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Executive Summary

eThekwini Maritime Cluster

TRANSNET
national ports authority

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1 INTRODUCTION & BACKGROUND

The format for the day included:

- One plenary session entitled - Smart Port, Smart City: how to match performance to challenge
- Six workshop sessions:
  - Workshop 1 - Anticipating consequences of global challenges with an Urban Smart Port
  - Workshop 2 - Logistical organisation, the key for an Enterprise-driver Smart Port anchored in its territory
  - Workshop 3 - The Citizen Smart Port is built jointly with the inhabitants
  - Workshop 4 - Urban Smart Port: spatial optimisation, density and mix
  - Workshop 5 - Energy transition, the industrial challenge of the Enterprise-driver Smart Port
  - Workshop 6 - What dialogue tools are available to the Citizen Smart Port

2 PLENARY SESSION FOUR – SMART PORT, SMART CITY: HOW TO MATCH PERFORMANCE TO CHALLENGE?

The plenary session focused on implementation of smart ports and cities, and the need for port authorities and municipalities to be working together in order to realise this vision. A key question to emerge is how the smart port, diverse as they are, can adopt smart technology to develop a smart city port. How can projects and strategies be initiated and implemented, which are varied and include a number of factors, such as sustainable development, climate change, and logistics issues?

The following plenary session introduced a several case studies of projects that have been developed and implemented in working towards a smart port city initiative. These case studies enable learning through the sharing of knowledge and experiences, and allow room for questions to be both modified and asked again, so that strategies can grow and change.

The session was led by Olivier Lemaire, General Manager of AIVP.

BRIEF OVERVIEW OF PRESENTATIONS AND GENERAL FINDINGS

Speaker: Olaf Merk, Administrator Ports and Shipping, International Transport Forum (ITF)
Title: The port city interface: what it is and how to improve it?

The key learning outcome of this presentation was that a port city has more than one interface, and involves a wider variety of actions and instruments, than previously thought. Over time, the perceived line between a port and city has disintegrated, and restoration is now occurring. Interfaces can include spatial, economic, traffic, and the environment. For a better understanding of port cities, these interfaces should be mapped

and quantified. Currently, there exists a database of 35 main port cities, which are being mapped, and this list will expand over time. By using a policy triptych, the interface can be improved. The triptych elements are: source, transmission and receptor. The intention is to determine who the actors are in the interface, and how they are affected. This leads to interventions that resolve these issues.

Speaker: Bob Nelson, Chairman, Board of Port Commissioners – Port of San Diego
Title: Transforming San Diego Bay into a 21st century urban port

The Port of San Diego has grappled with the question as to whether the port they created was a sustainable model for the future. Through introspection came the understanding that the key to sustainability comes in reducing the consumption of fossil fuels and greenhouses gases emitted through the ports and port related activities. The Port of San Diego chose to adopt a climate action plan to reverse the trend and to reduce greenhouse gases. The port created an integrated master plan with a 50 year vision. They also recognised that the realisation of this vision would require the input of various stakeholders. An Energy Supply Round Table was formed, and the port engaged the services of an organisation that promoted clean technology. They identified the areas that were causing major energy overuse, and then targeted interventions to address these issues through specific clean technologies. Examples of such areas targeted for emission reduction included: transportation and land use; energy conservation and efficiencies in buildings along their shorelines and docks; and alternative energy generation. A key element to this process was to create monitoring and evaluation systems in order to truly measure the management of energy.

Speaker: Wouter Jacobs, Senior Research Fellow Port Economics, RHV BV
Title: Smart Port + Smart City = Smart Trade. Rotterdam and the global trade in commodities

From an economic port of view, ports are important hubs in global transportation, and trade is the essence of transportation. In order to trade in an efficient and smart way, intelligence about markets, pricing, and risks involved in shipping commodities from one place to another, is required. To acquire that knowledge and required skills, cities are essential. Smart ports and smart cities allow one to trade smartly. In the case of Rotterdam's Smart Port, most of its ambitions are recognised in the Port Vision 2030, a process in which stakeholders from industry and government are involved. For Jacobs, cities play a vital role in generating ideas that will positively contribute towards a smart port. Cities serve as incubators for entrepreneurship and contain concentrations of human capital, knowledge, and innovation. They also stimulate a cross-over between the various industries involved.

In 2013, an OECD study on the city of Rotterdam revealed that it was not capturing the true value of its maritime business services. It was found that smart linkages with the urban economy were essential in developing Rotterdam into an international maritime centre. This can be done by linking the port industrial complex with maritime business services, such as finance and insurance. There is indeed a global network of maritime advanced business services located in Rotterdam. The formation of the Rotterdam Maritime Business Services community has brought 35 members from various industries together, with the intention of creating a one-stop shop for all services.

Speaker: Jacques Ritt, President and CEO, SOGET
Title: e-Government and trade facilitation, best practices of port single window implementation in Benin

Jacques Ritt shared his experience of an African port city that utilises technology to ensure the trade of commodities in an efficient and fluid manner. The technology utilised was developed in Marseilles, France and has been shared with various other ports around the world. SOGET can be found in 20 ports, on four continents. Fluidity in the logistics chain is vital, and it needs to be done well so that everyone benefits from the service provisions offered. Fluidity should impose itself as a cycle of competitiveness so that it optimises resources and potential. Without this, it is unlikely that there will be good operability in ports.

In Benin, Africa, a Single Window allows for public and private operators to improve the quality of their services transparently, while ensuring the protection of exchanged data. In the port of Benin, the time taken to transport containers has reduced dramatically, from 41 days to 10 days. This has been attributed to the multi-system strategy of the Single Window intervention. Vessel calls to the port have increased by 21%[t] and TEUs have increased by 57%. In order for transformation to take place, collaboration, integrity and transparency is crucial. And because of this, income in Benin has increased by 40%.

QUESTION AND ANSWER SESSION

Security: how does a port become both open to the public but ensure security is not breached?

In response to questions asked by the floor regarding the issue of security when opening ports to the public, Merk agreed that there is tension between opening the port to public access, so that the city may better understand and feel engaged in port life, and security. This is a process that needs to be managed in a structured way and levels of security required would vary from port to port.

Nelson, by contrast, runs a port that is home to the largest concentration of military assets in the United States of America. Their security efforts are incredibly tight, with 125 uniformed police officers patrolling both land and sea, and security cameras providing constant surveillance.

Management style: does management style play an important role in the success of the San Diego Port?

Nelson responded that it was less about management style and more about a decision made 50 years ago by a state legislator. Because the port touches five different cities, all actions by actors have an impact on other actors. The decision was made that the port should be unified to serve the interests of all concerned.

Reconciling harbour development that create pollution: how to reduce greenhouse emissions?

According to Nelson, the biggest challenge the San Diego Port faces, is in the area of transportation. To a large extent a reduction of greenhouse gas emissions will come about when more ships carry low sulphur fuels. What the port can't control are the railway companies that operate alongside the port. A reduction of emissions is also required here, but the port does not have authority over the railways. A port intervention with regards to trucks is a policy that states that only the newest generation of clean diesel engines can be used to drive port trucks.

Africa: has the continent been left out of international studies on port development?

In response to why Africa has possibly not been included in studies of this nature, Merk responded that their organisation is willing to work into the African situation, but there has to be acknowledgement that problems that African ports experience are often far more intense than those experienced in other global ports.

Collaboration: was there cooperation between Rotterdam and other port cities?

Jacobs admitted that the strongest ties are local to Rotterdam, but ambitions from the smart port agenda is to include research and knowledge from other universities, in order to mobilise knowledge and apply them to other port cities in the Netherlands.

KEY FINDINGS OF THE PLENARY SESSION

- Through the mapping and quantification of interfaces, port cities can be better understood and targeted interventions planned.
- For a smart port and a smart city, we need smart trade. Commodity trade is the nexus between port and urban economies.
- Interventions that specifically target energy overuse and negative environmental impacts brought about through port activities, is imperative for the creation of a smart port-smart city.
- The use of an IT driven Single Window, or single system, to create fluidity in the logistics chain described in a case study, enabled the port to streamline activities and increase both job creation and income.

3 WORKSHOP hb9: ANTICIPATING CONSEQUENCES OF GLOBAL CHALLENGES WITH AN URBAN SMART PORT

President of session: Adolf Romagosa, Manager of the Port 2000 Development Management Office; Barcelona, Spain

Mr Romagosa welcomed everyone to the workshop, and explained that his role is essentially about merging an industrial reality with an urban one, as he serves as an interface between the Barcelona Port and the City. His goal is to serve the client and to represent an efficient and transparent port.

Mr Romagosa asked that all speakers stay within their allocated time frames.

Speaker: Oliver Hoarau, Mayor, City of Le Port, France
Title: Building a smart port city with an urban port, the city of Le Port rediscovers its maritime vocation

Mr Hoarau is based on Réunion Island and in his position as mayor, has taken over the long-term goal to improve both the urban and port territory in Réunion.

He raised the question of why people would want “smart territories” – and concluded that the aim of a smart territory is to improve the quality of life for people – both economically and socially.

Réunion Island was spoken of as a place that “reunites the world” given the many different civilisations that inhabit the island – Indian, Chinese, African and European.

The port is very much an urban one – it was built in the city and is quite a small space. The speaker considered Le Port to be a very progressive city that could indeed be a political model for the rest of the country – and that its citizens were hard workers who had achieved a great deal (in the city and the port) despite a difficult landscape. Challenges facing the city were said to include the global financial crisis, climate change, and relative isolation of the Island.

Mr Hoarau spoke about a sustainability project that the city and port is involved in that focuses on intelligent and sustainable use of land, and also encourages citizens to interact with the waterfront. He spoke strongly about the need to incorporate cultural links in this project so that people would feel connected to their city. It was also noted that the French government manages the port activities, which does result

in various constraints given the large amount of administration involved.

Speaker: William Kenworthey, Partner – Architecture, Urban design; Coopers, Robertson and Partners; New York, USA
Title: Future Imperfect- Retrofitting Coastal Urban Areas for Climate Change

Protecting the water's edge while continuing to inhabit the area has been a major focus of Mr Kenworthey's firm, ever since the devastation in the New York and New Jersey region that was brought about by "Superstorm Sandy", in October 2012. The firm considers themselves to be waterfront design experts, and their aim is to combine the influences of government, finance, innovative design and "place" to create resilient solutions for urban areas that are most at risk from rising sea levels and increasingly powerful storms. Resiliency projects that address climate change are now at the forefront when considering the design of urban waterfronts. Miami, as a low-lying city, was spoken of as being vulnerable in this regard.

Building resilience in the five cities that were hardest hit by "Superstorm Sandy" are the current focus of Mr Kenworthey's firm. Projects that the firm is working on currently involve updating the flood plains on existing maps and being able to project how they might evolve over the next 50 years; looking at critical infrastructure and community corridors; creating a multi-purpose levy on newly erected building; and the relocation of homes from the floodplain areas. Mr Kenworthey also spoke about the challenges of elevating land in the floodplain area, as opposed to simply "building higher". Finally, the need to develop the land in an environmentally sensitive way was also noted.

Speaker: Gun Rudeberg, Company Lawyer and Environmental Manager; Ports of Stockholm; Stockholm, Sweden
Title: Port Pilot Districts for Green Growth in Stockholm

The Ports of Stockholm are essential to the Swedish economy and has been in existence for over 750 years. The City grew as a result of the port, and today, Stockholm accounts for over 30% of Sweden's GDP despite being rather small in size (Stockholm has 2.5 million residents). The Ports of Stockholm are not state owned, employ only 150 people, and service only 12 regular destinations.

The population of Stockholm is growing rapidly however, which poses challenges for both port and City in their conflicting need for land. Challenges also include how best to transport goods, and how best to develop the land in an environmentally sustainable way. The 2030 vision for the Ports of Stockholm include 660 acres of sustainable urban land, 2000 apartments, 35 000 work places as well as modern port and cruise terminals. Problems encountered will include noise levels as well as gas emissions. Potential solutions include on shore power supply, differentiated port fees, port reception facilities for waste, and solar panels on warehouses to produce energy.

The result of this vision is that the ports and city have decided to work together. Common goals, Cooperation and Communication are key factors to meeting the above-mentioned challenges in a sustainable way.

QUESTION AND ANSWER SESSION

Architecture: Is the elevation of buildings the main aim with regard to increasing resilience?

Mr Kenworthey noted that a lot of the building rules and typologies did indeed involve lifting the houses / buildings up – especially where wood construction was involved. However, it was noted that the elevation of LAND (as opposed to buildings) was the ideal solution – although this was not always possible, and building codes needed to be taken into

consideration. The presence of canals was also mentioned as a preventative measure to a "high water" event.

Relocation: In moving areas of Stockholm's port from the North to the South – how will the land ownership be handled, and how will people be relocated?

Ms Rudeberg commented that the new land to be used for the containers is not really in use currently. It is land that was bought from the ports, and the ports were now busy organising permits to use the land. In terms of residential houses – there is only one house that may be affected. This restructure of land involves collaboration from all involved.

Environmental challenges: How do you implement port fees in Stockholm?

Ms Rudeberg noted that the premise was a simple one: *"The good ones pay less and the bad ones pay more."* In other words, customers that were better at following environmental guidelines were charged less than those who weren't as conscientious. Money was noted to be a powerful incentive, and the strategy had thus far proved quite effective.

KEY FINDINGS OF THE WORKSHOP

- The aim of a "smart territory" – including Smart Ports and Smart Cities, is essentially about improving the quality of life for people, both economically and socially.
- Intelligent use of land needs to include forecasts for potential changes in the future and must be environmentally sustainable.
- Low-lying coastal cities are particularly vulnerable to climate change and natural disasters such as hurricanes. To this end, resilience – improving the ability of the city and port to bounce back, needs to be a key focus – which must be incorporated into new (and existing) design and architecture.
- Common goals, communication, co-operation and collaboration between all parties involved is essential in terms of addressing the challenges faced by smart ports and cities in the drive to encourage growth and be environmentally sustainable.

4 WORKSHOP TWO: LOGISTICAL ORGANISATION, THE KEY OF AN ENTERPRISE-DRIVER SMART PORT ANCHORED IN ITS TERRITORY

President of session: Yann Alix, Délégué General, Fondation Sefacil

Mr Alix welcomed everyone to the session and noted that the workshop was an opportunity to change problems happening in their ports and to share solutions between one another. Fluidity was seen as a key issue that needed to be tackled.

Karl Xhanti Socikwa, Chief Executive Officer of Transnet Port Terminals did not present a speech. He was represented during the pleanary session three by Mr. Zeph Ndlovu.

Speaker: Francois Mahe Des Portes, "President du Directoire, Marseille Gyptis International"; Marseille, France
Title: Dangerous Goods and CCS (Cargo Community System): How to reduce the risks associated with urban transit

A cargo community system ('CCS') involves the sharing of information between all relevant transport entities engaged in managing goods at various points along the chain. Information needs to flow between people. There are many key players involved, and it is imperative that the information received – especially regarding dangerous goods coming through our ports – is accurate.

The port needs to be clear and transparent about what is being transported. Knowing where the goods are from and how long they will be in the port, is important. Ensuring dangerous goods are stored correctly, and in the right place is additionally important.

When the port authority validates the import of dangerous goods, they are tracked in the CCS and all players involved receive consistent information.

Speaker: Barbara Mommen, Chief Executive Officer, Maputo Corridor Logistics Initiative; Nelspruit, South Africa
Title: Maputo Corridor: A community of players at the service of sustainable logistics

Ms Mommen noted that she works for a non-profit organisation – the aim of which is to help trade through the Maputo corridor. To this end, infrastructure, information, collaboration and partnerships are critically important.

In Africa, there is limited infrastructure for transporting resources. The soft infrastructure is just as important as the hard infrastructure. Regional integration has become a strong imperative for small countries. We have one of the best public / private border crossings between South Africa and Mozambique, although road and rail strategies need to be improved. A partnership between South Africa, Swaziland and Mozambique has been hugely beneficial.

Over the past decade the growth of freight volumes through the Maputo corridor has exceeded expectations. This has placed pressure on both systems and infrastructure to ensure fluidity of traffic to and from the Port of Maputo. The public and private sector have both intervened in order to address some of these challenges.

The most salient point is that good and efficient landside logistics (efficient corridors) in servicing ports is crucial to competitiveness of the industry, effective trade, and economic growth.

Speaker: Juan Marcos Mancilla Medina, "Jefe Unidad Desarrollo y Estudios", Empresa Portuaria Valparaiso; Valparaiso, Chile
Title: Organising the landside approaches to the port for fluid, sustainable mobility

Valparaiso Port is one of the two most important ports in Chile. The port is run as an autonomous, state-owned company. The port land area is quite small, and traffic is increasing, and they have had to optimise the performance of physical space. This has been approached via the implementation of a unique logistic model – that has benefited port activity efficacy as well as urban development.

Projects to improve the port area have been considered both a symbol of growth and prosperity, as well as potentially harmful to tourist and historical heritage views. Plans to expand the port are therefore not without challenges.

The logistic model ZEAL (Zona de Extension de Apoyo Logistico / Logistic Port Extension Area) has put the port into a leadership position in terms of logistics solutions for foreign trade. ZEAL is supported by great technology to control operations. Along with many other benefits, the greatest value-add of ZEAL is that average port time has decreased. It is an example of how port activity has thrived alongside the city in a smart and sustainable way.

QUESTION AND ANSWER SESSION

Responsibility for the transit of dangerous goods outside the port: Who is responsible for the traffic and transportation of dangerous goods outside the port?

Everyone needs to participate – everyone needs to perform their role properly. Towns

and Ports need to communicate – this is the advantage of the American system.

The truck growth on roads: How will that be sustainable?

It is not sustainable (in Africa). The increase in rail is crucial. The money spent on the road will upgrade and sustain the road. Swazi Rail is building a link. It will take on extra capacity, and will relieve much of the coal congestion.

KEY FINDINGS OF THE WORKSHOP

- A cargo community system ('CCS') involves the sharing of information between all relevant transport entities involved in managing goods at various points along the chain.
- Be clear and transparent about what goods are being transported; avoid dangerous goods being stored in the incorrect places.
- In Africa, there is limited infrastructure for transporting resources. The soft infrastructure is just as important as the hard infrastructure. Regional integration has become a strong imperative for small countries.
- Efficient landside logistics, (efficient corridors) in servicing ports is crucial to competitiveness of the industry, effective trade, and economic growth.
- With regard to the port of Valparaiso in Chile, the logistic model ZEAL (Zona de Extension de Apoyo Logistico / Logistic Port Extension Area) has put the port into a leadership position in terms of logistics solutions for foreign trade.
- ZEAL is a successful modern logistics model that is an example of how port activity has thrived alongside the city in a smart and sustainable way.

5 WORKSHOP THREE: THE CITIZENS SMART PORT IS BUILT JOINTLY WITH THE INHABITANTS

President of session: Hilda Ghiara, Professor, Department of Economy, University of Genoa, Italy

A representative from the Cameroon, Alfred Emmanuel Etoumbe, spoke on behalf of the Agglomeration of Douala to thank AIVP for the opportunity to share their experiences and views at the conference.

Speakers were given approximately 12 minutes to share their presentation with the room.

Martina Leucht from Germany did not present her work.

Speaker: Edwin Zibi Ebanga

Port Autonome de Douala, Cameroon

Title: Dialogue with citizens, a development tool for the Port of Douala

Cameroon, situated at the heart of central Africa, extends just over 1200km, from the Gulf of Guinea to Lake Chad, and boasts almost 400km of coastline. The port of Douala, sitting on the estuary of the Wouri River, is the country's most important port, an integral part of Cameroon's economy and the most important in the Central African Economic and Monetary Community (CEMAC). More than 95% of the country's foreign trade passes through it, as well as a substantial part of the international trade of its landlocked neighbouring countries (CAR and Chad). To

support its development projects, Port Autonome de Douala, responsible for the management, promotion and marketing of the Port of Douala Bonaberi, is engaged in dialogue with citizens. The physical and virtual opening up of the port to citizens and visitors, the hosting of events, port-city exchanges and the development of its human resources are making Douala a smart port city actor.

According to Mr Ebanga, the relationship between the port and the state is good; the state has designed the administration and the related finances are invested wisely. In addition, the citizens do have access to the association of stakeholders and are part of the integrated development plan for the port and the city.

Speaker: Ljeta Putane, Deputy Head of Urban Economics Division, Riga City Council, Latvia
Title: Community involvement in Port Planning in Riga, Latvia

Ljeta Putane spoke with great enthusiasm on the need to involve the community in port planning projects in the city of Riga, Latvia. Putane's position is to represent the city and ensure that its views are heard regarding port planning. Since the port takes up 11% of the city itself, conflict does arise, mainly due to the environmental impacts that port activities have on the residents of Riga. In addition, issues of transport and congestion in and around the port, impacts on city dweller.

In 2013, Riga began working on a master plan for the city that will last until 2030. Initially, the master plan consisted of 10 themes, such as housing and transport, which were focused on in great detail. An 11th theme was added much later, when there was acknowledgment that the port itself had not been included in the plan. It was imperative that the public was involved in this particular theme and the city spent a great deal of time and finances ensuring that members of the city had their say. Stakeholders included citizens, institutions, non-profits, business, and experts (as knowledge and expertise were imperative to the planning process). A strong consultative process ensued and methodologies included think-tanks, workshops, organised meetings, etc. Riga now has a plan that works for both the port and the city.

Speaker: Harrikrishna Narismulu, Consultant-Facilitator-Maritime-Logistics and supply chain, Durban
Title: Strategies for developing human resources to enable optimal port activities

For Harrikrishna Narismulu, the port and the city are interdependent entities, and the traditional definition of a port city no longer applies to Durban. In the African context, and for South Africa in particular, academic institutions determine what they believe the business world requires – when in reality, there is a complete mismatch. In the port setting, much of the value-add, in terms of service provision, rely on skilled workers. And today's academic institutions in South Africa are not preparing enough students for the potential to work in the maritime field. The priority for Narismulu, is that training in maritime studies needs to be more structured and intentional. The current education system lacks coordination and is ineffective in meeting the needs of the maritime sector. In light of the increase in the use of technology in the port city setting, skilled workers who are adept at utilising mobile technology, while optimising customs collection, reducing delays and authorising export operators is essential. South Africa must address the education issues, such as low levels of numeracy and literacy, poor English communication skills, if it is to truly become a gateway port, operating smartly and at international standards.

Governance: with regards to the Port of Douala, how was governance of the city and the environment achieved?

It was expressed how the Port of Douala implemented the strategy – and put it into action. There were so many actions and for instance, on the financial level – there are indicators that have been held up and ways found to improve the financial system, which was implemented in an audit to control governance. The relative dimension of the functioning of the strategy – indicators are prepared and measured. The port has an obligation to publish all findings on its website, so one can find all of that information there. It has reorganised the institutions as well to answer the daily challenges.

Cooperation: why did the process Riga went through seem to work so well?

Transparency was the main reason it worked. Once the city began engaging with NGOs and other stakeholders, who would be affected by certain planning decisions taken, people became informed. Even if a particular decision was not popular, by giving them all of the necessary information – and showing them that a choice had to be made, they were more accepting. Investing in technology was also important. Most people do not appreciate the negative impact of living near ports, so by investing in technology you can mitigate some of that impact. People don't so much mind the negative impacts, if they understand what is happening and why. Then they can deal with the impacts.

A bridge between port and city: can lessons learnt in other port cities be applied to African ports?

This comment was made by an African representative who stated that it is obvious that many ports have established an institutional bridge between the port and the city, however, this cannot be said of many African port cities. Through the presentations given, in particular Riga, African port cities can learn much about lessening the divide, and it serves as inspiration to start consultative community public debates on port city issues.

KEY FINDINGS OF THE WORKSHOP

- Including the city in port planning projects is essential and complete transparency is required. Local information/intelligence is very helpful and can create long lasting and sustainable solutions.
- South Africa must invest more substantially in the improved education of its youth, in order to ensure that potential careers in the maritime sector can be taken up by local (rather than foreign) citizens.

6 WORKSHOP FOUR: URBAN SMART PORT – SPATIAL OPTIMIZATION, DENSITY AND MIX

President of session: Jari Huhtaniemi, Architect – City Planning Department, West Harbour Project, Helsinki, Finland

Speaker: Francesco Oddone, Assessore alle Politiche dello Sviluppo Economico, Genoa, Italy
Title: Towards a smart port in a smart city – the Genoa Experience

Oddone addressed the role the City of Genoa in Italy played in the smart port city process. The city has gone through difficult times and now has less than 600 000 citizens – a steep decline over the past 45 years, which has had an impact on the city and the economy. The decline is mostly due to the decline in heavy industry that characterised the region. The old habour is now a leisure and tourist attraction. The purpose of moving towards a smart port

city was to improve the quality of life through sustainable economic development. The process began a few years ago, with the raising of environmental issues, however, it was soon realised that a smart port city goes beyond simply energy challenges. Striving for a better life for all, without damaging future generations livelihoods, was a key consideration. Their smart port city process included working on a plan that: improved quality of life, encouraged economic development, and ensured sustainability, was led by research and innovation including local leadership. The Genoa Smart City Association was formed in 2010 and deals with energy issues, smart buildings, smart mobility, and creating a smart port. This requires an integrated planning and management system that includes governance across a wide variety of stakeholders.

Speaker: Luis Ajamil, President and CEO Bermello, Ajamil and Partners, Miami, USA
Title: Working waterfront as part of the urban regeneration strategy

Ajamil discussed the common challenge, faced by many ports worldwide, of how to continue to use a working waterfront area that is transitioning. In many cities, the concept of creating an urban regeneration strategy flows down from the fact that most cities outgrew their port, and eventually the city pushed the port out with the result that the waterfront falls into disrepair. In many instances, the abandoned spaces were then turned into residential living spaces, which, while having done well, have lost the dimension of a working waterfront. Ajamil believes that most port authorities don't know how to build a working waterfront, and therefore need to work in collaboration with those that do. Many traditional cargo ports have since transformed into cruise industry settings that bring more people into the waterfront area. There is huge opportunity to integrate the two, and it is an opportunity that cities cannot afford to miss out on. With integration comes challenges that need to be addressed, such as: the need for people to have access to the port, but also for security to remain strong, as well as for the right type of infrastructure to be developed, such a multi-ship terminals. Miami has successfully transformed its waterfront region with the renovation of Pier 27 and much can be learnt from the experiences and knowledge of this smart port city initiative.

Speaker: Phillipe Matthis, Directeur General Adjoint, Port de Bruxelles, Belgium
Title: Creating an urban ro-ro terminal in the heart of Brussels

The creation of a ro-ro terminal for second hand cars in Brussels was initiated in order to move second hand car dealers from the city centre. The project involves a large number of stakeholders and requires huge investment infrastructure, such as restaurants, hotels, showrooms, and a managing agent that will coordinated all efforts. The project would allow for the transportation of cars via the water, rather than the roads in and around Brussels. The impact of this on the city will be significant, in particular in terms of the environmental impact that the activity currently has on the city. Once companies have moved out of this area, it can be rejuvenated and renovated for urban redevelopment. The role of the Port of Brussels in the project is to find a new site where the terminal can be situated, and to ensure that the correct service providers, facilities and infrastructure is in place. The project is still in inception phase, with many solutions and suggestions being investigated, and stakeholders being consulted. The role of the port is essential for this project of integration. The project is a port initiative and requires modern, innovative solutions in order to decrease congestion and harmful environmental impacts on the city.

Speaker: Carlos Lanzat, Arquitecto – Planificacion Urbanistica, Ayuntamiento de Malaga, Espagne
Title: Malaga, keeping the port in the heart of the city

The focus of this presentation was "how to keep the port in the heart of the city", and the need for a reconciliation between the port and the city, in order to allow this to happen. The vision itself is simple, but important. During the 1800s, the port and the city were one entity, with many interlinking activities. During the ports expansion phase, over the decades, a barrier was formed around the port that separated it from the city. In 1998, an agreement was signed between the port and the city, and in the year 2000, a move was made towards integrating the two entities again. A transformation can be seen particularly in the Touristic Cruise sector and in the rejuvenation of waterfront areas. An increase in passengers and visitors to the port has been experienced, and new infrastructure has been built to accommodate this new development. New city regulations stipulate that one cannot build anything new that will affect another's view of the sea. Today, the Port of Malaga enjoys many visitors who engage in various activities offered. The port is a crucial aspect of any city and needs to be integrated into city life.

Speaker: Emilio Baez Maldonado, Director, Proyecto e Inversions, Municipalidad de Asuncion, Paraguay
Title: Asuncion, optimising the urban and port uses along the waterway

Due to the rapid growth of the city of Asuncion in Paraguay, the old port area was overtaken by city developments, resulting in the city moving the port away from the city centre. The intention of the city was to recuperate the condition of the port and convert it into a commercial and tourism region, as well as to consolidate port activities and integrate them into the city – which would require the reorganisation of the city itself. A new port infrastructure would need to be built in the southern part of the city, characterised by the development of an integrated transport centre and the creation of a logistics platform. The development of a new waterfront that integrates the three islands, and the coastline, is on the cards. With regards to the port itself, it will become a specialised dynamic node within the complex international network of production and distribution – affecting six countries with a market of 300 million consumers, combining multiple services and strengthening environmental protection and security.

QUESTION AND ANSWER SESSION

No questions were asked.

KEY FINDINGS OF THE WORKSHOP

- When ports are faced with a transition period, and a new role must be determined for the port, consultation with citizens and other key stakeholders is key.
- The port is often the authority that must drive an initiative; whilst collaboration and stakeholder consultation is important, the port often has the clout to create momentum.
- With careful planning and consideration for challenges, such as security and land availability, a port can become an active, engaging space for citizens, with the result that the port city divide begins to fall away.

7 WORKSHOP FIVE: ENERGY TRANSITION, THE INDUSTRIAL CHALLENGE OF THE ENTERPRISE-DRIVER SMART PORT

President of session: Nicolas Mat, Project Chief for Ecology, Industry and Territories; Ecole Des Mines D'Ales; France

Mr Mat stresses the point that six people are scheduled to speak, and it is therefore essential that everyone sticks to their allotted period of time to address the audience.

Speaker: Francesca Pichi, Architect, The Port Authority of Livorno, Italy
Title: Studies, Projects and Action to transform the entrepreneur port of Leghorn into a small port city

The Livorno Port Authority is the main player in the transformation of the port city into a Smart Port City. The main themes of the enterprise-driven port are related to energy transition. This is addressed in a three year operational plan by the Livorno Port Authority ('LPA').

The LPA is trying to master the strategy of a Smart Port City for the sustainability of urban areas. The development of the port is very much linked to the development of the city. The LPA is trying to develop harbour infrastructure in the most sustainable way possible.

The competitiveness of the port is linked to quality and efficiency in order to attract investment and traffic. This relates to an "intelligent energy" policy that Livorno has initiated with various projects, including:

- Greencranes Project (Green Technologies and Eco-efficient Alternatives for Cranes and Operations at Port Container Terminals)
- sustainable development of port activities implemented by the Environmental Management System and European projects like CLIMEPORT and GREENBERTH, and
- the electrification of one portion of the terminal.

The theme of energy is very fragile and important.

SpeakŜ Stephane Raison, President / Director of Dunkirk Port, France
Title: An Industrial story geared towards sustainability

Mr Raison stated that his presentation should be considered alongside that of the next speaker – Ms Sylvie Delatte (both are affiliated with the Port of Dunkirk), and they decided to present together to show the long association between authorities of the Port.

Dunkirk port is situated in Northern France and is the third biggest port in terms of traffic – it was also exposed to international conflict given that Amsterdam and Hamburg are close by. It has been inexistence for over 1000 years, but had to be rebuilt after the Second World War.

The aim of Dunkirk Port is to ensure that the industrial sector will result in growth. Large industrial facilities were established in Dunkirk between 1950 and 1990 – beginning with the steel industry, then petroleum products, and finally electro-intensive industries.

The Port intends to strengthen its position as a pioneer of the circular economy.

Speaker: Sylvie Delatte, Director of International Port Strategy; "Communaute Urbaine De Dunkerque"; Dunkirk, France
Title: An Industrial story geared towards sustainability

Dunkirk is a voluntary territory that was created through state decisions. After the crisis of the 1980's, Dunkirk decided to continue with its sustainable development programme. However, this now includes new criteria that takes into account the environmental impact, and the consultation of citizens and stakeholder relevant to their work.

The way the land was designed was to take into account biodiversity issues. The "Eco-Pal" network was created in 2001 and was designed by the municipality. This Network has more than 400 members including 200 businesses. The aim is to have synergies between businesses and create awareness with these businesses regarding ecology. As an example, the addition of a methane terminal in the Port led to the innovation for the launch of research programmes on cryogenics.

Speaker: Carla Jong, Manager of Environmental Affairs and Spatial Planning, Port of Amsterdam; Netherlands

Title: Port of Amsterdam: An energy port in transition to a metropolitan "port ecosystem"

Amsterdam, the capital of the Netherlands, is very densely populated and growing rapidly. The Port and City are both growing – and so there is a "battle for space" given the lack of available land. The Port and the City are very connected, and there is a real need to intensify the use of space.

Amsterdam Port is a landlord-type port, multi-purpose and leader in gasoline, oil and cacao shipment. The port vision for 2030 stresses the need to adapt in order to survive – and the port therefore aims to be dynamic, versatile, and adaptable.

Amsterdam is ready to make the transition to a "bio-based economy." This "port ecosystem" involves finely honed logistics flows, waste, electricity supply, water supply, and residual flows from production processes which form the basis for the circular economy. The combination of port, city and regional forces results in economies of scale, cross-pollination and innovation.

Speaker: Juliette Duszynski; Chief of Projects – Economy, Logistics and Ports (Europe); "Agence D'urbanisme de la region du Havre et de l'Estuaire de la seine"; Le Havre, France
Title: Inter-relations between industries at the port cities of Le Havre and Rouen, using the "industrial network" tool

La Havre is close to the English Channel. It is an important connecting port for the European continent. It is also a door to the Hinterland that was developed around the Seine River.

Around the Seine River estuary there is a strategic concentration of ports and industries. Borders are becoming more blurred. *"We need to know the relation between different industries and not think in silos."*

The "Industrial Network" that was proposed by the Town Planning Agency of Le Havre and Seine Estuary area aims to provide a dynamic representation of the inter-relations between the industries of the various port territories.

This tool will provide:

- A territorial representation of the principal relations and interchange between industries.
- A current state of the local network connecting businesses with ports and international markets.
- An understanding and overview of the industrial ecosystem of the Seine River

Estuary, its functioning and weaknesses.

This tool should help the territories that make use of it to deal with the broken models and economic challenges of the 21st century – such as energy transition and logistical integration.

Speaker: Ian Hart; Group Quality and Environmental Manager / Projects Manager – Mechanical Engineering, BHR Group; Cranfield Bedfordshire, UK
Title: H2Ocean Project, Development of an offshore platform for hydrogen production using marine energy

The global population is over 7 billion people and growing rapidly. This expansion is putting food and water supplies under ever-increasing pressure. Energy security is a problem for many countries. The H2Ocean project aims to introduce off-shore port facilities that grow alternative sources of food and produce drinking water as well as the energy to make it self-sufficient.

The H2Ocean project also analyses the environmental, social and economic impact of integrated multi-use structures, which not only consider the value of the output, but also considering in terms of their integration with existing shipping and handling facilities and the impact on the environment and populations. Such initiatives include the electrolysis of sea water to produce hydrogen fuel, provision of drinking water from wind and wave powered reverse osmosis units, and the production and harvesting of aquaculture products.

QUESTION AND ANSWER SESSIONS

No questions due to time constraints.

KEY FINDINGS OF THE WORKSHOP

- Intelligent energy policies are needed to ensure the competitiveness of ports. This is linked to quality and efficiency in order to attract investment and traffic.
- Synergies between businesses are necessary to create awareness of ecological issues.
- Some cities must contend with a "battle for space" given the lack of available land. The port and the city are very connected and there is a need to intensify the use of space.
- Amsterdam is ready to make the transition to a "bio-based economy." This "port ecosystem" is the basis for a circular economy.
- When there is a strategic concentration of ports and industries, in the same region, borders are become more blurred.
- The "Industrial Network" is a tool, which was proposed by the Town Planning Agency of Le Havre and Seine Estuary area that aims to provide a dynamic representation of the inter-relations between the industries of the various port territories. This tool should help the territories that make use of it to deal with the broken models and economic challenges of the 21st century – such as energy transition and logistical integration.
- The global population is growing rapidly, which is putting food and water supplies under ever-increasing pressure. Energy security is a problem for many countries.
- The H2Ocean project aims to introduce off-shore port facilities that grow alternative sources of food and produce drinking water as well as the energy to make it self-sufficient.

8 WORKSHOP SIX: WHAT DIALOGUE TOOLS ARE AVAILABLE TO THE CITIZEN SMART PORT?

President of session: Charlie Murphy, Communications Manager, Corporate Services, Dublin Port Company; Dublin, Ireland

Speaker: Candice Potgieter, Chief Executive Officer, KZN Science Centre; Durban, South Africa
Title: How to build a sustainable relationship between the youth and the industrial port activity

South Africa has very poor final school year pass rates for both Maths and Science. This means that there will not be a pipeline of employable youth in the areas that the ports need. The KZN Science centre has been tasked by local industry to assist these learners in increasing their pass rates and making these gateway subjects popular and interesting.

The work conducted by the KZN Science Centre is undertaken in a holistic manner through Corporate Social Investment, which ties in to the needs of both the community and the funder. SAPREF PTY LTD is one of the key economic stakeholders that work in partnership with the Centre, to unlock children's potential and to inspire and motivate them.

Speaker: Céline Longuepée, "Directrice de la communication et des relations instituionnelles d'HAROPA, Haropa Ports De Paris"; Paris, France
Title: Culture as a channel for dialogue between the port and the city's inhabitants

HAROPA is creating a "smart port corridor" that is a group system that connects three ports along the Seine River – this is important to have a more universal culture. The port has tried to define the cultural operations which will increase dialogue between the port and inhabitants.

Many experiences and festivals have been arranged along the port area to encourage communication and links with people. The ports are a cultural centre and a place of education that links inhabitants and the port city – so the port fulfils its role as a cultural mediator.

Speaker: Annik Dirkx, Spokeswoman, Port of Antwerp; Antwerp, Belgium
Title: Actions of "Community Outreach" of the Port Community of Antwerp

Most people in Antwerp do not know what the port offers to the world – it is one of the biggest ports in Europe. Plans to expand the port were eventually approved, but we had to consider: heritage, nature, quality of life and agriculture. The port wants to develop recreational areas by the harbour; the concept is bigger than just the port of Antwerp – the port county will include the port and the communities around it.

The aim is to unite the city and the port. There will be boat tours as well as boat taxis for commuting to work. There will be gates all around the port county. The intention is for people to experience the port - to cycle, picnic and explore. The groups targeted also include visitors to Antwerp, visitors from Belgium and the rest of the world. This initiative is for social support – to help surrounding communities.

Speaker: Yariv Gibli, Chief Executive Officer, Identity; Ashdod, Israel
Title: Creating Smart and Innovative Visitor Centres – effective communication between the Port and the Community

Identity is a company that develops visitor centres all over the world – one of which was

built in Israel. Ashdod Port is Israel's biggest port, and the company started planning a visitor's centre in relation to this, in 2009. The goal was to reshape public opinion, build a bridge between the community and port, show the significance of the port, and be transparent about port activity.

There are now 45,000 visitors a year to the Ashdod Port visitors centre. In the centre, you first find out the history of the port through a film. People then move through different spaces in the centre where the aim is to communicate the complexity of the port through an interactive surface. Everything that goes through the port is depicted through a "crate game". A simulator also allows people to experience what it would be like to drive a ship into the water through the port. The visitors centre is a powerful marketing and educational tool that delivers a strong, positive and memorable message. In this way, the relationship between the port and the community is enhanced.

QUESTION AND ANSWER SESSIONS

With regard to the HAROPA smart port corridor: How do you evaluate this programme in terms of public perception?

It is difficult to evaluate this in a concrete sense. An indicator could be the number of clicks, visitors, articles written on the programme etc. However, a barometer has been implemented, which will be an annual census so that we can find out the public's perception. It will target industries and businesses and will utilise qualitative surveys. This will allow us to see if public perception has changed. There are no results as yet as the barometer was only started at the beginning of the year.

Ashdod Port in Israel: Why was it necessary to reshape public opinion?

The port was struggling to reshape public opinion. There was a strike and other challenging activities.

In the South African context: How do we motivate young people to choose professions in the port, especially the more technical roles?

The Department of Education, has started maritime subjects in KZN, but does not have experienced teachers, so the ports and the navy is utilised for this. It's not easy, but it is ensured that learners have maths and science. The Department is still at the beginning, but with support from the port, progress can be made. Another project with Transnet that is being implemented, is the science centre involving maritime skills. The venue is utilised by the Department, which is a nice way of exposing people to what Transnet does.

KEY FINDINGS OF THE WORKSHOP

- The very poor final school year pass rates for Maths and Science in South Africa presents a challenge to the ports, in that there is a shortage of employable youth in the areas which the ports need. The KZN Science Centre has been tasked by local industry to assist these learners in increasing their pass rates and making these gateway subjects popular and interesting.
- HAROPA is creating a "smart port corridor" that is a group system that connects three ports along the Seine River. These ports are a cultural centre and a place of education that links inhabitants and the port city.
- The community outreach programme of the Port of Antwerp aims to unite the city and the port. Plans for a "port county" include the surrounding areas, and will offer services such as boat tours as well as boat taxis for commuting to work. People should

have a real experience at the port – where they can take part in activities like cycling, enjoying picnics and exploring. This initiative centres on social support – to help the surrounding communities.

- Ashdod Port is Israel's biggest port. In 2009, a visitor's centre to showcase the port was planned. The goal was to reshape public opinion, build a bridge between the community and port, show the significance of the port, and be transparent about port activity.

9 CONCLUSION

The day's events were designed for a more in-depth learning and sharing experience for delegates. Six workshops were held, and delegates were encouraged to join the workshops that most interested them. Speakers were given a short amount of time to share their experiences and a question and answer session was held, if time permitted.

Some key findings from the day, which were shared across many of the presentations, included:

Technology

- Through the mapping and quantification of interfaces, port cities can be better understood and targeted interventions planned.
- The use of an IT driven Single Window, or single system, to create fluidity in the logistics chain described in a case study, enabled the port to streamline activities and increase both job creation and income.

Trade/activities

- For a smart port and a smart city, smart trade is required. Commodity trade is the nexus between port and urban economies.
- When ports are faced with a transition period, and a new role must be determined for the port, consultation with citizens and other key stakeholders is key.

Collaboration

- Common goals, communication, co-operation and collaboration between all parties involved is essential in terms of addressing the challenges faced by smart ports and cities in the drive to encourage growth and be environmentally sustainable. Local information/intelligence is very helpful and can create long lasting and sustainable solutions.

Environment

- Intelligent use of land needs to include forecasts for potential changes in the future and must be environmentally sustainable. Interventions that specifically target energy overuse and negative environmental impacts brought about through port activities, is imperative for the creation of a smart port smart city.
- Low-lying coastal cities are particularly vulnerable to climate change and natural disasters such as hurricanes. To this end, resilience – improving the ability of the city and port to bounce back, needs to be a key focus – which must be incorporated into new (and existing) design and architecture.
- Synergies between businesses are necessary to create awareness of ecological issues.
- The H2Ocean project aims to introduce off-shore port facilities that grow alternative sources of food and produce drinking water as well as the energy to make it self-sufficient.

Infrastructure/space

- In Africa, there is limited infrastructure for transporting resources. The soft infrastructure is just as important as the hard infrastructure. Regional integration has become a strong imperative for small countries.
- Efficient landside logistics, (efficient corridors) in servicing ports is crucial to competitiveness of the industry, effective trade, and economic growth.
- Some cities must contend with a "battle for space" given the lack of available land. The port and the city are very connected and there is a need to intensify the use of space.
- When there is a strategic concentration of ports and industries, in the same region, borders are become more blurred.

Social

- The aim of a "smart territory" – including smart ports and smart cities, is essentially about improving the quality of life for people, both economically and socially.
- South Africa must invest more substantially in the improved education of its youth, in order to ensure that potential careers in the maritime sector can be taken up by local (rather than foreign) citizens.
- With careful planning and consideration for challenges, such as security and land availability, a port can become an active, engaging space for citizens, with the result that the port city divide begins to fall away.

The opportunity for presenters to share their own experiences with the delegates, offered a unique learning platform at the conference. The question and answer sessions provided an opportunity to dig deeper into certain aspects of the presentations, with delegates taking back potential solutions for challenges experienced in their own port city situations.