chains heavily dependent and committed to the port over long periods of time”. However, “footloose” port traffic is also an expression of a resilient transport network and of a well-functioning, competitive port system, whereby efficiency considerations drive the structuring of logistics chains and port choice.”

In the Interreg IVA France(Chanel)-England Programme’s CAMIS (Channel Arc Manche Integrated Strategy) report ‘Channel spaces: a world within Europe’, a greater role of the Channel ports is foreseen “in effecting inter-modal transfer to improve rail/fluviat links, a rebirth of European short-sea shipping within a reorganisation of the ports network.”

How the port system will re-adjust itself in the years to come based on market demand or the advancement of new industry sectors is still not certain. But it is certain that in multi-port gateway regions where major hubs still play a leading role, SMPs will have the hard task of developing long term credible business plans and delivering related investments, whilst, at the same time, protecting and sustaining natural and human resources.

The situation has evolved much since ‘The future of small and medium sized ports in Europe and a framework for re-engineering their basic processes’ was published (George A. Giannopoulos and Katerina Papageorgiou, 1999) within the SPHERE project co-financed by the 4th RTD Framework Programme. However, some of the weaknesses observed by the authors remain unsurprisingly similar: outdated port infrastructure, equipment and information and communication systems; insufficient multimodal links with other transport networks and accessibility; institutional constraints; lack of expertise in a few areas (e.g. marketing); low bargaining power and limited lobbying capability.

The PAC2 partners believe that nowadays SMPs are confronted with comparable issues within the 2 Seas region. A number

of key challenges remain on:

- policy & regulation;
- port management & infrastructure;
- port development;
- environment;
- financial and human resourcing.

It is naive to think that SMPs can cooperate to look at all of these challenges together via joint initiatives, whether these are EU projects or bi/multi-lateral agreements such as Memorandums of Understanding, due to various issues such as:

- competition and fear of sharing confidential information;
- possible external pressures (e.g. anti-EU feelings led by media or Eurosceptic parties, tensions around immigrations, interferences from major ports, etc.).

Nevertheless, it is just as certain that competences and resources can be merged, economies of scale achieved and knowledge acquired, whenever there are shared interests and objectives. But how does this work?

“If a port is leading on one technology and shares its expertise with others, this enables all not only to save money, but also time, which is fundamental in modern port management.”
(Laurent Devulder, Port of Calais)

Can cross-border cooperation contribute to the creation of a sustainable supply chain? The PAC2 cluster

The institutional framework of management and operation has an impact in the way a port is run. Its ownership form, autonomy and function can be different, whether it is a public, private or trust port. It can therefore be assumed that collaborative approaches between SMPs logically vary depending on manifold factors: port flexibility and strengths, (de) centralisation of management system, cultural/social background, area of cooperation, competition, and so on.

Given their resource constraints within a more and more globalised competitive market, **SMPs are more open than larger ports to join forces transnationally through triple helix constructions** (linking academia, industry and government), insofar practical outputs can be achieved. That is why the PAC2 ports have been able to engage wider partnerships from various sectors throughout the 2 Seas hinterland to extend and apply their knowledge and expertise, create new synergies and heighten awareness of the challenges facing SMPs, with a stronger unified voice.

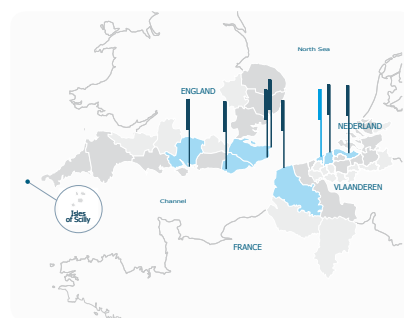
The problem of port collaboration is how and in which specific fields it can be done. The topic of **operational and infrastructural connectivity** was selected by the PAC2 partners as common ground where concerns or problems could be investigated and, possibly, solved in synergy.

PAC2 cross-border collaboration

PAC2 (PATCH-C2C strategic alliance) is an example of how SMPs can integrate their complementary strengths and address their lack of resources through a neutral platform. **The basis for this cooperation has been, since the beginning, one of mutual trust.**

PAC2 was created at the beginning of 2014 by 9 public and private sectors organisations from the south east of England (UK), Nord Pas de Calais (FR), West Flanders (BE) and Zeeland (NL):

- AG Port of Oostende (AGHO)
- Port of Ramsgate - Thanet DC
- Portsmouth International Port
- Port of Calais - CCI Côte d’Opale
- Port of Zeebrugge (MBZ)
- Newhaven Port & Properties (NPP)
- POM West Flanders
- Dover Harbour Board (DHB)
- Zeeland Seaports.



Fully financed by the Interreg IVA 2 Seas Programme, the cluster brings together the interconnected €9.1m **PATCH (Ports Adapting to Change)** and €12.7m **C2C (Connect to Compete)** projects, which started respectively in 2008 and 2009 and ended in 2011 and 2012.

By considering ports as gateway to EU/ International trade and recognising that ports connect countries, businesses, products and people, C2C was focusing mainly on outer port challenges, i.e.:



- need to upgrade seaside and landside port accessibility;
- need to better link ports to their regions, enterprises and industrial clusters.

PATCH, on the contrary, was dealing with key inner port issues, i.e.:

- need to improve port management;
- need to rejuvenate and boost port operations;
- plan and adapt strategies to the rapidly changing economic context.



The idea of the cluster was to link different partners and schemes to disseminate and capitalise on their best practices and development potential. Hence, PAC2 has been building on the PATCH-C2C findings in terms of multimodal connectivity for SMPs. Its ultimate goal has been to trigger joint follow-up activities that optimise SMPs infrastructures and operations. It has also aimed to ensure that wider visibility and higher engagement from policy and investment stakeholders can be obtained.



The final conference of the Connect to Compete project brought C2C and PATCH partners together

Through workshops, meetings and thematic debates with multi-sector stakeholders, the cluster has shone a light on a number of important aspects that link the EU2020 agenda's priority for smart, sustainable and inclusive growth to SMPs. The following sections of the booklet reflect the various conclusions reached by the PAC2 partners after having carefully reviewed the PATCH and C2C results taking into consideration the evolving economic, environmental and transport context. The **low carbon, innovation, resource efficiency and climate change challenges** have allowed SMP partners to identify the shortcomings of past projects in light of emerging market trends, new policies and demand for more eco-friendly and sustainable processes and infrastructure in harbours. Let's take a look at some of the possible solutions that have been found by the cluster in order to fill in the gaps.



Janez Potočník, European Commissioner for the Environment, at the PATCH stand at Green Week

Sustainable and multimodal connectivity: how ports can move towards a low carbon economy

In the 'Council Decision establishing the Specific Programme Implementing

Horizon 2020', the EC advocates the need to achieve a European transport system that is resource-efficient, climate and environmentally friendly, safe and seamless for the benefit of all citizens, the economy and society (COM(2011) 811 final).

In 'Low Carbon Transport: A Greener Future' (2009), Lord Andrew Adonis, former UK Secretary of State for Transport, adds: "Building a greener future means that low carbon travel must be a genuine, viable and attractive option for businesses and ordinary citizens."

This ambitious target requires ports to deal with a wide range of greenhouse gases (GHG)/emission sources:

- transport from/to the hinterland (containers and bulk);
- loading/unloading machinery;
- transportation within the port and traffic jams;
- ships in the harbours;
- port-related construction activities (landside/seaside operations).

The EU 28 Member States have specifically made a unilateral commitment to reduce overall GHG emissions by 2020 by 20% compared to 1990 levels. This is accompanied by a 20% increase in energy from renewables and a 20% increase in energy efficiency.

Notwithstanding, **decarbonising ports, by shifting to less pollutant modes of transport, greener port equipment and/or cleaner fuels requires time, a change in mentality and, above all, funding.** Cutting emissions and cutting costs at the same time is a thorny issue and a delicate challenge which affects ports, especially those with a small or medium capacity.

Moreover, **moving toward a low carbon future means not only to reduce emissions, but also to be resource efficient in the pursuit of a green GDP.** That is why in determining the carbon footprint, energy uses, low carbon energy and energy efficiency play a key role. The aspect of energy management and/or generation will be covered in Chapter 2 where the PAC2 activities in this field will be assessed.

Facilitating sustainable maritime and hinterland access to ports

It is an inescapable fact that world class infrastructure is fundamental for the reliability of a high-performing transport system: transport corridors are the arteries of domestic and international trade, enabling imports and exports. However, PAC2 has exposed the need to optimise connectivity between the various regions whilst increasing the sustainability aspect of freight and passenger transport. It must be accepted that **ports can no longer exclusively rely on road access and queues of lorries should not be any longer the image we associate with ports and the carriage of goods.**

Reducing road miles and moving toward more sustainable means of business-related transport, i.e. rail, inland waterways and Short Sea Shipping (SSS), is one of the possible low carbon choices.

Rail and inland waterways mainly refer to containers and bulk material, i.e. to large ports. SSS include both lo-lo (load on - load off) and ro-ro (roll on - roll off). Lo-lo implies vertical handling of cargo to load and unload ships using cranes or derricks, thus it refers to containers, as river transport. Ro-ro, on the contrary, involves horizontal handling for the loading and unloading of road trailers or complete lorry-trailer combinations onto and off ferries via ramps. Ro-ro is more recurrent in SMPs.

The PAC2 port regions undoubtedly need effective intra-extra multimodal links to ports to attract and/or retain businesses that are vital for their economic competitiveness and prevent their relocation to more accessible places with consequential job losses.

SMPs must be well connected to EU and global markets and their investments must take into account:

- the sea and hinterland connections essential to assist traditional and new activities in which ports may diversify to exploit their economic potential;
- the inter-dependency of ports & regions on both sides of the (Channel & North) sea; and
- the need for long-term cross-border planning.

By building on the experience of PATCH-C2C's SMPs and on the expertise of cross-border colleagues and thanks to the support of EU funding, **the PAC2 partners have been able to devise various cost-effective technical and engineering solutions to better facilitate modal split by enhancing off-dock infrastructure for all modes of transport.** This has been acknowledged to be a valuable measure not only to increase sustainable accessibility to the 2 Seas area, but also to make its transport network more resilient and attractive for enterprises, research centers and incubators wishing to operate through or in the proximity of a port.



C2C investment in the East Port of Calais

Through the C2C project:

- the completed investment in **railway sidings** in the East Port of Calais allowing trains to offload new vehicles directly from the production sites onto the quay and enabling the harbour to handle combined transport thus optimising traffic,
- the **removal of a key road bottleneck** in Portsmouth (through a re-direction of all Naval Dockyard traffic away from the city centre),
- an **enhanced berth** in Zeebrugge to increase capacity and accommodate larger vessels for longer distance shipping,



C2C berth reversion in Zeebrugge

- the **port access and reconfiguration strategy** to complement the town regeneration in Shoreham,

- the contribution to the Solent-Midlands **Advancement of Rail Transport**, a £70m scheme which brought together an impressive Public and Private Partnership and ensured a rail upgrade in the port of Southampton and the Victorian rail infrastructure in its hinterland up to Birmingham, thus facilitating the movement of 9'6" high containers on standard rail wagons, have all shown the PAC2 partners' engineers and managers some possible practical and easily replicable technical solutions to modify their infrastructure, thus contributing towards a more balanced modal split.

Reducing emissions by shifting to cleaner inner port transport and equipment

Within a seaport itself harmful emissions can be caused by many diverse factors.

The 'Carbon Footprinting for Ports - Guidance Document' (2010) of the World Ports Climate Initiative (WPCI) distinguishes between fuel-burning or electric mobile sources and stationary sources of emissions: road vehicles (cars, vans, trucks) crossing a port to board a ferry, ships moored in harbours for considerable lapse of time, cargo handling equipment that is not designed to operate on public roads, fuel-fired heating units, portable or emergency generators, refrigeration/cooling equipment and many others.

Sustainable cargo handling and ground support equipment or cleaner intra-port transport for people or freight could be adopted by SMPs to limit emissions. Examples are hybrid vehicles and

"The port of Zeebrugge is a logistic platform that is versatile and flexible to the ever changing market needs. To stay ahead of the competition and respond to its customers' growing demand for technological innovation, the port has been looking more and more into state of the art and high performance equipment, also by taking advantage from cross-border specialised workshops." (Patrick Van Cauwenberghe, Port of Zeebrugge)

Intelligent Autonomous Vehicles (IAV) such as the RobuTAINeR prototype realised by the InTraDE project (co-financed by the Interreg NWE Programme) and tested at the Port of Oostende, PAC2 lead partner.

The question, as ever, is: can SMPs afford it? It is advisable that in this path towards innovation they are accompanied more regularly by their region or other relevant public bodies, as well as by local business networks (e.g. Chambers of Commerce, Trade & Invest agencies) through fairs, B2B or other methods of stakeholder engagement. By concretely connecting themselves to companies that produce pioneering technologies and new market solutions and by being truly responsive to entrepreneurship and innovation, SMPs can prove that, especially during and after times of economic crises, trade and inward investments can be encouraged via seaports.

Cleaner fuels for a greener shipping industry and ports

SMPs have to handle various types of vessels which generate pollution: seagoing vessels and harbour vessels operating at port areas range from ferries to cruise ships, fishing boats, dredgers, tankers, tugs, offshore support vessels, Coast Guard and military vessels and recreational yachts and boats.



In order to achieve a greener transport system that can be sustainable on the long-term, the European Commission has started imposing stringent standards that are now posing serious challenges to EU ports and the shipping industry. **The Sulphur emissions limit of 0.1% from 1st January 2015 set by the Sulphur Directive 2012/33/EU**

and IMO (International Maritime Organisation) MARPOL Annex VI will have consequences for ports located in a Sulphur Emission Control Area (SECA), i.e. for the PAC2 partners, the English Channel, North Sea and Baltic Sea.

In order to meet this target, ships need either to be powered by alternative fuels -e.g. LNG, methane, ethane, Marine Gas Oil (MGO)-, or use abatement methods to comply with the sulphur cap, e.g. be equipped with scrubbers which remove sulphur from the exhaust gases, thus 'purifying' them.

In two workshops, in Zeebrugge and Portsmouth, with the support of experts from Brittany Ferries and the PENTA Baltic project (i.e. ports of Stockholm, Tallinn, Helsinki, Naantali and Turku), the PAC2 partners have looked at the measures that SMPs and their customers can take to alleviate the effects of this policy and lessen repercussions on ports, especially SMPs.

The key issues that have been raised are:

- alternative fuels require adequate infrastructure for their supply, therefore the supply chain for new fuels and the role of SMPs in it must be taken into consideration;
- gas cleaning via scrubbers produces residues (sludge) and waste containing dangerous substances that ports need to be able to dispose of correctly;
- a serious threat exists that shipliners decide to move their operation outside the SECA area;
- a possible distortion of competition may arise with less regulated ports in Southern Europe and the rest of the world;
- the Sulphur Directive applies only to emissions from the shipping, but not the aviation sector which, it has been noted, could be perceived by some as a discriminatory action.



PAC2 workshop on Sulphur Directive

Some PAC2 ports (e.g. Zeebrugge) have reacted by installing an **LNG terminal** as suitable bunkering facility. On the other hand, others (e.g. Calais) have been looking on how to **manage scrubbers waste**. Another economy of scale mitigation currently sought by the port of Portsmouth is to increase the size of a berth to be able to handle bigger ships (e.g. cruise ships) which in turn can lead to more business and employment locally.

"Ports, as a matter of survival, adapt their operational abilities, as well as their business and development plans to meet changes in the customer driven market. Such changes in the market sometimes create unforeseen opportunities for ports, such as the offshore renewable energy programme giving new life to smaller ports whose fishing fleets have been replaced by maintenance tenders for these large wind turbine arrays. New technology, as it has provided advances in the ability to provide quicker deliveries with less cost, is quickly adapted to. Ports that have existed for hundreds of years have seen sail give way to coal which in turn gave way to oil. Ports quickly provided each in turn to a market that knew what it wanted. The near future provides a time of uncertainty with a change to low-sulphur fuel dictated externally to the shipping industry which in its turn cannot determine an immediate response. Those shipping companies that are willing to invest in the required technology (in some cases costing tens of millions of extra pounds) will find themselves hobbled with excessive costs if other competitor companies take advantage of a failure to monitor compliance or if the fines for failure to comply are meaningless. For a port whose ferries are its life-blood and which stands 80 Nautical miles from its nearest French partner port, the fact that its closest rival port is only 21 Nautical miles from France means that the effect of the SECA will be 400% greater. Monitoring customer needs and trying to anticipate what they might be is currently the most important thing for an SMP to get right."

(Jeremy Clarke, Portsmouth International Port)



"Emissions from shipping due to the combustion of marine fuels with a high sulphur content contribute to air pollution in the form of sulphur dioxide and particulate matter, which harm human health and the environment and contribute to acid deposition. Without the measures set out in this Directive, emissions from shipping would soon have been higher than emissions from all land-based sources." (Directive 2012/33/EC).

To summarise: what has been the lesson learnt so far by PAC2? Market or business driven change stimulates small and medium size harbours to regularly revise their development plans. Eventually it may even make them take unforeseen but successful paths and commercial choices, such as been the case of the investments in the offshore renewable energy. On the contrary, when change is enforced by regulators in Brussels, as with

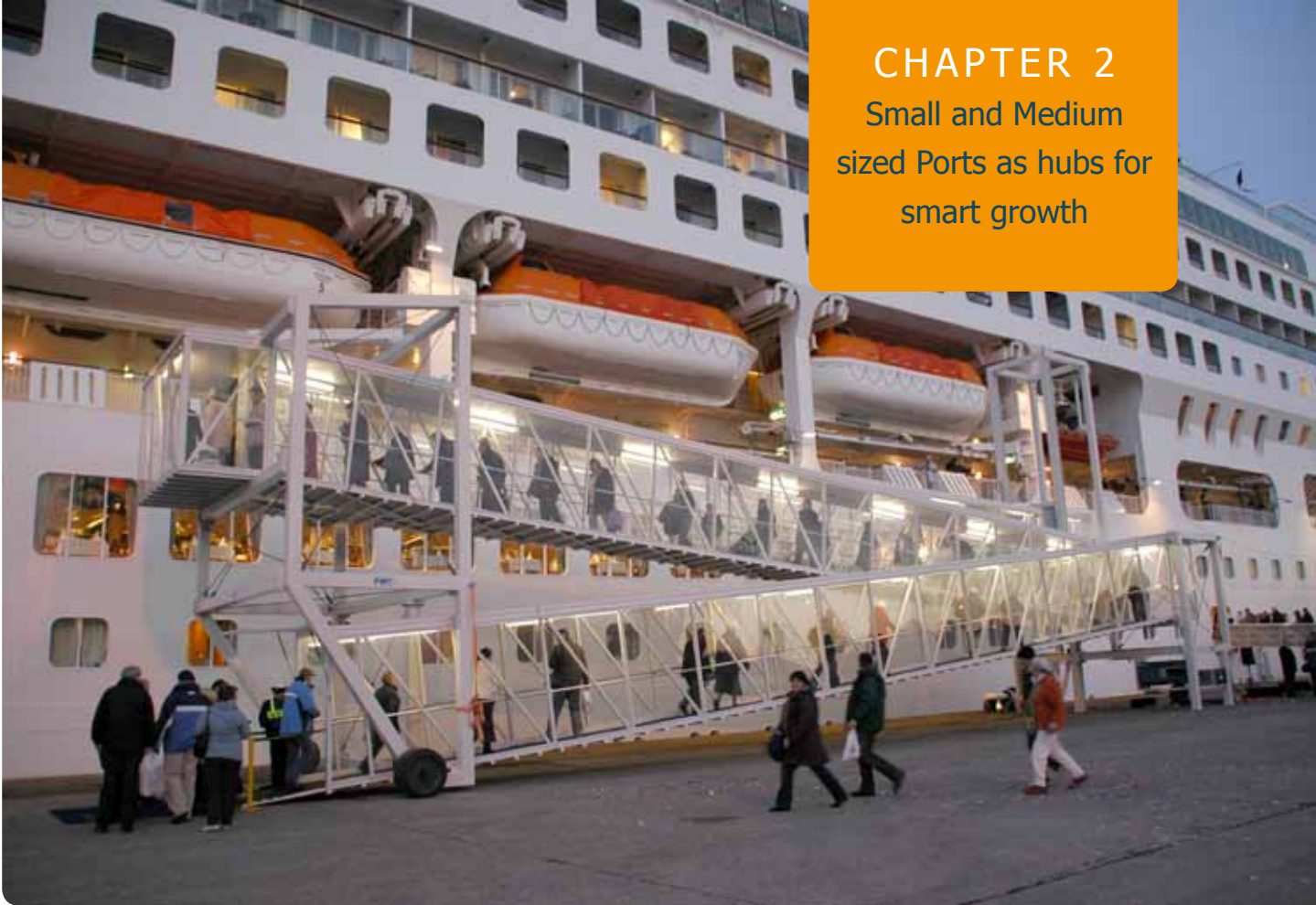
the Sulphur Directive, it becomes more complicated for SMPs to relatively quickly conform themselves to the new situation and easily modify their strategies and/or infrastructure to address the impacts of the new legislation.

The PAC2 partners therefore agree that, in order to facilitate the transition to a low carbon economy, it is strongly advisable that funds are allocated by the EC to accompany ports, maritime businesses and shipping lines during the process. Some forms of incentives to owners/operators to use cleaner marine vessels and to ports to adapt their infrastructure have been made available (e.g. through the TEN-T). However, it is still to be seen what other type of financial tools will be provided in the future to SMPs, on which ground they will be given and to which extent these will help them retain shipping lines in the SECA.

"One of the major objectives of Nord-Pas de Calais' regional authority is to position the territory as a European hub for transportation and logistics. The analysis of the logistic system co-financed by the C2C project identified a few thematic issues (networks, services, territories, governance) that are now being used to build an operational strategy for the development of competitive and sustainable logistics. The Regional Council, which owns the ports of Calais and Boulogne, ensures a sustainable development of the two ports by implementing necessary investments and skills. Working with other ports and regional authorities helps us more comprehensively assess cross-border challenges and understand how to better regenerate old facilities, exploit under-utilised spaces or tackle issues concerning congestion." (Regional Council Nord Pas de Calais)

CHAPTER 2

Small and Medium sized Ports as hubs for smart growth



Not only large, but also SMPs are vital for the economy of their regions, as they provide -in different ways and degrees- direct impacts (e.g. contribution to employment, GDP, tax revenues), indirect impacts (e.g. jobs and activities within the supply chain) and induced impacts in the wider EU economy (e.g. jobs and activities in retail and leisure support by those directly or indirectly employed in ports). Furthermore, they create catalytic spillovers / multiplier effects (e.g. by enabling other industries to function). Hence, the overall port industry contributes substantially to the prosperity of a region, also through harbours that are not major gateways to international trade, have big dimensions or handle large volumes of cargo/passengers.

Innovation in SMPs to serve new industries

The EU2020 Strategy has identified 7 “flagship initiatives” to create the conditions for a smart, sustainable and inclusive growth. ‘Innovation Union’ and a ‘Resource-efficient Europe’ are particularly pertinent to the ports agenda. Innovation, in particular, is considered as a main driver of economic growth. It covers products, processes, marketing and organisation.

How does this relate to SMPs? It needs to be emphasised that the EU2020 targets include:

- greenhouse gas emissions 20% (or even 30%, if the conditions are right) lower than 1990
- 20% of energy from renewables
- 20% increase in energy efficiency.

As recognised by the PATCH project and, later, by the PAC2 cluster, in order to contribute to meet these objectives and accomplish ‘smart growth’, SMPs need to adapt to new policies, market trends and environmental circumstances, by constantly adjusting their strategies, management, operations and infrastructures.

In recent years port authorities have already moved away from their past tendency to concentrate only in operating the port. Ports now see themselves as key players for their local industries and are therefore trying to be smart and balance their economic and environmental impacts.

Across Europe SMPs have therefore started reacting in different ways to the changes in the framework in which they operate, trying also to depend less on the industry or trade developed within their hinterland. Various SMPs have looked at the option to:

- attract the (renewable) energy sector and serve as manufacturing centres, installation or Operation and Maintenance (O&M) support sites for offshore/onshore wind, wave, tidal plants;
- enlarge their activities (e.g. fish farms, also in connection to wind parks);
- employ technological solutions to reduce inefficiencies in communication and intra-port transport, ensure time saving for customers or enhance operations;
- plan port-centric developments and clustering of research institutions, business parks, enterprises and logistics investments.

By specifically analysing some of the inner and outer port challenges pinpointed by the C2C and PATCH projects, the PAC2 partners have gathered that, in order to pave the way to innovation, certain basic framework conditions must be set up. **SMPs must look at benchmarking new technologies in both infrastructure**

and management, arrange new processes/services and modernise their strategic planning processes.

They need to link to a large extent with local and international networks and events and be truly open to external ideas and feedbacks. This will increase the likelihood of creating innovation -to combine with existing endogenous potential- and becoming attractive to outside companies. This may also help foster the port's resilience in the event of an economic downturn.

The dichotomy faced by PAC2 ports in harnessing these promising possibilities despite a shortfall in resources is paramount. It is here where cross-border cooperation has brought significant added value by sharing knowledge of innovative financial instruments and avant-garde technological solutions. Collaboration has promoted joint working, reduced duplication and optimised human and financial capital during the period of cooperation. This has not led to a dramatic ports revamp or groundbreaking improvements, but to several solid commendable results.

Investing in innovative technologies

Innovation can start at the heart of port operations, e.g. in dredging, a recurrent task which all SMS have to foresee in their operations. Its method and the re-use of sediments in the Channel area have been analysed by the Interreg France/Channel-England SETARMS project, which had knowledge exchanges with PATCH. PATCH itself held a workshop on dredging and surveying in Vlissingen which enabled the Port of Ramsgate to identify a novel, more suitable and economical solution for its harbour (i.e. **Water Injection Dredging** or WID), thus proving that cross-border cooperation can have visible, immediate positive outcomes.

Water injection dredgers can be ideal for SMPs because they have good manoeuvrability and can dredge very close to embankments and quay walls. The International Association of Dredging Companies (IADC) states: "Generally speaking the larger the port project, the more cost-efficient dredging becomes

"To be able to speak freely and openly with Continental partners and also other ports not directly associated with our business has been very beneficial and advantageous. Thanks to a workshop organised by Zeeland Seaports we were able to discover a new less costly Dutch dredging technique called 'water injection'. Since then it's been applied in Ramsgate."
(Robert Brown, Port of Ramsgate)

using traditional dredging techniques – trailing suction hopper dredgers and cutters for instance. But for the regular maintenance of smaller harbours, the technology of Water Injection Dredging can be an effective, economical and environmentally sound solution" (Facts About, Nr 01/2013).

The port of Ramsgate's introduction of the WID technology -with which it is possible to dredge marinas without dismantling structures with connected time and cost benefits- is an example of how PAC2 partners have been able to successfully capitalise on collaborative experience with very limited human and capital effort.

Analogously, the successful B2B 'Eco-innovation in the Channel ports' organised by PATCH onboard the Spirit of France in a crossing between Calais and Dover reiterated how fruitful exchanges can be, when inter-connected ports collaborate. The event was useful not only to hear about innovations that boost port logistics, but also to bring at the same table a wide range of eco-innovative companies, some of which left the ferry with concrete business propositions and promotion results.

Adapting whilst diversifying port activities

Due to their size and configuration, SMPs tend to be more flexible than larger harbours. They can therefore more easily re-define some parts of their strategies and activities in light of market-driven demands. One of the options is to invest in new growing sectors and/or specialise in a specific niche.

It is naive to think that this can be achieved

by SMPs speedily and effortlessly. Once taken, the decision can have profound on-site ramifications and imply challenges in terms of finances, operations, capacity, facilities, equipment and competences, depending on the role that the port chooses or has the opportunity to play (import/export port, O&M port, construction port, manufacturing port, blue energy port).

It is plausible that their personnel may initially lack the specific understanding of the new sector's technical requirements and therefore external specialist support is necessary. But it is also true that **a harbour -with its managers, engineers but also sailors, fishermen, navigators- is a concentration of endogenous knowledge and professional skills that are often not entirely visible and recognised despite their value.** SMPs can offer more than what many companies think or are aware of.

As exemplified by the PAC2 port partners, **the incomparable knowledge of the sea as well as the experience (and ability to share it) of captains and marine construction engineers, for example, are a major priceless resource for SMPs that shouldn't be lost, as it could be beneficial for the new industries locating in the harbour and involving port and in-water activities.** Who knows more about winds, tides, waves, currents in a port? Can the knowledge and immaterial assets of SMPs' staff be used in a different, non traditional way, e.g. by marine energy developers, and how?

This is an open question, whose many answers will come in time, with the establishment of currently emerging industries (e.g. wave and tidal) and the reshaping of ports to respond to these or other market scenarios. Though, it is undeniable that in the meantime a variety of EU ports has already started diversifying their services and optimising their assets to serve different target markets – a fact that has not gone unnoticed in the support work carried out by the European Commission in the preparation of the EU's Blue Growth Strategy in 2012.

An innovative adaptation of port infrastructure for new uses was made thanks to PATCH by the ports of Oostende

and Ramsgate, chosen as installation and O&M sites for offshore wind farms. They respectively constructed a **heavy-load quay** and installed a **custom-built pontoon for wind farm service vessels**. Their management and technical staff's cross-border exchanges and bi-lateral meetings allowed the staff to have a deeper understanding of the needs of the industry and acquire additional skills, thus upgrading their profile. They were able to compare their experience and help each other in a field that was brand new to them. Their know-how was later placed at disposal of Newhaven Port and Properties when the port was selected as O&M site for the Rampion offshore wind park, thus showing how SMPs can genuinely assist each other without jeopardising their position.



New pontoon in Ramsgate serving the offshore Thanet & London Arrey wind farms

The value of this cooperation has been acknowledged by the report commissioned by DG-MARE 'Blue Growth. Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts' (Ecorys, Deltares and Oceanic Développement, 2012) that recommends PATCH as a noteworthy "mechanism to promote synergies between regional ports."



Heavy load quay in Oostende to serve the offshore energy industry

Following the example of Ramsgate, Oostende and Newhaven, also Dover Harbour Board has now been looking at how to become an energy centre through PAC2. DHB is currently already testing tidal energy in the Pro-Tide project under the Interreg IVB NWE Programme.

As PATCH demonstrated with its energy-related best practices, professional

development and direct revenues are not the only tangible result of port activities diversification. The establishment of a diverse range of industries and spin-offs around a port can have multiplier effects. It is easily inferable that business leads to more business, more employment and growth for regions. In Oostende and Ramsgate **the giant turbines and blades, which can be clearly seen from the coastine, have brought much more than an exciting panorama**: the sites are now buzzing with specialist support and crew boats servicing the windfarms, new buildings for the ongoing O&M, expert staff, contractors' operations and so on.

(regarding the PATCH project)
 "...collaboration has been established with professionals from the UK, France, Belgium and the Netherlands to promote innovation and demonstration in the fields of energy efficiency, waste, smart metering, small scale renewables, kinetic energy generation as well as intelligent information to travellers and hauliers to reduce emissions and costs."
 ('Blue Growth report', DG-MARE)

However, to enable port investments in new business areas, policy support, funding and adequately professionally trained labour force are an essential prerequisite without which SMPs and their regions cannot flourish.

Energy efficiency in SMPs

In order to make energy savings, SMPs need to understand first:

- their existing energy infrastructure and uses (ports and port tenants' operations and facilities, equipment, vehicles);
- future energy demands; and
- landside (e.g. onshore wind parks) and seaside (e.g. offshore wind, wave, tidal energy generation) with a potential to bring significant energy efficiencies with a definable return period.

Learning from the PATCH project results, the PAC2 partners have been able to become more familiar with manifold aspects of energy efficiency for SMPs, such as in **sustainable port buildings and equipment, energy audits and smart metering** and combined use

of pipes for waste to energy projects in ports and the 'circular economy' - the focus for the European Commission's Green Week in 2014.

Investing in energy efficient technologies

Affordable innovative traffic management and monitoring technologies can be part of an energy rebate programme for SMPs. Within PATCH, the port of Calais fitted **new generation electronic road signs and variable message signs –powered by solar panels–** on the ring road used to access the port and the port perimeter, as well as equipment to control traffic flows, guarantee better accessibility, customer information, security and less congestion, thus downsizing the carbon footprint of the harbour. The CCI Côte d'Opale which manages the port also carried out a study on renewable and alternative energy technologies and R&D (**kinetic ramps, tidal/wave energy, solar energy, waste energy**). The report raised much curiosity but also broader questions among the partnership concerning the feasibility of these solutions as well as their areas of application.

If energy production requires scrupulous thinking, direct and quicker results in terms of energy efficiency can be obtained via simple retrofits or small scale demonstrators. During the PAC2 capacity building event, Portsmouth International Port presented its experience in replacing the existing floodlights at the Continental Ferry Port with low energy equivalent **LED floodlights**, achieving an impressive 70% energy reduction. This has provided the other SMPs with a practical example of how small scale investments in modern technologies can have major impacts on the efficiency of their operations.

A larger scheme, instead, was implemented by Zeeland Seaports through PATCH under the slogan "One company's waste can become another's raw material." The so-called **Multi Utility Provider (MUP)** is a spacial reservation in which an extensive, uniform network of hidden pipelines can be placed -within a safe dedicated strip of land- to foster the sustainability of the industry in the Gent-Terneuzen Canal Zone. The system is based on the exchange of commodities and waste products (CO₂, heat, gas,

biodiesel, water, electricity, organic waste) between companies via a corridor of aligned underground connections.



Multi Utility Provider concept in the Canal Zone Vliissingen-Gent

The functionality, advantages and reliability of the unique MUP infrastructure and concept were presented to the port's counterparts in Belgium, France and the UK explaining how such an innovative system with its sustainable use and re-use of residual flows can help lower carbon dioxide and increase energy efficiency. This concept has also been adopted by the Smart Delta Resources platform to improve the position of existing chemical industries in terms of energy costs and scarcity of raw materials.

Such PAC2 measures to achieve "Higher and sustained improvements of resource efficiency performance" are in line with the recommendations of the European Commission set in 'Towards a circular economy: A zero waste programme for Europe' (COM/2014/0398 final).

Cross-border exchanges on renewable energy & energy efficiency

Much knowledge has been acquired through PAC2, especially in the energy field. Electrification has been debated,

"Businesses are essential for the economy of a territory, and even more for the growth of small and medium sized ports. The MUP, which inter-connects companies in the Canal Zone Vliissingen-Gent, improves settlement conditions for new companies and demonstrates how integrating enterprises and harbours can make a region not only more efficient, but also more attractive and competitive. Multi Utility Providing is the future backbone for sustainable port development and cross-border cooperation."

(Dick Engelhardt, Zeeland Seaports)

with its benefits and economics, and it was found as a viable option for some SMPs. An appreciable result was that, based on a study on cold ironing developed by the Port of Calais, a similar analysis has been possible for the port of Zeebrugge. **Cold ironing** or Alternative Maritime Power (AMP) simply involves plugging marine vessels into the national grid, via onshore power supply and shore connection. Through this process and by switching the ship engines off whilst moored at berth, emissions can be lowered in ports areas. The PAC2 cross-border learning exercise has once more brought to light an interesting potential opportunity applicable to SMPs but whose utilisation should not be regulated. Also ESPO (European Sea Ports Organisation) and FEPORT (Federation of European Private Port Operators) are clearly against any introduction of legal obligations to ports for the provision of this technology, because it is not a "one-size-fits-all" type of solution ('Common ESPO and FEPORT position paper on the proposed directive for the deployment of alternative fuels infrastructure', 2014).

Resource efficient ports

An example of how to minimise the carbon footprint and improve energy efficiency by utilising eco-friendly technologies is the £16.8m state of the art new terminal building that Portsmouth International Port delivered between 2010 and 2011. The funding secured by PATCH helped finance a few of the innovative features of the structure, such as:

- the **wind-catchers** on the roof which harness the prevailing SW'ly winds to provide natural ventilation;
- a **sea water-source heat pump system** -unique in the UK- that allows the transfer of thermal energy from the sea to heat and cool the building.

As PAC2 follow-up, the Port of Dover is looking to investigate how to best link, store and distribute the various energy generation sources, so that they work together as a coherent unit to suit demand. Furthermore, the port is interested in identifying the effect of the additional generation on local electricity distribution network and whether any upgrade of the existing Grid connection would need to be carried out to cope with the additional flow of energy.



The new terminal building at Portsmouth

"Ports are a hub for a variety of industries and services associated with processing, manufacture, transport, storage and people. All this activity requires energy which means that they are therefore often a focal point of energy demand within the surrounding area. This means that as well as having a hinterland infrastructure in place to transport vehicles and goods there is often much of the hinterland infrastructure in place to transport electricity. It is important that ports examine and compare their individual experiences on this topic to develop energy efficient solutions."

(Vicky Jago, Dover Harbour Board)

Port infrastructure optimisation to address climate change

Climate change is expected to have numerous implications for ports, their cities and inherent transport networks. Nevertheless, climate change port adaptation is still not considered as a priority by many SMPs.

In order to cope with its more predictable impacts and understand how to enhance their resilience through qualitative evaluations and quantitative operational decisions, some PAC2 port partners have already incorporated this delicate issue in their development strategies and had bilateral discussions on the matter.

It has been ascertained that it may have quite substantial tangible consequences on their infrastructures and equipment. Furthermore, it may also imply significant clean-up costs and produce environmental damages, economic decline with social deprivation and, of course, have long-term repercussions on the quality of life of port-towns inhabitants and workers.

Also indirect impacts should not be neglected. Portsmouth City Council and the Hampshire Climate Change Commission observed that climate change may have negative effects on some of the cargoes that use the port, e.g. an increase in violent storms in the Caribbean could affect the banana crops with potential adverse effects also in the banana trade with Portsmouth ('An overview of the impacts and opportunities of a changing climate to the City's economic wellbeing', 2007).

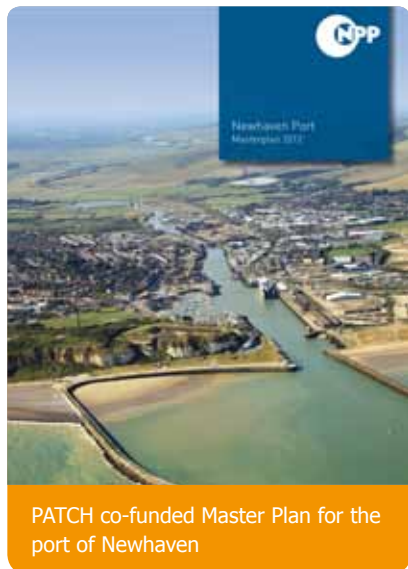
SMPs should therefore engage with various concerned actors to have a deeper understanding of the problem and take the appropriate measures to cope with it. During the meeting 'Climate Change Impacts and Adaptation: A Challenge for Global Ports' organised by the UN Conference on Trade and Development (UNCTAD) in Geneva in 2011, a constant dialogue between all stakeholders involved (academia, port authorities, environmentalists, policy makers, transport industry, insurance sector, financial and lending institutions, policy makers) was recommended to bridge the gap between science and policy and more consciously prepare for the future.

Adaptation strategies

Although the Channel and southern North Sea area are not normally exposed to extreme weather conditions (such as big hurricanes, tsunamis, etc.), more and more exceptionally severe storms have been visible in the last record-breaking winter. Heavy rains, strong winds and high waves caused widespread flooding, coastal damage and even the temporary disruptions in the functioning of harbours. It occurred, for instance, in February 2014 in Dover where the port was closed overnight and the management's following long-term response was to amend its training schedule to incorporate surge

conditions, as reported in 'Monitoring the impacts of severe weather - SWIMS Event Summary Report for Kent & Medway Winter 2013 -14'.

Natural disasters can occur in the 2 seas. Climate-induced sea level rise and the increased likelihood of coastal flooding should not be underestimated according to 'Rising sea levels in the English Channel 1900 to 2100' (Ivan Haig, Robert Nicholls and Neil Wells, 2010).



The CHARM project, co-financed by the Interreg IVA France(Channel)-England Programme, has highlighted that climate change has already had quite a relevant impact on marine life and the distribution of fish stocks and, consequently, on the fishing industry.

Even if the PAC2 partners have not concentrated on this topic, they agree that small and medium sized fishing and commercial ports should in general pay more attention to climate change. Medium-to-long term planning with risk assessments, technical analyses and port climate adaptation guidelines should be carefully foreseen in addition to shorter term physical layouts and engineering projects.

In its PATCH co-funded **Master Plan** the Port of Newhaven has done so and recognised both the need for a thorough flood risk assessment, and the threat related to the cost of climate change and flood defences. Likewise, the Port of Oostende has identified some natural

and technological hazards the ports might incur into (i.e. floods and industrial accidents) through the Interreg IVC project CivPro: Regional Strategies for Disaster Prevention. Within the 'Flanders Bay 2100' programme, the Masterplan 'Vlaamse Baaien' has designated the Flemish Banks as a coastal protection area, thus providing additional support to the PAC2 ports of Oostende and Zeebrugge in their efforts to withstand heavy rains, flooding and extreme weather conditions.

Acknowledging a risk should then go hand in hand with follow-up steps to prevent it or effectively handle its impacts. Yet, because SMPs are burdened with the core business of their activity and, as repeatedly mentioned, they do not have enough staff and funding, investment in infrastructure and/or technological equipment able to cope with climate extremes and strategies to diversify trade into climate resilient commodities have not been given precedence.

Physical investments

Responses to climate change from SMPs and their port regions could include a number of concrete actions:

- investments in new breakwaters (such as the one constructed in 2012 by the Port of Oostende) to ensure further port towns' protection,
- adaptation of port infrastructure (e.g. strengthening quay walls),
- water retention basins to gather water during flooding,
- ensure alternative routes of transport modal split in the supply chain network (e.g. diversion of certain type of traffic to SMPs when flooding affects larger ports),
- rail/road able to cope with flooding.

It is no news that the provision of new infrastructure and adaptation of existing facilities always involve high capital costs, but the PAC2 partners believe that these can be minimised thanks to external (EU) financial support and the lessons learnt via collaborative exchanges between SMPs. For example, during a PATCH workshop organised at the port of Zeebrugge, the participants had the chance to see actual construction works at the Container Handling Terminal. This exchange of technology/engineering information and

demonstration on how to build **reinforced quay walls** in real seaports was useful to have an insight also in the key elements that the structures require in order to withstand stronger waves, winds or heavy rains.



PATCH technical demonstration in Zeebrugge on how to construct quay walls in ports

Ports as hubs for regional economic development & social inclusion

Ports are businesses and economic entities in their own right. They provide regions with added value by contributing to the progress of traditional activities (transport, maritime and chemical industry, construction) and the take off of new high growth industries (energy, eco-innovation). Their infrastructure, operations and strategies are therefore indispensable in the first place to ensure resilient inland and cross-border transport connections. In addition, they also serve as poles for clustering enterprises and research institutions, as well as to facilitate and/or accelerate economic development.

"There is a wide range of industrial activities – petro-chemical, steel, automotive, energy production and distribution that are located in ports. Ports are also at the heart of economic activity for wider maritime clusters, including shipyards, marine equipment, crane and terminal equipment producers, salvage companies, offshore companies, marine construction firms, dredging firms, naval bases, etc." (European Commission - MEMO/13/448 23/05/2013 Europe's Seaports 2030: Challenges Ahead)

According to 'Economic Impact of a Port on a Regional Economy: Note' (Gilbert R. Yochum and Vinod B. Agarwall, 1987-1988) seaports can attract a wide number

of businesses with related jobs, i.e.:

- 'port required industries' (e.g. transport and logistics),
- 'port attracted industries' (e.g. chemicals, refineries),
- 'port induced industries' (e.g. firms that expand their trade importing/exporting through the port).

First, ports play an essential role in global supply chains, and – as such – act as facilitators of trade between port-regions and countries. Ports also provide value added through the economic activities that they and the firms related to ports perform. This economic value translates into port-related employment. Finally, ports are also spatial clusters for innovation, research and development. ('The Competitiveness of Global Port-Cities: Synthesis Report', OECD, Olaf Merk)

Shipping, shipbuilding and fisheries are often the main maritime activities, but offshore/onshore energy, blue industry, marine construction and coastal tourism can generate significant revenues, too. The PAC2 partners are aware that opportunities exist for ports in the field of marine industries and that new business streams can be triggered, as new economic activities tend to attract other interconnected industries and activities, such as aquaculture and wind farms. Hence, ports also have a relevant economic potential which can generate employment and facilitate the growth of a region.

Apart from the strengths of their local industries, the PAC2 SMPs lie between four major industrial and metropolitan conurbations: London (UK), Paris (France), Randstad (The Netherlands) and the Flemish Diamond or Vlaamse Ruit (Belgium). They are also not distant from important centres in the German Rhine-Ruhr metropolitan area. They can therefore take advantage of the proximity to these relevant catchment areas and:

- serve as supply ports specialised in diverse niches;
- temporarily act as support facilities for primary ports in case of slowdowns and/or stoppage due to natural or man-made events, thus increasing the resiliency of the macro-region's transport network.

Cooperation between ports & port towns/regions

The 'Cross-border port & transport infrastructure investment framework and logistics study' developed by the C2C project states that many ports and inherent hinterlands in the 2 Seas area represent a valuable source of economic activity, but must continuously adapt to critical changing circumstances. It therefore suggests that more coordinated and complementary investment proposals should assist ports and their regions to reinforce their cross-border links as well as attract or retain manufacturing and/or distribution activity together with options for wider port diversification.



Joint C2C-PATCH conference "Adapting Coastal and Port Industry to Regional Needs"

C2C and PATCH have both stressed that competitiveness can be retained for SMPs only by an excellent logistics and seamless supply chain that recognises the maritime dimension and the inter-dependency of ports and regions across the Channel and southern North Sea. The issue is how to best bridge ports with their hinterland as well as ports and regions with other ports and regions to provide shipliners, cargo owners, expeditors and forwarding agents with convincing alternatives. The obstacles are two-fold: one is local, the other is transnational.

Locally, the re-shaping of harbour towns in northern Europe in post-war era with the increases in intra-European and global trade had the effect of divorcing port operations spatially from their surrounding urban area. As a result, the ports and towns' (territorial) development plans have often been realised in relative isolation from each other and without real integration. This has generated and can still continue to create fragmented and incompatible freight/passengers transport solutions through harbour towns along with additional congestion problems and social inclusion barriers.

The issue of separated (and sometimes conflicting) planning also apply to the relations between ports and public sector authorities responsible for regional economic development or transport strategies. In this case, ownership or organisational changes for the port or the public body may not ease their relations, as the transformation process implies restructuring, change in competences and a temporary spending freeze during the transition phase.

In 2012 Regional Development Agencies were completely abolished by the UK Government and their transport strategies disregarded, thus depriving ports of an intermediate interlocutor and creating a gap between local and national institutions which voluntary Local Enterprise Partnerships (LEP) are trying to fill. Because of its closedown, the South East England Development Agency (SEEDA) was forced to complete the C2C project which it was leading ahead of schedule. This has highlighted how policy choices may interfere with the smooth implementation of a collaborative EU project.

Whichever is the case or framework, it is imperative that ports and their towns/regions communicate with one another, if the best possible economic environment and offer are to be achieved.

Similarly, at cross-border level, port-to-port and port region-to-port regions connections must be made possible. PAC2 is adamant about raising awareness that **EU collaborative projects are the ideal framework where ports and relative stakeholders from different countries and cultural background, mind settings and languages can interact.**

However, the cluster partners have also emphasised that some external factors can influence negatively the growth of an SMP and its ability to collaborate fully with cross-border counterparts. In a profit-oriented market, transport operators are comprehensively more prone to think of their immediate short-term interests and they are less inclined to consider SMPs' cooperation and the added value they may provide together to the long-term economic benefit of the port-regions in which they

operate. Similarly, local policy support to SMPs -in or outside EU projects- may not be granted if, for example, Eurosceptic political views prevail.

In order to bring port end-users and clients, researchers, policy makers and local communities together and win their support, the PAC2 partners have applied various **stakeholder engagement** techniques and methodologies, such as surveys, interviews, newsletters, bi/multi-lateral meetings, sponsoring plentiful multi-theme events -all free of charge- (on multimodality, port financing, energy, master planning, blue growth, cruising) and hosting B2B events to link companies and Chambers of Commerce from the participating regions. The process was useful to:

- inform them objectively about their plans and operations and help them understand their challenges;
- consult with them to obtain feedbacks or proposals for improvement;
- involve them directly to make them feel part of the port;
- collaborate with them on specific activities (e.g. organising joint events).

Exploit SMS port and port region potential

Once external conditions are favourable and no major external interference hinders its development, a port has the chance to prosper. However, it is first essential that it accurately evaluates its performance and potential related to market demands. A rigorous and honest assessment can allow the SMPs to identify niche markets and articulate Unique Selling Propositions (USPs) that may make it appear as particularly captivating for national or foreign investors.

Some PAC2 ports have highlighted, for example, their availability of unutilised space or deep waters (e.g. Newhaven), the proximity to energy clusters or industries (Oostende, Ramsgate), the position in the busiest and shortest channel route and energy potential (Dover), the port multimodal connections (Zealand, Calais) and/or presence of varied industries and links to EU and global networks (Zeebrugge, Portsmouth).

Regional development agencies such as the PAC2 partner POM West Flanders can be very important for SMPs to place themselves better and enhance the port region's endogenous potential. Above all, they can help the port have a more comprehensive overview of the region's economy and industries, so that the port and port regions' strengths can be exploited by working together.

"As a regional development agency, POM West Flanders aims to implement socio-economic policies that help the region become not only more competitive, but also better positioned and visible internationally. European cross-border projects such as PAC2 give us the chance to network, meet potential foreign investors and, above all, promote our ample offer in terms of services, industries, transport, logistics and trade opportunities. Ports are, obviously, some of our strategic assets and we welcome any initiative that can boost their development and recognise their economic value."
(Alexander Demon, POM West Flanders)

In the C2C project the Province of West Flanders, SEEDA and the Regional Council of Nord Pas de Calais drew up an economic profile of their regions which took into consideration the distribution sector, the economic structure and the labour market. By comparing market conditions, economic outputs, stakes and logistical situation, their diagnosis was a useful tool to verify whether and where opportunities for collaboration were feasible.

Inclusive growth for ports and their local communities

Generally speaking, over time increased shipping and transport have persuaded port authorities to expand their facilities. As previously mentioned, such utilitarian reconfigurations have inevitably caused a spatial, functional and social separation between ports and their cities and inhabitants. In view of their size, SMPs have typically remained physically closer to their towns and local community. However, their ties and relationships have taken diverse forms and variegated nuances.

Sometimes ports and towns exist side by side and their inter-dependence is unmistakable. Often they simply co-exist and the interlinkages between the two are negligible or motivated by opportunistic necessities. For instance, in modern times, the port's need to raise capital and the pressures (or speculative initiatives) of real estate promoters and property developers have repeatedly resulted in the conversion of commercial/fishing waterfronts into (private) residential and recreational uses, thus compromising the possibility of establishing future port business activities. A trade-off considered, especially during periods of crisis, as a small price to pay, enabled by the fact that "waterfront always sells".

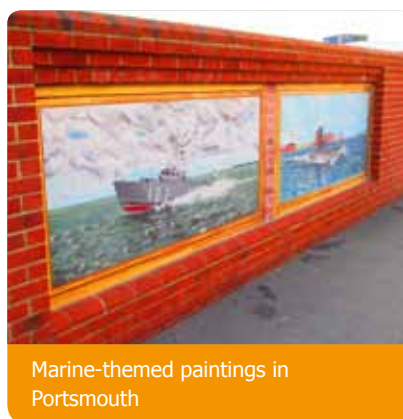
In long-term planning, societal integration and mutual understanding between the two parties are a crucial aspect of port governance. They can facilitate the relations between the port and its surrounding societal environment, but also help SMPs demonstrate their value with the general public and avoid **NIMBYism**, i.e. Not In My Back Yard opposition to port development plans from community groups.

Since 2009 the European Sea Ports Organisation has been handing out an Award on Societal Integration of Ports with the intention to stimulate ports to better co-operate with their local communities and, at the same time, "promote the positive image of the port as a place to experience, live and work".

Societal integration of ports is an essential part of port governance which concerns actions by port authorities that aim to optimise relations between the port and its surrounding societal environment and it focuses on the human factor in ports, i.e. (future) employees, people living in and around port areas and the general public.
('Code of Practice on Societal Integration of Ports' , ESPO)

The PAC2 SMPs have acknowledged that a commitment should be made as far as societal responsibility and port-town interface improvement are concerned. In their PATCH co-funded master planning

exercise, the ports of Newhaven and Portsmouth engaged with multi-sector stakeholders, including businesses, citizens and public authorities. Local enterprises were also involved in many cross-border PATCH-C2C-PAC2 workshops and Business to Business events. Moreover, as part of the C2C Trafalgar Gate scheme in Portsmouth, the road was embellished with a mural completed by a junior school via **marine-themed paintings**. The new access gained an award from the Portsmouth Society in 2012 for Best Landscaping.



Marine-themed paintings in Portsmouth

Guided tours of the port for students/citizens, maritime events and museums, maritime heritage revitalisation are other initiatives that various SMPs, also within PAC2, have been undertaking to gain public support, by visually presenting the economic function of ports and letting the visitors enjoy the unique atmosphere that harbours and their quayside can evoke (e.g. the 2011 Flemish Port Day involving

the ports of Zeebrugge and Oostende; the refurbishment of Ramsgate's Military Road Arches thanks to the cross-border Yacht Valley project).

What does this demonstrate? That in these days SMPs have been focusing more and more on their marketing strategies, having realised that a pro-active approach can be beneficial with both commercial and non-commercial stakeholders. It also proves that, in order to attain more effective marketing tools and knowledge, EU funding, projects and partnerships can represent a profitable option.



The partners visit Ramsgate's renewable energy facilities

Innovative port management

What does it mean to run a port?

Nowadays, port managers and technicians are responsible for:

- providing or coordinating multiple services (strategic policy; master planning; business development; law; finance, accounting and budgeting; logistics; safety, security and environmental management; engineering; marketing & promotion; terminal operations management; IT);
- liaising with numerous stakeholders and third parties (terminal and shipping line customers, transport operators, local communities, etc.);

- attracting new terminal and cargo business;
- developing new commercial activities;
- ensuring port infrastructural and operational efficiency.

The nature of modern ports implies, therefore, the presence of competent and highly trained team players. In the case of SMPs, and especially small harbours, due to their limited resources, staff often has to perform different tasks and cover more functions. On the one hand this contributes to the versatility of the employees. On the other hand, their professional expertise in certain areas but lack of specialist knowledge in others may impact on the quality of the results.

Staff exchanges & training

Through PATCH an **e-learning platform and training programme** (with live sessions and website videos – some of which are available on YouTube) was set up to help the partners identify common management problems, pool resources and share costs and information with the ultimate goal of upgrading the port managers and technicians' skills.

Following face-to-face interviews with port staff, resulting in the report "Cross border analysis of the opportunities for improving the quality of strategic collaboration" (Simon Pascoe, 2009), specialised cross-border web seminars as well as technical workshops were organised on various topics: port financing, incl. Public Private Partnerships (PPPs) & Special Purpose Vehicles (SPVs); energy efficiency & energy generation; renewable energy; eco-innovation; port infrastructure and effective use of logistics modes; master planning; construction of quay walls; EU port policy and challenges for the 21st Century; Blue Growth Strategy and the implications of EU Cohesion Policy post 2020; Sulphur Directive. Speakers included the EC DG-MARE, DG-REGIO, DG Enterprise & Industry, ESPO, EIB and multi-sector experts.

Staff exchanges and regular bi-lateral meetings also took place, e.g. between the ports of Ramsgate and Oostende's staff in order to debate offshore wind related issues.

Information exchanges

Master planning has been the main subject on which the PAC2 partners have shared their experience. Why? Because strategies that can give the port authorities an analysis of its potential and a vision for the future in the medium to long term are fundamental to help them grow. They must be underpinned by a detailed business plan to ensure that the vision is realistic and deliverable. For this purpose, the consultation with port end-users, politicians and the local community are key to tackle all major issues of port development, e.g. support existing and new industries, job creation and better connections to global markets.

In order to better grasp how to transfer skills, where to access data on the required workforce and profiles for the wind energy sector and stimulate adequate vocational education, the PATCH Report "Pooling of Resources – Offshore Wind Farms" (Simona Margarino and Martina Kabesova, 2010) was realised.

A specialised cross-border report was prepared regarding the viability of PPP to enable the implementation of port development investments. ('PPP-P Public Private Partnerships in ports', Luc Imbrechts, 2012) Other research was carried out (on cold ironing, sustainable energy saving and energy re-use in ports) and video interviews were made with experts on various subjects (marketing, master planning, dredging).

Additional knowledge was gained by taking part in other EU projects' events (e.g. the BEPPo workshop on Blue Energy; the InTraDE launch of an intelligent transport vehicle for SMPs; the first SuPorts conference on port sustainability).

Throughout C2C, PATCH and PAC2 the major source of information has therefore been the continuous and extensive interaction with a wide range of:

- ports across Europe, also involved in other transnational schemes;
- companies in the field of energy, transport, logistics, ship building, marine, architecture, engineering and eco-innovation;
- local, regional, national policy makers;

- EU institutions and networks (EC, EIB, European Regions Research and Innovation Network);
- knowledge and research centres and specialist consultancies.

"We found PATCH a valuable learning experience which gave us (the Economic Development Team) insightful knowledge about the problems and issues facing small ports. As PATCH partners we worked with Newhaven Port to promote it and the town as a location for businesses both in the maritime, and in other sectors, particularly low carbon. This has helped Newhaven build its identity as a renewable energy and clean tech cluster in the region, now part of the wider Brighton City Deal."

(Councillor Rupert Simmons, Cabinet Member for Economic Development, East Sussex County Council)

Joint promotion and marketing

The difficulty in increasing their visibility and lobbying power is a crucial issue that PAC2 ports have tried to tackle in various ways:

- bringing their stakeholders together to enable business relationships, extend networks and secure policy support during PATCH, C2C and PAC2 workshops, conferences, seminars, B2B;
- via promotion of events and results (incl. videos) in paper and online media;
- ensuring the presence of local/specialised press, policy makers (councillors, ministers, various EC Departments, EIB), research institutions and the industry at the project events;
- jointly attending or securing a speaking slot in external events or participating in relevant trade fairs (e.g. Green Week, Seawork, Open Days, GreenPort, ESPO annual events);
- utilising new social media (e.g. Facebook, LinkedIn, YouTube);
- developing joint cross-border marketing material (e.g. Ramsgate-Oostende, Dover-Calais).



Through collaborative efforts, the PAC2 cluster has been able to surface medium-to-long term challenges for European Small and Medium sized Ports in the 2 Seas macro-region in terms of low carbon, innovation, resource efficiency, regional economic development and climate change. Risks that may threaten their development have also been considered. How can SMPs now benefit from it? Can follow-up cross-border activities be devised to take advantage of the findings and trigger more widespread and long-lasting results? The answer is yes. However, the right environment must be granted to them, preferably together with policy and financial support. SMPs are pieces that cannot be removed from the EU transport network's chessboard. They must be given fair chances to play their game also in the future, through a full recognition of their knowledge, expertise and capacity to create economic value.

Europe has over 1200 seaports, of which only 93 are in the core network and 236 in the comprehensive network of the Trans-European Transport Network. This leaves an evident empty gap in terms of policy and financial support to the majority of Small and Medium sized Ports, whose strengths are often ignored, and whose visibility and lobbying power are rather limited. The status as Primary node, Secondary node, multimodal link or even the non inclusion in the TEN-T list entails that for ports along the coastline possibilities can open up -or not- for European funding.

Given that the policies of various Member States do not regard funding basic port infrastructure as a public task, many seaports -especially SMPs- are not subject to any form of systematic or ad-hoc financial support also at a national level.

At the same time, though, in a more and more globalised market where the leading

role is covered by major hubs, SMPs are confronted with an increasing number of significant multifaceted challenges.

Nonetheless, SMPs along the Channel and southern North Sea lie between four important European metropolitan areas (London, Paris, Randstad and the Flemish Diamond) where an extensive and dense network of roads, railways, inland waterways, ports, airports and freight terminals exists. They are therefore in a good position to be able to take advantage from the proximity to strong economic centres, for which they can become more active supply ports.

Furthermore, they have the chance to invest in new emerging sectors (energy, eco-innovation) or specialise in niche markets, thus bringing additional value to the economy of the regions they serve.

By reviewing the results of the PATCH and C2C cross-border projects through various best practice exchanges, events and feedbacks from multiple stakeholders, the PAC2 cluster has been able to highlight that:

- SMPs can have a prominent place in their territory and the 2 Seas region more broadly because of the direct, indirect, induced and multiplier impacts that they can generate;
- a volume-based definition of ports (as small, medium or large) does not necessarily imply that the so-called SMPs bring less added value to their regional economies than bigger harbours, as some of their activities (e.g. support to the offshore industry) can create high returns in terms of employment, supply chain and skills upgrade opportunities;
- in order to survive or remain competitive, SMPs require innovative port financing instruments and new

strategies that support the longer term transition to resource efficient operations and equipment. They also need novel technological solutions, modern infrastructure -also able to cope with climate change- and, least but not last, skilled and versatile staff.

- SMPs can partly overcome their problem of reduced financial and human resources, by jointly developing transnational collaboration schemes, accessing EU funding and clustering projects, partners and ideas, contributing to shared costs and longer term efficiency savings.

SMPs, public bodies and commercial operators can and must work together to achieve the objectives of EU and national policies in terms of **low-carbon economies, resource efficiency, climate change response and global competitiveness**. Whilst ERDF cash leverage is a lucrative perspective, the common thinking, planning, lobbying and agreeing of priorities beyond cultural and administrative divides is even more significant. It reflects an aspiration to establish and maintain an influential and hopefully rewarding long-term relationship between public and private sector organisations to jointly advance regional economic performance and ultimately enhance territorial cohesion in the overall 2 Seas area.

The cluster has also highlighted that dynamics of cooperative projects between ports can somewhat differ due to multiple motives. However, **success is mostly associated to the ability to network extensively and selectively, integrate complementary expertise and, above all, trust each other in spite of competition and day to day workloads.**

Obstacles to SMPs cooperation

Some barriers to synergic approaches between SMPs, predominantly within EU projects, have been identified by the PAC2 partners:

- Scarce availability of (match) funding to cover new investments or innovative activities -also due to little support or interest from financial institutions- may jeopardise the participation to collaborative projects in the first place.



Quay wall construction in Zeebrugge

- A fear exists that by working together confidential information may be disclosed to a competitor.
- An anti-EU feeling led by media or Eurosceptic parties can hinder the participation of some SMPs to cross-border consortia and/or the visibility of an initiative.
- External interferences, e.g. local authorities and politicians' viewpoints, sometimes clash against port authorities' plans and business models, thus endangering also their chances of taking part in a EU project or minimising their value.
- Divergent interpretation given by Member States to EU policies can translate into different national regulations and obligations, thus making cooperation on certain issues more problematic.
- Ports need to give added value to their region, but transport operators are focused on giving added value to their companies and customers only. This does not facilitate collaboration between SMPs and the businesses they predominantly serve. Balancing short and longer term agendas is a dichotomy most SMPs face alongside their commitments to EU collaboration projects.
- Although the collaboration may be successful, the project's results may not be as positive. For example, in the past some SMPs have tried to jointly formulate possible itineraries to cruiseliners, but these have not fully considered their offer, preferring to decide destinations and ports of call on their own.

Added value of cross-border SMPs' collaboration

Where is the value of working together for SMPs, in spite of competition and various other difficulties?

- Cooperation between ports can result in visible results (e.g. new infrastructure, reports, strategies, marketing products), but also in intangible outputs (e.g. unquantifiable shared knowledge and upgraded skills).
- EU collaborative projects can provide a neutral platform for SMPs beyond competition.
- Flows of ideas coming from joint events and training can help stimulate creative thinking, as well as increase knowledge and expertise with human and financial resource and time saving.
- EU funding earmarked for ports or accessible to ports can keep partnerships of SMPs together under a shared goal.
- EU (co-)financing can enable SMPs to lever additional public/private funding, thanks to the credibility, larger partnerships and/or wider context provided by European initiatives.
- A fast delivery of investments is possible due to the short nature of EU projects.
- SMPs can utilise EU initiatives as a tool to assess or deliver shared services and make savings.
- Business and networking opportunities and awareness raising campaigns can be organised together by SMPs and their stakeholders beyond national borders, ensuring higher visibility and lobbying power within Europe and the European Commission's Directorates.

- Collaboration can set a precedent and motivate other SMPs, as happened with the Channel Programme's Fostering Long Term Initiatives for Ports (FLIP) project, inspired by PATCH.
- The future of SMPs can depend on their exploitation of less competitive niche markets. This can mean focusing on specific goods movement operations or commodities (e.g. agricultural products, bulk materials, cargo requiring dedicated infrastructure, etc.) that do not fit with larger facilities' business models centred on containerised freight. But it can also refer to the ability to serve emerging innovative market segments (e.g. renewable energy). Because specialisation requires adequate strategies and competent management to implement them, transnational knowledge, training and experience exchanges between SMPs' staff can be desirable to attract (national/foreign) businesses and make SMPs act as growth pole to their region.
- By jointly supporting the agglomeration of industries and knowledge centres around ports and providing crossborder business and know-how sharing opportunities, EU projects can create the pre-conditions for the activation and/or prosperity of agile multi-functional clusters, thus giving a major boost to local economic development and job creation.
- The limited volumes handled by SMPs make the cost efficient organization of logistics and cooperation very difficult.

Recommendations

Once the positive effects of EU cross-border collaboration have been ascertained, it remains to be seen how to continue to benefit from them. The opinion of the PAC2 partners is that SMPs in the 2 Seas area should:

- further build upon activities which focus on innovation, sustainability and low carbon potential for ports, by investing in IT, innovative, green, resource efficient solutions for inner-outer port management, operations and sustainable green space usage (e.g. energy related schemes, novelty technologies);
- constantly update their master plans and re-adjust their strategies in order to respond to new market demands or policies and assist the development of emerging sectors;
- try and mitigate the impacts of climate change and provide better coastal protection via port (infrastructure) adaptation or optimisation (e.g. higher sand banks, reinforced quay walls);
- try and capitalise on their unique strengths, also investigating potential niche markets;
- extend their stakeholder networks outside the Channel and southern North Sea;
- raise more awareness of the economic and social added value of SMPs and their operations among policy makers, businesses, local communities and the media;



PAC2 partnership meeting

- strengthen the intra-regional economic and logistic links between ports, port operators and businesses in the territory in order to attain resource efficiency and more deeply embed SMPs in their local economy.

It has also been underlined that:

- policy makers, financial institutions (incl. the European Investment Bank) and international/European port associations should pay more attention and provide more policy and/or funding support to SMPs to reinvigorate their sometimes floundering economic situation and allow them to contribute more to the economic well-being of their regions.




Sustainable management of port green spaces in Calais (sheep grazing): a future option for other SMPs?

Annex 1

The present and future of Small & Medium sized Ports in the Channel and southern North Sea (SWOT)

Strengths	Weaknesses
<ul style="list-style-type: none"> existing reliable links opportunity to serve more isolated communities port versatility and adaptability to structural transformation agility to specialise in niche markets some unutilised space due to concentration on major economic development areas knowledge of the sea knowledge of maritime logistics proximity to major EU metropolitan areas 	<ul style="list-style-type: none"> infrastructure in need of optimisation/adaptation need for innovation to improve intra-port/extra-port multimodal accessibility and connectivity (port-to-port, port-to-hinterland, port-to-end users) e.g. more sustainable transport links, greener inner port transport/handling equipment, novelty technologies to improve operations lack of human and financial resources to optimise existing port operations and/or infrastructure need for innovative financing methods and partnerships to compensate for reduced port funding and financial support competition from better accessible/connected but congested bigger ports sometimes little room for port expansion lack of technical expertise and knowledge on new technologies or emerging sectors' requirements (infrastructure & skills) lack of awareness of importance of SMPs for their regions' connectivity and economy lack of visibility and lobbying power
Opportunities	Threats
<ul style="list-style-type: none"> identification of niche markets, specialisation and/or investment in non traditional activities/sectors (e.g. energy, eco-innovation) and develop related better connectivity for emerging industries innovative shared marketing between connected ports crossborder sharing of information and best practices for resource and time saving use of land space for businesses to generate revenue temporarily serve as support facilities for primary ports in case of slowdowns and/or stoppage due to natural or man-made events, thus providing a more resilient transport network relieve pressure and congestion when other nearby larger ports approach capacity limits opportunity to access new technologies that can enhance infrastructural/operational connectivity, improve energy efficiency and reduce emissions development of long term strategies that take into account inter-dependency of ports across the sea investments (e.g. larger berth) to mitigate effects of Sulphur Directive 	<ul style="list-style-type: none"> lack of policy support loss of competitive power closure and/or loss of employment pressures posed by ecological and social factors pressures of real estate developers to sell assets for residential or recreational uses possible negative (cost) effects posed on ports by legislative or policy changes and regulations (especially when introduced by policy makers without in-depth maritime knowledge or expertise) impacts of climate change NIMBYism, i.e. opposition to port development plans from local communities pressures of new incoming residents and 2nd house holders without sufficient knowledge of the sea and port operations

Annex 2

THE PAC2 SMPs					
	Small and Medium sized Port (SMP)	Space available for investors & manufacturers	Priority areas for development & manufacturing sectors	Industries present in the port	Connectivity
<p>www.portofoostende.be Wim Stubbe Wim.stubbe@portofoostende.be 032487548768 (M) 0032(0)59340727 (T)</p> 	<p>The Port of Oostende has a direct access to the North Sea (51°14' N - 2° 56' E) . The port of Oostende is close to the metropole of London and the industrial heart of the UK in the Midlands. In this way, you can organise your transport from the UK to the North of France, Germany and Central Europe. Furthermore, the port has built a heavy load quay (up to 20 tons/ m²), directly situated at the seafront-terminal, where you can handle your project cargo, bulk, cruises and offshore equipment in an efficient way.</p>	<ul style="list-style-type: none"> • 90 ha (logistics & storage) • 40 ha (offshore wind farm and renewable energy) • 5 ha (marine industry) 	<ul style="list-style-type: none"> • Renewable energy • offshore wind-farm building • marine industry • logistics • project cargo • ro-ro • food • chemicals 	<ul style="list-style-type: none"> • Renewable energy • offshore wind-farm building • marine industry • logistics • project cargo • food & fish • construction • chemicals 	<ul style="list-style-type: none"> • Direct access to the Motorway – European network • Rail • Inland waterways • International freight/passenger airport – heliport • Cruises • Ferry
<p>www.portoframsgate.co.uk Robert Brown Robert.brown@thanet.gov.uk +44(0)1843572105 (T)</p> 	<p>The Port of Ramsgate is situated in the South East corner of England with easy access to the North Sea and English Channel. The port has adapted to provide bespoke service for both wind farm construction and ongoing O&M service. 305 turbines are presently serviced from Ramsgate and this number will increase by 17 next year. London Array is presently the world's largest offshore wind farm. Ramsgate represents a niche UK port facility, capable of handling un/accompanied freight and passenger traffic in an efficient and customer friendly way</p>	<ul style="list-style-type: none"> • 100,000 m2 	All	<p>Renewable Energy: Base for London Array O&M and Construction team; Vattenfall construction and O&M (Thanet Offshore Wind + Kentish Flats Windfarms); Siemens Wind Power; Visser & Smit Marine Contracting Ltd)</p>	<ul style="list-style-type: none"> • High Speed Rail • Motorway • Ferry
<p>www.portsmouth-port.co.uk Jerry Clarke jerry.clarke@portsmouth-port.co.uk +44(0)7961367333 (T)</p> 	<p>Portsmouth International Port, with its dazzling new passenger terminal, is perfectly positioned for ferries, cruise and cargo. It has easy access and the most routes to France, Spain and the Channel Islands. It offers breathtaking cruise destinations, sailing aboard luxury liners. Portsmouth is also a dynamic commercial port, importing 70% of the bananas eaten in the UK, and much more.</p>	<ul style="list-style-type: none"> • Space available as serial franchise holdings become available. 	<ul style="list-style-type: none"> • Cruise sector • Container (short-sea) sector • Ro-Ro sector (Iberian Peninsula) 	<ul style="list-style-type: none"> • Ferries • Cruises • Fruit handling • ContainerHandling • Small Breakbulk 	<ul style="list-style-type: none"> • M275 Motorway only 50m from port boundary • Rail • Ferries • Cruises • Cargo terminal
<p>www.calais-port.fr Anthony Pétillon developpement.portuaire@calais-port.fr +33(0) 32146 2900 (T) +33 (0)32146 2999 (F)</p> 	<p>Located in the busiest straits in the world for international shipping, the port of Calais is a gateway to London and the UK. Calais offers optimum service and cost 7 days a week, 24 hours a day, and good labour force. The port's concession holder, the CCI Côte d'Opale and Industry, is constantly investing in quality facilities to meet the legitimate demands of its customers to improve the productivity of handling operations.</p>	<ul style="list-style-type: none"> • 200 ha (Logistics & Storage) 	<ul style="list-style-type: none"> • Unitized traffics • Cruises • Renewable energy • Biomass • New-cars • Fisheries (Port of Boulogne) 	<ul style="list-style-type: none"> • Submarine cables • Chemicals • Agro-business 	<ul style="list-style-type: none"> • Motorway • Rail • Ro-ro • Cruises

Annex 2

THE PAC2 SMPs					
	Small and Medium sized Port (SMP)	Space available for investors & manufacturers	Priority areas for development & manufacturing sectors	Industries present in the port	Connectivity
<p>www.zeebruggeport.be Patrick Van Cauwenberghe pvc@mbz.be +32(0)50543211 (T) +32(0)50543224 (F)</p> 	<p>As a major coastal port on the Belgian North sea coast, the port of Zeebrugge offers a highly productive hub for a wide range of shipping companies. In the shortsea trade, Zeebrugge is the prime continental port serving the UK and Irish markets. Zeebrugge is also a top-class container transshipment hub. It is one of the few ports that can easily handle today's largest container vessels due to substantial water depth and the sophisticated terminal equipment.</p>	<ul style="list-style-type: none"> • 250 ha 	<ul style="list-style-type: none"> • Project cargo • Offshore industry • Liquid bulk 	<ul style="list-style-type: none"> • Logistics & distribution • Food • Automotive sector 	<ul style="list-style-type: none"> • Motorway • Rail • Inland waterway • Shortsea links • Ro-ro • Container terminal • Near Oostende International freight/passenger airport
<p>www.newhavenportauthority.co.uk Francois Jean francoisjean@newhavenportauthority.co.uk +44(0)1273612900 (T) +44(0)1273612910 (F)</p> 	<p>Newhaven ferry port overlooks the English Channel, one of the busiest shipping channels in the world. It is located on the south coast of England in the county of Sussex at the mouth of the river Ouse. It is the closest port to London with Ferry links to France, and is ideally placed between the seaside resorts of Brighton and Eastbourne with quick and easy access to the rest of the UK.</p>	<ul style="list-style-type: none"> • 12 ha 	<ul style="list-style-type: none"> • Renewable energy • Supply chain offshore wind industry 	<ul style="list-style-type: none"> • Marine related 	<ul style="list-style-type: none"> • Rail (2 stations) • Road (within the port 50 minutes to Gatwick airport and 1 hour to London) • Ferry
<p>www.doverport.co.uk Richard Christian richard.christian@doverport.co.uk +44(0)1304240400 (T) +44(0)1304240465 (F)</p> 	<p>The Port of Dover is Europe's busiest ferry port, a vital international gateway for the movement of people and trade. It is also an award-winning cruise port, the second busiest in the UK and hosts some of the world's most prestigious cruise lines. Other successful businesses include a cargo terminal, a top award-winning marina and several niche activities. The business mix is diverse.</p>		<ul style="list-style-type: none"> • Renewable energy 	<ul style="list-style-type: none"> • Marine services • cargo (perishables) • transport & logistics 	<ul style="list-style-type: none"> • M2 & M20 motorways • Cruises • Ferries
<p>www.zeeland-seaports.nl port@zeeland-seaports.com Dick Engelhardt dick.engelhardt@zeelandseaports.com +31(0)115647400 (T) +31(0)115647500 (F)</p> 	<p>The port area of Zeeland Seaports comprises the ports of Vlissingen and Terneuzen. It is ideally located in northwest Europe thanks to its strategic position on the Westerschelde between Rotterdam and Antwerp and its open access to the North Sea.</p>	<ul style="list-style-type: none"> • 50 ha at the Quarles port (Vlissingen Oost) • 70ha in the Axels Vlakte (Terneuzen) • 80ha at the value park (Terneuzen) 	<ul style="list-style-type: none"> • Quay-related activities 	<ul style="list-style-type: none"> • Logistics (handling, storage, transport) • maritime services • industry (oil refinery, metal, -petro-chemicals, fertilizers, shiprepair, shipbuilding, offshore construction) 	<ul style="list-style-type: none"> • Road • Rail • Inland waterways • Shortsea • Pipelines

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- Port of Calais - CCI Côte d'Opale
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- POM West Flanders
- Dover Harbour Board (DHB)
- Zeeland Seaports.

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