DECEMBER 2020

THEMATIC DOSSIER

For 30 years, AIVP has been accompanying port cities to guide them towards a more resilient, more concerted and more sustainable future.

In 2018, AIVP launched the AIVP 2030 Agenda, the 1st global initiative that adapts the 17 UN Sustainable Development Goals (SDGs) to the specific context of City-Port relations. This document, drawn up jointly with AIVP members at the Quebec Conference, sets 10 objectives for 2030.

In February 2020, AIVP signed an MoU with UN-Habitat to disseminate good practices related to this agenda.

Since September 2020, responding to the interest of our members, we focus in-depth on one Agenda goal per month.

In this third dossier we focus on "Sustainable Mobility". We wish you a fruitful reading!

INDEX

WHAT IS THE AIVP 2030 AGENDA?

The Agenda is designed to guide the actions and projects of port city stakeholders to ensure sustainable relations between the city and port. Port cities frequently find themselves in the front line when it comes to the most serious consequences of climate change (submersion, flooding, hurricanes, etc.), but they are also best placed to test innovative solutions in the following ten areas:

1. ADAPTING TO CLIMATE CHANGE
2. ENERGY TRANSITION AND CIRCULAR ECONOMY
3. SUSTAINABLE MOBILITY
4. RENEWED GOVERNANCE
5. INVESTING IN THE HUMAN CAPITAL OF PORT CITIES
6. PORT CULTURE AND IDENTITY
7. QUALITY FOOD FOR ALL
8. CITY PORT INTERFACE
9. HEALTH AND QUALITY OF LIFE
10. PROTECTING BIODIVERSITY

DISCOVER THE **AIVP AGENDA 2030**

WHAT IS THE "SUSTAINABLE MOBILITY" GOAL IN THE AIVP 2030 AGENDA?

IMPROVING MOBILITY IN THE CITY PORT AND COMBATING URBAN CONGESTION

1. Encouraging the development of soft, multimodal and collaborative mobility, notably for commuting.
2. Developing soft solutions for proximity-based urban logistics, by promoting the use of waterways.
3. Promoting the use of waterways, rail or other non-fossil-based modes of transport within the City Port territory for shipping goods.
4. Reducing the negative impacts of periods of peak activity in the City Port territory by any means possible.

MORE DETAILS **ON THIS GOAL**

SUSTAINABLE MOBILITY: TOWARDS A MULTIMODAL AND INTEGRATED FUTURE

AIVP TEAM

Cycling is increasingly seen as one of the main alternatives to driving in port cities.
Author: José M P Sánchez

The year 2020 has been a year of many changes, also for sustainable mobility. Talking with our members we identify several key words for the goal 3 of the AIVP Agenda 2030: Smart technology, multimodality, public spaces, cycling, co-construction, citizen engagement, sharing, autonomous vehicles. In this article we summarized the interviews and articles we have published about the topic, but don't forget to read the original publications!

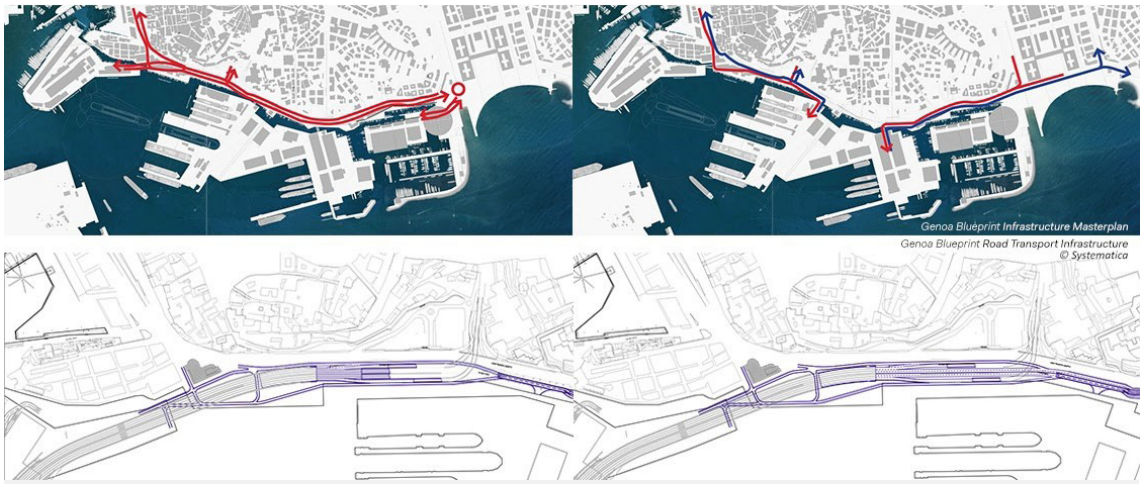
Urban mobility is at the same time one of the main challenges for port cities, but also one of the areas in which we have experienced greatest changes in the past decade. There has been an evolution from the unquestionable domination of cars for daily commutes using combustion engines, to the massive implementation of multimodal solutions, shared mobility services, improved public transport, electric powered cars, bicycles or scooters, bicycle lanes, etc. In port cities this evolution has also been visible from a logistic perspective. Although the changes have taken place at a slower rhythm, the innovative projects in last-mile logistics to reduce the carbon footprint of these operations are growing each year. In a bigger scale we also see ambitious plans to decarbonize transportation, once again investing in multimodality, to reduce the

share of road transport connected to ports, and boost both water and rail for inland distribution of cargo. From the local context to the global or continental logistic networks, port cities are at the core of these changes.

In 2020, the pandemic has accelerated the changes in this field. While e-commerce becomes more common, common people become more familiarized with the term “shipping”, get used to tracking their parcels, and better understand the importance of ports in their every-day lives. At the same time, the limitations to physical interaction and government advices to avoid close contacts with others, have also encouraged many to adopt bicycles as means of daily transportation, enhancing the importance of dedicated lanes and smart systems that facilitate e-bicycle sharing. Indeed “smart” port and city solutions open a myriad of possibilities towards sustainable mobility, as we will see in this dossier. Sustainable mobility is Goal 03 of the AIVP Agenda 2030 and the third goal discussed in the autumn of 2020. The interviews, articles and webinar showed many inspirational projects for port city leaders, showing how our members are innovating. They demonstrate that this is one of the goals that may be easier to achieve in 2030, we can only imagine the mobility technology we will have then!

MULTI-SCALAR PORT MOBILITY IN ITALY

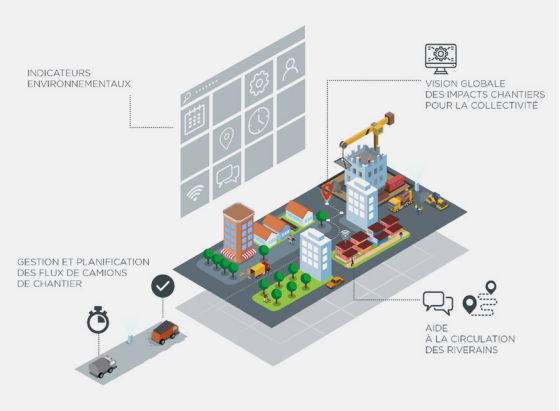
The first article from the Dossier is by Systematica, in which they explain as experts in transport planning the articulation that must take place between the different scales that coexist in port cities. As the authors indicated, integration is the key word. The wider mobility systems of urban areas must be integrated with the local port activities that have specific infrastructure requirements and can generate traffic peaks affecting the quality of life of the citizens. The two projects they presented, Venice and Genoa in Italy, advocate for this integration, from the continental transportation networks, the TEN-T corridors, to the activities that take place on the waterfront.



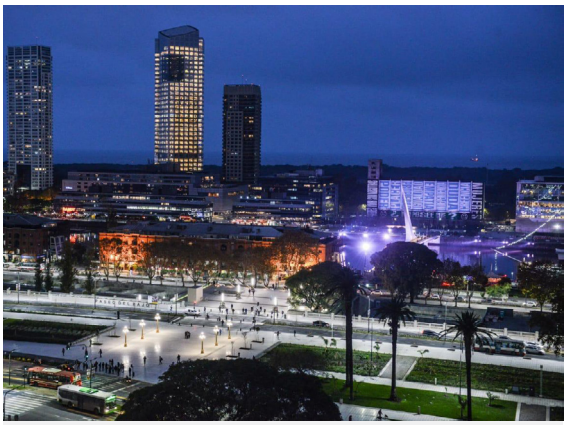
Mobility Plans for Genoa Blueprint Waterfront Project. ©Systematica

SMART TECHNOLOGY TO IMPROVE MOBILITY

Colas, a leader in the construction and maintenance of transport infrastructures, aims at addressing new mobility issues. Hence their decision to invest in “smart” technologies, such as the “Moov’Hub” application, a real-time flow management service offered to public authorities, businesses and citizens. Transparent access to data such as transit times, traffic congestion or CO2 impact is essential. Especially when construction works take place, port cities can quickly become congested. To avoid this, Colas has developed “Qievo” service, which is designed to plan material delivery itineraries, to guide truck drivers through optimized routes, and to provide real-time reporting. The key word is the reduction of negative externalities. The Port-City interface is a source of permanent logistical challenges, as its existence distorts the urban structure. Intermodality is an obvious solution to overcome these challenges, with road-rail connection for example, as in Libreville (Gabon). Mobility is part of the solution, and is not only a source of negative externalities: it can even bring new opportunities. To this end, Colas has developed “Wattway”, or photovoltaic roads. These fields of solar panels located on the roadway both produce energy and optimize available space! Experiments are being carried out in Reunion Island (France) and in the United States.



Qievo – Mobility. ©Colas



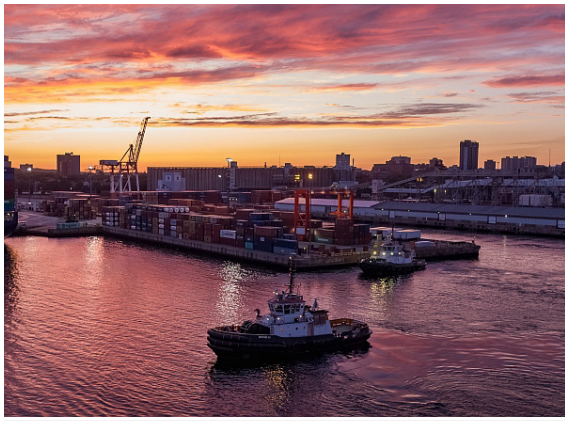
New public spaces in Puerto Madero. ©Corporación Puerto Madero

PUBLIC SPACES TO WALK AND CYCLE IN ARGENTINA

The importance of public spaces is today clearer than ever. In a year when big events, restaurants, cafes, or shopping malls were forbidden or heavily restricted, the public spaces like squares or parks were the only places where it was safe to meet other people or take a break from the confinement. Public spaces also play a key role in urban mobility, particularly for walking and cycling, as it is seen in the interview with Corporación Puerto Madero, from Buenos Aires. Their new project “Paseo del Bajo” includes 10 new hectares of squares, parks and promenades that encourage the citizens to use the bicycle and walk in safety.

DIGITIZATION AND CO-CONSTRUCTION FOR SUSTAINABLE MOBILITY IN HALIFAX

Like many ports around the world, the Port Halifax is facing the challenge of maximizing its growth potential without increasing possible negative externalities such as road congestion. Since 2018 rail solutions and several digital tools for sharing real-time information with their customers but also with the larger community and the public have been implemented to address such a challenge and reduce port truck traffic through downtown Halifax. For them digitization of the port is a key strategy but it is not only about adopting smart technologies as they explained us: transparency and co-construction with your partners, stakeholders, and the larger community is essential to transform the entire Port ecosystem.



View of the Port of Halifax, ©Port of Halifax

Mobility Webinar

CLEAN, SMART AND INTEGRATED MOBILITY IN EUROPEAN PORT CITIES: THE CIVITAS PORTIS PROJECT

Sustainable mobility is one of the priorities for the European Commission. Hence, there are several EU-financed projects focusing on this issue, fostering cooperation and sharing good practices between different cities. It is the case of the Civitas family of projects, of which one is focused on specific port-city mobility challenges, the Civitas Portis. As Dirk Engels explains in his article, the approach defended in the project, based on smart data sharing for better governance and planning, has produced clear positive results in the five cases: Aberdeen, Antwerp, Constanta, Klaipeda and Trieste. Additionally, AIVP hosted a webinar to discuss in detail two cases, Antwerp and Trieste, with experts from both port authorities and municipalities. In the discussion it was explicit that the correct use of smart data could facilitate the coordination between traffic data, producing better mobility plans and facilitating better choices from the citizens, but also that it is necessary to invest on behavioural changes of the users and companies.

COOPERATING WITH THE CITY AND THE CITIZENS IN MÁLAGA

In port cities hosting cruises or ferries, mobility challenges also include managing passenger flows. One example of this, is the case of Málaga, in Spain. As we learnt in the interview with the port authority, multimodality is key. One simple solution, if possible, is to place cruise terminals close enough to the city centre so tourists can walk directly to the historical monuments. Additionally, today, there are many ways to get from the terminals to the city, using traditional public transport or even new ones such as autonomous buses. However, as it was clear in the interview, all new solutions must be accompanied with dialogue actions, involving citizens and visitors.

Automost Project. ©Malaga Port

RECOMMENDED READING: THE 15 MINUTES CITY BY CARLOS MORENO

In this dossier we also briefly review the most recent book by AIVP Expert, Professor Carlos Moreno, entitled “From the Global City to the 15 Minute City”. His ideas for sustainable mobility have gathered the attention of leading news outlets, such as The Financial Times, The Guardian or even the World Economic Forum.

New Book by Carlos Moreno

These inspirational articles provide plenty of examples for port cities from all over the world. Although each port city is different, the problems harming an efficient mobility are shared. Understanding the principles behind the good practices will facilitate its replication in other regions. We wish you a fruitful reading!

MULTI-SCALAR NATURE OF PORT MOBILITY BEYOND THE PORT-CITY THRESHOLD. THE CASE FOR TWO TIME-TESTED NORTH-ITALIAN PORT CITIES: GENOA AND VENICE

SYSTEMATICA'S TEAM

Systematica's Team: Giovanni Massimo Bottini (Partner, President and CEO); Diego Deponte (Partner, Director); Alessandro Vacca (Senior Consultant, Project Manager); Lamia Abdelfattah (Consultant).

The issue of sustainable mobility is without doubt one of the prime challenges for port cities. From international shipping routes or continental freight corridors to the urban flows and passenger's movements, all these very different scales are interconnected and need to by harmonized. In this article by Systematica , we can learn from two Italian cases and their most recent projects to make mobility more sustainable.

Systematica has been an active member of the AIVP since 2019.

Sustainable mobility in port cities is essentially a story of integration. On the one hand, integration of local movements within international maritime corridors to ensure the seamless functioning of logistics and passenger routes at the global scale; on the other, it is the integration of port and city, which pivots not only on the coordination of land uses and the accommodation of

new co-dependent functions between traditionally isolated realms, but also on the integration of local port activity within the wider mobility system in their respective urban and metropolitan contexts.

Systematica's involvement in the field of mobility for over 30 years has given the firm ample opportunities to contend with a diverse range of mobility problems in port cities of the Italian, European and international contexts alike. To elucidate on key insights from practical expertise, we explore the complexities of mobility management vis-à-vis the urban framework in port cities through the planning experiences of two major Italian capitals, Genoa and Venice, whose diverging contemporary trajectories are further enriched by historical conflict in 13th and 14th century wars over control of the Mediterranean Sea.

THE CITIES IN FIGURES

Today, the two port cities (and their ports) have different competitive advantages: Genoa's port activity is more dominant for logistics and ferry movements, while Venice's port activity has higher cruise passenger volume. Genoa holds 17 percent of all container traffic in Italy, the greatest generator of container traffic in northern Italy and second only to Goia Tauro at national scale. Cargo movements from Genoa's main ports in 2019 amounted to 68.1 million tons, which, despite a 3.2% drop from 2018 figures, is still close to thrice Venetian cargo movements, which stood at about 24.9 million tons in 2019. Conversely, Venice's notorious cruise passenger movements of 1.4 million – the object of much conflict and debate in recent years – are half again as many as Genoa's 0.9 million, unsurprisingly given the city's number one national rank for visitors of tourism. When we look at ferry passenger movements, Genoa's figures (2.1 million) tend to dwarf those of Venice (0.2 million) tenfold. Ferry movements for both cities, however, are relatively low in comparison to southern Italian ports surpassing 10 million movements at their peak.

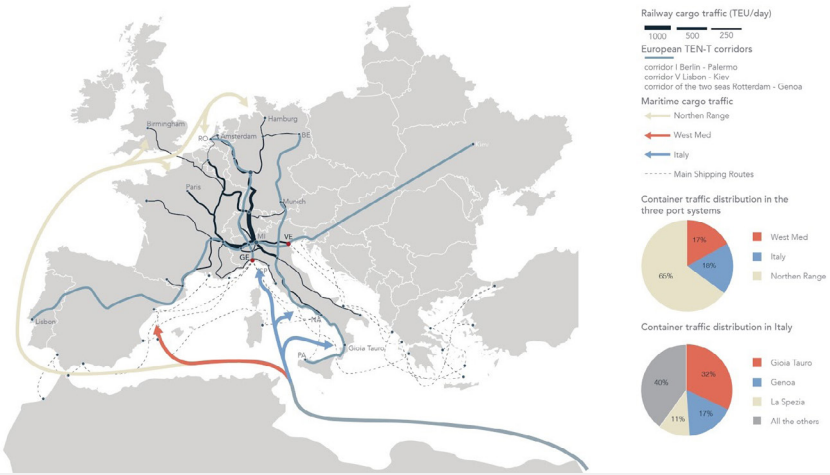


Figure 1 Maritime routes and railway cargo traffic flows © Systematica

Considering differences in scale, it is important to note that Venice's land cover of around 158 square kilometers (roughly 40% of the total metropolitan area) is nearly half the surface area of Genoa (240 square kilometers). Likewise, Genoa's population of 570 thousand inhabitants, with a population density of 2,377 inhabitants per square kilometer is significantly higher than Venice's 260 thousand inhabitants and density of around 623 inhabitants per square kilometer. However, we have to consider Venice's skewed balance between inhabitants and visitors, with a ratio of 167 tourists per resident, compared to 24 tourists per resident in Florence, for example. Taking visitors into account would significantly raise the effective person density in the city. This reality has major implications for the city's mobility system, which is currently organized to a very large extent around the movements of tourists. The road network, railway terminals and water taxi systems all respond primarily to tourist demand rather than the needs of the local population.

PORT EXIT: URBAN CONSEQUENCES OF CONTAINERIZATION

Both cities' socio-economic histories rely largely on their strategic locations along major international trade routes. Both cities were also among the first to industrialize in the country, with Genoa dubbed the 'City of Steel' for its remarkable industrial expansion in the 18th Century. With the rise of containerization in the second half of the twentieth century, new port technologies made the old ports of both cities inadequate for effective operation, prompting relocation away from the city core. In 1969, Italy's first, and one of Europe's first two container terminals was opened along Genoa's western coastline. In contrast, the city center – Europe's largest – fell into disrepair. A number of regeneration investments in the 1990s, including Renzo Piano's Affresco waterfront project developed to reconnect port and city, led to a gradual upgrading of the city core. Following a city marketing urban planning strategy, Genoa's touristic attraction increased fourfold in a span of 5 years (1999-2004).

Alternatively in Venice, new technical requirements of motor navigation rendered the morphology of the archipelago's narrow canal system inadequate for navigation, pushing manufacturing and commercial port activities in-land. Rail connections to Milan further consolidated an industrial center of gravity to the west, as the historic center gradually turned into a touristic hub. The historic center's port became limited to passenger transport, overwhelmed by cruise tourism activity. While Genoa's touristic growth may have been the city's saving grace in the aftermath of spontaneous port evolution, Venice's touristic concentration is its choke point. More than any other world city, Venice's experience demonstrates the negative consequences of the complex dynamics of port evolution, heritagization and excessive urban tourism pressures.

URBAN STRUCTURE AND PORT CONFIGURATIONS

Today, the urban structures of both cities play a major role in the development of their port activities and capacities. Genoa's particular orographic configuration, bounded by mountains

a few hundred meters from the sea, coupled with intensive urbanization surrounding its ports, are conditions that make it difficult to extend space for port operations. The establishment of the Rivalta Scrivia dry port 75km from the city only partially compensates for this reality. In comparison, Venice's strict division of functional land uses between in-land industrial activities and touristic services on the lagoon islands has physically manifested itself in the functional division of its two main ports: the Marghera side and the Venice side. The overtouristification of the islands and associated pressures on its cruise terminal can have negative long-term effects on the city's overall port efficiency and management, as has been made visible in recent years.

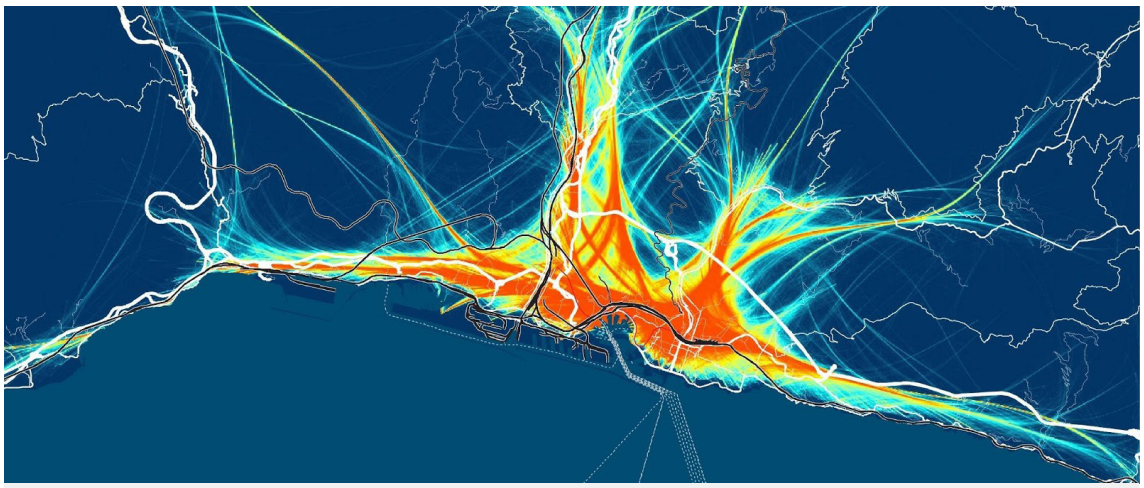


Figure 2 Genoa Mobility GIS Analysis: Origin-Destination Matrix © Systematica

GLOBAL INVESTMENTS AND MAJOR STRIDES

The need to reconsider capacity limits of both port cities comes at a critical time when continental and regional investments in freight networks are marking an increasing role of mediterranean ports in strategic traffic corridors between Asia and Europe. Chief amongst these developments is the expansion of the Suez Canal in 2015, effectively doubling the capacity of traffic flowing between European and Asian ports. As underlined by Massimo Deandreis, General Manager of the Center for Economic Studies and Researches (SRM), Italy is a 'natural bridge' for energy and logistics between Europe and the Southern Mediterranean region due to its strategic location along key global corridors.

Major strategic rail projects, such as those carried out under the European Commission's Trans-European Transport Network (TEN-T) policy, further augment chances for key North-Italian ports such as Genoa and Venice to advance their positions in the logistics sector by enhancing intermodal connections (corridors 24 and 5, respectively). As evidenced by the Ponte Morandi incident of August 2018 in Genoa, the bridge collapse did not only paralyze road traffic, but had wide ranging implications on the economy of the city through a ripple effect on

integrated mobility systems. In Genoa, 70 percent of marine freight continue their land journey through road infrastructure, compared to only 20 percent by rail. With a major axis in the chain of logistic movements severed, shipments arriving at Genoa were redirected to other ports to compensate for reduced capacities. Strengthening intermodal diversity by balancing rail-based and road-based connections can have wide-ranging operational benefits for the entire system.

Once completed, the Rhine-Alpine corridor connecting Genoa to key North Sea Ports in Belgium and the Netherlands, one of the busiest freight corridors in the continent, will enhance north-south connectivity. In contrast, the Mediterranean corridor which passes through Venice will strengthen the east-west axis, from the Hungarian-Ukranian border all the way to Spain. Furthermore, major investments are pouring into the construction of the Swiss AlpTransit tunnels at the Italian border under the NTFA (Nuove Trasversali Ferroviarie Alpine), as well as the newly completed Mount Ceneri base tunnel in Switzerland, which effectively completes the NRLA (New Railway Link through the Alps). The development of trans-continental high-speed railway (HSR) lines, in combination with the new Alpine tunnel connections create sizable time-space compression gains. In effect, these two critical investments are projected to yield huge progressive macroeconomic benefits to the Italian economy in the next 5-10 years.

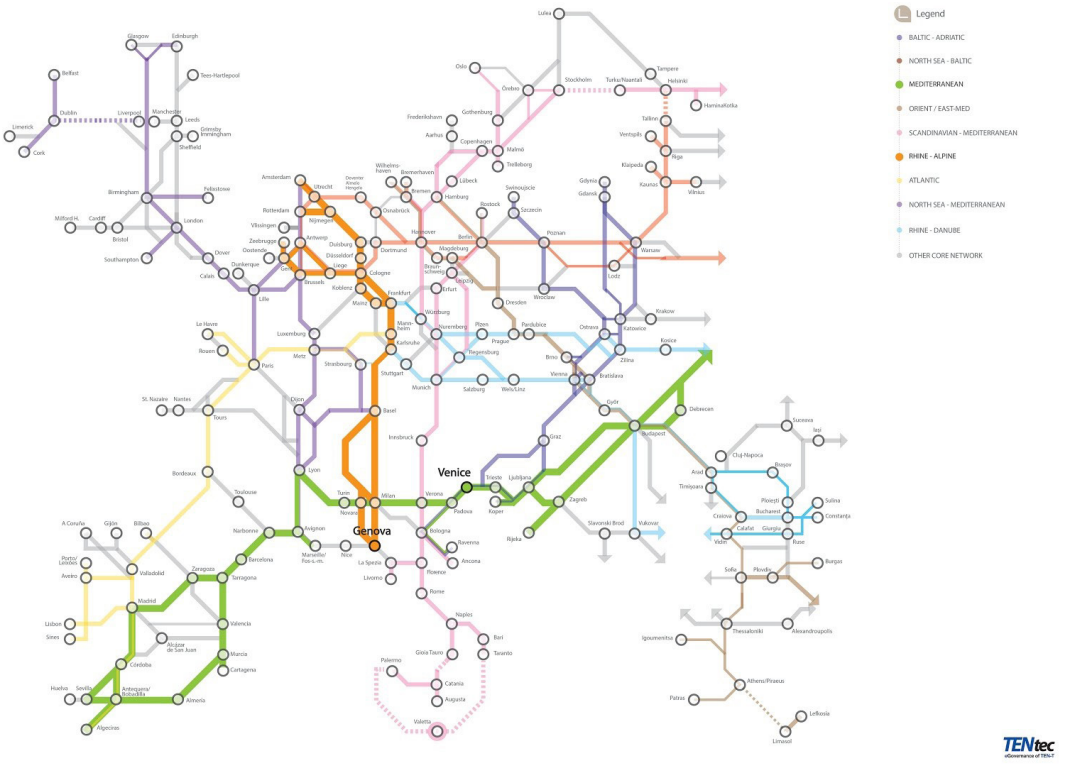


Figure 3 Elaboration by Systematica of Genoa and Venice positions in the TEN-T corridors. Graphic source: European Commission

In close collaboration with other major partners, Systematica worked on a hypothesis for future scenarios in the Ligurian context, advancing from the two very important innovations in the system elaborated above. The augmented capacity of the Suez canal has increased the maritime traffic in the Mediterranean both in terms of ship units and in ship size, with the result of an increased and lower barycentre of the maritime traffic. At the other end, the inauguration of the Gotthard tunnel in Switzerland has created the possibility of a direct and fast connection between Genoa and the area to the north of the Alps within a radius of 4,000 kilometers. The LuMiMed project, of which Systematica is a partner, offers potentials to optimize operations along the Rhine-Alpine corridor connecting Genoa to the north.

By means of the implementation of a strong rail connection between Genoa, Milan and Lugano, high speed passenger trains would connect Genoa and Zurich in under three hours, while ensuring a high capacity line for commercial convoys. An economic estimate has valued returns in almost two billion dollars per year. The direct and induced profits generated by this connection with a rapid economic investment return would be significant; this without computing all social and ecological benefits.

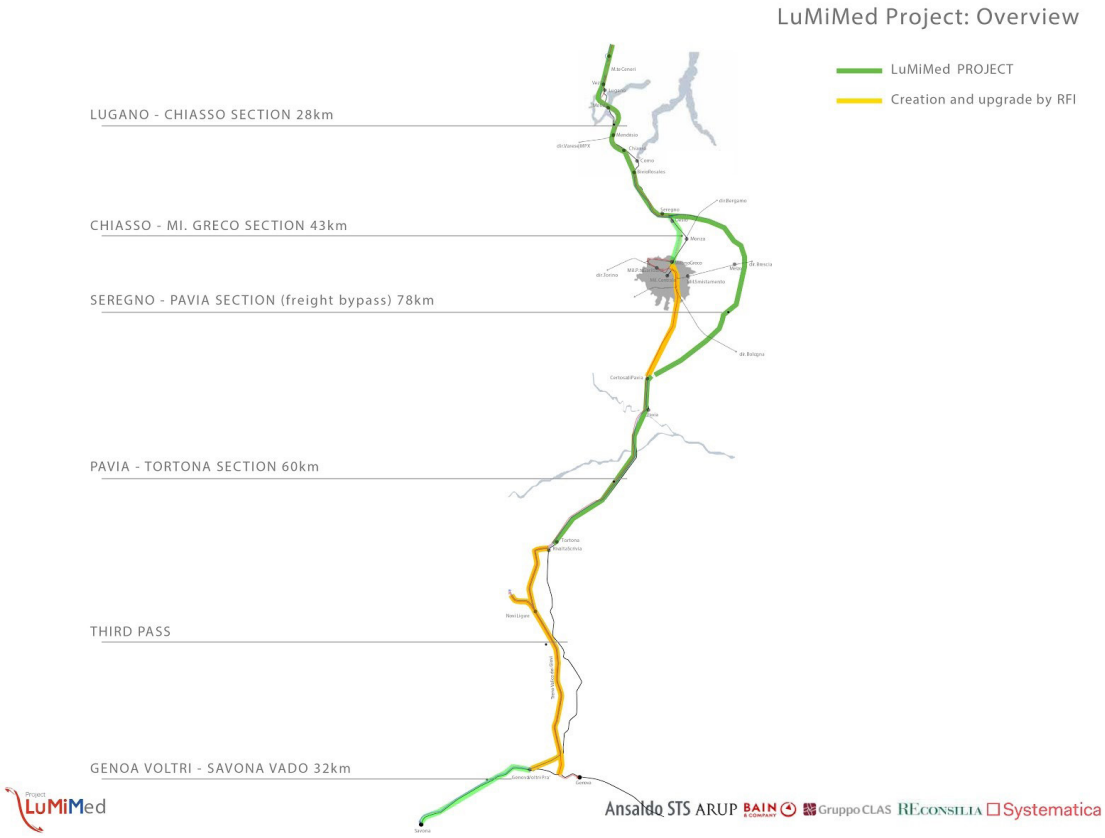


Figure 4 LuMiMed project overview: railway links

The rail connection alone, however, is not sufficient to achieve the desired results. A good local connection between the rail station and the rest of the city via a transit-oriented policy, including the port as one of the main areas of focus in an efficient, clean, sustainable connection, is conditio sine qua non in order to realize true benefits. At the same time, the reorganization of the port, starting from the docks with the possibility to load 500-750 trains quickly and efficiently, is a must to obtain time and cost reductions and reduce negative impacts on the city (more modern trains, less trucks, more flexibility).

This rail connection innovation offers a golden opportunity to coordinate the different plans of intervention in the city, involving all stakeholders and administrations in a medium-long term plan for the sustainable development of the territory. Upon implementation, the plan would ultimately contribute to more industrial opportunities, more jobs, increased mobility and accessibility at the city scale and lower emissions and noise pollution.

LOCAL INVESTMENTS AND MOBILITY PLANS

Several local projects and investments compliment the goals of the LuMiMed project and other European rail-based programs. The Western Liguria Sea Port System Authority (AdSP) is also invested in a critical intermodal project to deliver a final railway mile to allow for a significant increase in the modal split and daily in-coming/out-going trains. The model projects a 160% increase from current figures along the Genoa and Savona-Vado lines. Co-financed projects between the Authority and European Union institutions focus on environmental performance, intermodality and digitization of logistics ports and networks. The E-BRIDGE project, for example, co-financed with the European Union, aims for the complete digitization of data exchange in the Port of Genoa.

In addition to this, the Genoa Decree for the Recovery Action Plan enacted in the aftermath of the Ponte Morandi Bridge collapse is a major investment program of an approximate cost of two billion euros. Through the Recovery Plan, Genoa is currently undergoing an extensive restructuring programme focused on enhancing maritime, air, rail and road accessibility, in addition to redeveloping industrial and waterfront areas. According to a recent progress report, the pillars of the plan have all either been completed or are already in progress.

Current and short-to-medium term projects in Venice carried out by the Port System Authority of the Northern Adriatic Sea (AdSPMAS) have similar focal points (such as intermodality and a switch to renewable resources) and some particular to its unique situation. Specific focal points include maintaining accessibility through continuous excavation works in the port canals (such as the 20 million euros excavation project currently underway in the major navigation channels), protection of the city against flooding (through the ongoing MoSE project) and upgrading works for old and dilapidated ports. Long-term goals include the operation of offshore systems for freight and passenger transport. The SUMP (Sustainable Urban Mobility Plan) of Venice, which Systematica is currently involved in, sets 17 macro-objectives for the city focused on efficiency,

safety and environmental and socio-economic sustainability. It aims to grapple with the intense urban development of areas like Mestre and contend with large infrastructural projects such as the extension and railway connection of the international airport, the development of the Marghera Port and the relocation of the cruise terminal.

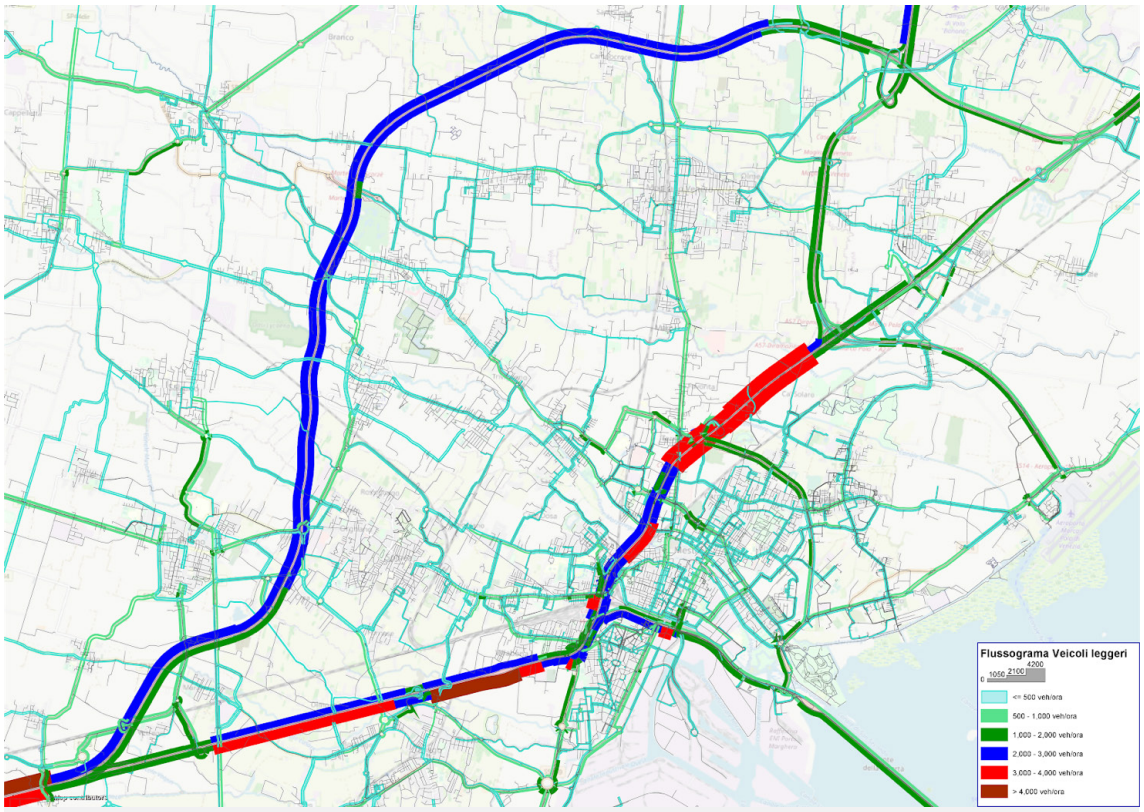


Figure 5 Venice SUMP baseline multi-modal model. Provided by Systematica.

The project for the relocation of cruise terminals in Venice from the city center to the Porto Marghera First Industrial Zone is an ongoing debate. If realized, the project will involve massive infrastructural works to redirect large vessels from the Lido to the Malamocco inlet. Triggered by the Costa Concordia disaster in 2012 when the large cruise liner ran aground on the Giglio island off the coast of Tuscany and capsized, an inter-ministerial decree to ban the entry of vessels over 96,000 tons through the San Marco basin was enacted. The more recent cruise liner crash in the docks of Venice in June of 2019 fueled the need to commence the project, although the exact logistics of the project are complex and will have major impacts on the livelihoods of workers in the cruise tourism sector.

Urban regeneration initiatives in both cities help support the port activity and promote well-balanced port-city relations. The Blueprint waterfront masterplan in Genoa, which Systematica had the opportunity to support, is a waterfront project by Renzo Piano focused on the promenade

between the Historical Port and the area of the Exhibition Fair, effectively culminating the design of the old port area. It focuses on replacing volumes of cement with new urban functions to seamlessly coincide with existing harbor areas. In line with the masterplan's aims, Systematica proposed two infrastructural scenarios for the project: the first centered around the construction of an underwater tunnel, while the second envisioned the construction of an inland arterial road, to relieve pressure from and ultimately replace the currently congested coastal flyover.

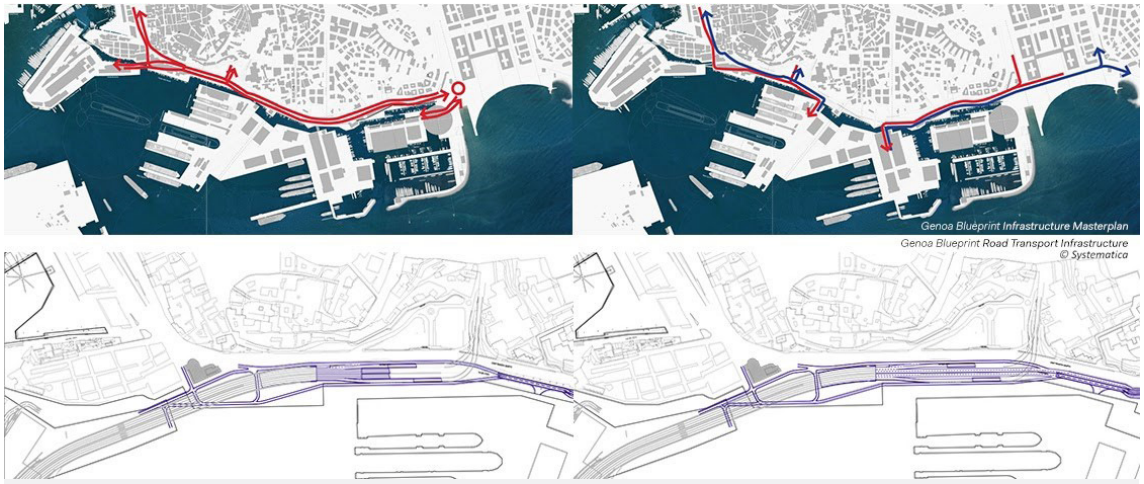


Figure 6 Mobility plans for Genoa Blueprint waterfront project © Systematica

Alternatively, one of the critical waterfront regeneration projects in Venice is the VEGA masterplan (the Venice Gateway for Science and Technology) located in the ex-industrial site of the Porta Maghera area. It was conceived in 1993 with the purpose of recovering industrial brownfields in the First Industrial Zone for entrepreneurial initiatives, research and innovation to serve the entire metropolitan area. The project is a long-term and complex one due to the mere scale of the project and the number of stakeholders involved in one of the largest ex-industrial sites across Europe.

FINAL REFLECTIONS

A comparative reading of these two important port cities situated along the eastern and western coasts of Italy highlights their very different complexities despite their comparable prominence on the global arena, their rich historical connections with the sea and the importance of their positions in wider continental scales. We understand that the port is a very complex and pivotal asset within each city, and how we grapple with the necessities to mediate between port and city goals, as well as integrate them, is an important question to keep in mind.

Perhaps more than any other port city, the city of Genoa must closely coordinate the plans of urban and port authorities. Because of limited land resources, developments in the port areas

must consider impacts on the city and vice versa. Likewise, the protected heritage status of the city of Venice, its physical flooding risks and metaphorical flooding with tourists compete with the operational needs of the ports. These issues make it all the more reasonable to adopt a comprehensive planning approach between respective authorities, and to develop strategic long-term planning visions beyond the traditional 20-year horizon.

The moment of the pandemic has brought an everpressing need to focus on resilient and multi-disciplinary planning structures. While Port Authorities report drops in maritime freight movements in the range of 10-20% in past months compared to the same period last year, passenger traffic dipped by upwards of 60%; cruise movements alone experiencing close to 90% shortfalls. The importance of economic diversification of port cities is thereby emphasized by the aggravated situation of the pandemic.

The emergency situation also places emphasis on the importance of promoting data-driven approaches in port operations. Efforts to digitize operations would enable constant monitoring and demand-responsive action, needed within the state of emergency and beyond it. Digitized operations would also induce a series of macro and micro-scale efficiencies through smart solutions, alleviating some of the burden of limited land resources, whether in orographically confined Genoa or water-surrounded Venice. Systematica's own current experience working on the infrastructural design of the Genoese Port of Voltri – one of the most important European ports for container freights – attests to the power of data optimization. Congested areas in the system revealed by macro-simulation analysis demonstrated that the effectiveness of operation management is fundamental to a port's success.

The combined effects of increased intermodal capacities, extensions of vital logistic and passenger corridors and optimized data solutions would create synergistic conditions that have the potential to bring key Mediterranean port cities to par with northern competitors, and restore Italy's position as a central anchor along strategic corridors of the global blue.

COLAS: ON THE ROAD TOWARDS SUSTAINABLE PORT-CITY MOBILITY

INTERVIEW BY THÉO FORTIN

Fabrice Luriot,
Director of "Mobility by Colas"
©Joachim Bertrand/Colas group

Colas is a branch of the Bouygues Group specialising in the construction and maintenance of transport infrastructures. The company is committed to tackling the challenges of sustainable mobility, urban development and environmental protection on a daily basis. With 58,000 employees spread across every continent, Colas is constantly working to pioneer new innovations aimed at making roads safer and cleaner. Proper management of environment externalities and smart technologies are key aspects of this policy of innovation, which is in line with AIVP's 2030 Agenda. The international nature of Colas' activities also makes AIVP a natural partner for the company, which generates over 51% of its revenue outside its home country, France. Colas in actively involved in many of the port cities that make up our network, particularly in efforts to mitigate congestion caused by port activities, which generates negative externalities for the urban population. Goal no. 3 of our AIVP 2030 Agenda, on "Sustainable Mobility", is fully in line with Colas' innovation projects. So we were keen to talk to Messrs Jean-Claude Fontenille, Fabrice Luriot and Arnauld de Sainte-Marie.

Colas has been a member of AIVP since 2003.

AIVP | *Colas is committed to smart mobility with its dedicated subsidiary, "Mobility by Colas". AIVP is also a proponent of using digital technology to improve traffic flow in port cities. You recently launched a range of smart mobility products, aimed at both public authorities and the private sector.*

Can you explain how flows of people and goods can be optimised using apps and databases? Will the general public also be able to access these services, or are they reserved for governments and businesses?

FABRICE LURIOT, DIRECTOR OF "MOBILITY BY COLAS" | As a leader in the construction and maintenance of transport infrastructures, Colas is committed to finding solutions to new mobility challenges. That is the role of its subsidiary Mobility by Colas, which is positioned as a partner for public authorities, citizens, and users.

Mobility encompasses both the means of travel – infrastructure and modes of transport used – and its performance for users in terms of comfort, efficiency, fluidity and safety. Public authorities are best placed to optimise flows of people and goods through a given district. Mobility by Colas gives them the ability to create interactions between infrastructures, users and the global ecosystem, with its Moov'hub service.

Moov'hub can be used to observe flows and optimise the urban space, and is aimed at citizens, public authorities and private enterprise. It includes the following:

- A digital app designed for users, which provides access to all public and private mobility services and parking facilities in the local area concerned, based on personalised and incentivising criteria (modes, time, CO2 footprint), with a single, integrated, Marketplace-based payment solution.
- A management platform for the area concerned, with access to all of the on-site data collected to provide an overview of how efficiently the resources deployed are working, and enabling users to regulate all mobility offerings available locally.

Illustration of Moov'Hub app © Colas group

- The “Forfait Mobilité Durable” (FMD) or “Sustainable Mobility Allowance” offered by companies is integrated into our MaaS, with:
  - A collective approach to PDIE (a scheme for pooling businesses’ mobility plans);
  - Integration into the user pathway;
  - Easier contractualisation with businesses.

This approach is our way of meeting the challenge laid down by the Mobility Act (“Loi d’Orientation des Mobilités” or LOM) on the MaaS (Mobility as a Service) concept, by rethinking the interaction between authorities, users, and businesses, and the economic and organisational model of mobility.

AIVP | *Traffic generated by public works in port cities and by industrial and port activities has a clear impact on mobility. It is common to see trucks cause congestion across cities, due to difficulties accessing the port zone. This congestion generates significant negative externalities for local residents and harms their quality of life.*

What solutions does Colas currently have, or what solutions does it want to develop in the future, to reduce these negative externalities caused by works and/or industrial and port activities?

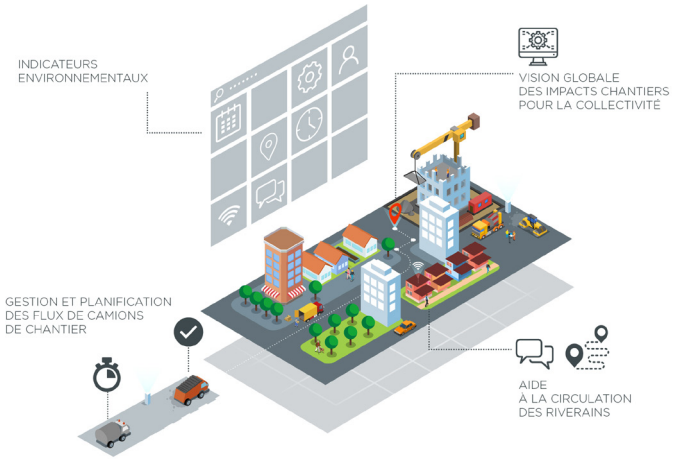
FABRICE LURIOT, DIRECTOR OF “MOBILITY BY COLAS” | Cities are constantly growing, and in order to meet the expanding needs of large conurbations, frequent public construction or maintenance work is needed. Often, this work is done simultaneously at various sites, causing disruption for the local residents, businesses and other organisations. Mobility by Colas has developed a service called Qievo to tackle the issue posed by these works, a customisable product that is tailored to the specific requirements of a given territory, in order to reduce the negative externalities for mobility caused by roadworks.

To this end, Mobility by Colas works with the technologies and partners best suited to the area’s needs to ensure smoother mobility, whilst using accurate indicators to take into account the environmental and social impact of the actions taken.

The Qievo service is powered by a logistics unit made up of central managers and on-site workmen directing traffic, along with services to guide users, and a range of digital tools:

- A management and reporting tool intended for public authorities or planners, which can be used to track logistical and environmental performance indicators,
- A centralised digital planning platform, for scheduling and regulating deliveries for the various worksites,
- A mobile navigation app for control and communication with delivery drivers,

- A dynamic infrastructure combining marked dedicated itineraries and regulated zones.



Scheme of Qievo app © Colas group

Scheme n°2 of Qievo app © Colas group

The range of tools available via the Qievo integrated tool covers the needs of all parties involved in roadworks, from subcontractors to delivery drivers and logistics managers.

Through a personalised approach, Qievo acts like the conductor of an orchestra, contributing to improved mobility around industrial activities and making them more acceptable to local residents. This is made possible by digital technology, which allows us to remove the barriers that otherwise exist between roles that are traditionally separate, in this case infrastructure, dynamic signage and logistics.

AIVP | *In recent years, Colas has done a lot of work on mobility in ports. For example, the project to extend the Port of Calais, or on a more modest scale, the City-Port interface project at the fishing port of Penmarch (Brittany). There is also the ambitious work done to improve port traffic in Marseilles.*

Julien Denegre, Deputy Head of International business development, Colas
© Colas group

What is special about the work being carried out by Colas in ports and City-Port interface zones?

JULIEN DENEGRE, DEPUTY HEAD OF INTERNATIONAL BUSINESS DEVELOPMENT, COLAS | Large port cities suffer from chronic urban congestion that affects port activities and economic activity in general. The relationship between the port and city is a dichotomy based on physical and economic flows between the two. The existence of a port – which is in some cases the very reason for the urban concentration – by definition creates distortion in the way the urban environment develops.

From our perspective, relieving congestion in cities requires not just a whole set of initiatives in terms of infrastructures. It also needs a multi-polar organisation that decentralises urban activity and redeploys it around multiple different hubs, both primary and secondary. This redeployment approach is an alternative to completely or partially relocating port activities to entirely new sites. It entails outsourcing some aspects of the port value chain, either outside or within the city. This can help to regulate the port bottleneck or harmonise relations between the city and port.

With this in mind, Colas is helping to develop intermodal transport by creating new road infrastructures. It represents the obvious solution to the issue of integrating the port into the city. In addition to building road infrastructures, the group's approach is also focused on securing investment (with the lender UKEF, for example, for roads in the Gabonese city of Libreville), but also deploying intermodal logistics solutions such as rail-road combinations with our subsidiary Colas Rail.

Similarly, urban congestion can only be relieved by striking the right balance between the density of traffic on the one hand, and the density of thoroughfares (including, but not limited to roads) on the other. The number, length and duration of journeys must be optimised, so as to rationalise use of the available space. The major challenge in redeploying port activities within the city or to its periphery is choosing the right sites. Colas is involved in the redeployment of certain port activities, such as dry ports or storage zones for clients such as Sea Invest or CMA CGM outside the Port of Abidjan in Côte d'Ivoire.

AIVP | *Colas has earned recognition for one of its innovations, the "solar road" or "Wattway". Your company has installed prototype roads in Normandy, but also in the Indian Ocean region, where sunshine is more plentiful. AIVP also has a particular presence in that region. A prototype has been installed in the port city of Le Port, on the French island of Réunion, and we gather that another is to be installed in Port-Mathurin, in Mauritius.*

Arnauld de Ste Marie, Director of business development, "Wattway by Colas" © Colas group

Besides the tests, can you explain how this technology works and what the challenges are?

ARNAULD DE SAINTE MARIE, DIRECTOR OF BUSINESS DEVELOPMENT, "WATTWAY BY COLAS" | Wattway technology involves embedding photovoltaic cells in a multi-layer substrate that ensures the surface is robust and allows PV cells to circulate. It is a system that recovers solar energy and converts it into electricity, that can be applied to the road surface.

This is a ground-breaking innovation, and as such it was vital to test it under real conditions. Although laboratory tests are essential, they do have their limits, and believed we needed to put the technology through its paces at various pilot sites in France and around the world. This also allows us to see how usefully it can be applied in practice. The aim was to determine how the system works in different climates and with different traffic conditions. That's why we have chosen to deploy it at pilot sites in mainland France, as well as in Réunion and the USA.

Thanks to tests at around forty pilot sites, we have been able to develop the technology further and create a product for the market capable of supplying renewably-sourced power to all kinds of electric devices.

Initially, we have chosen to focus on soft mobility or onboard safety services for pedestrian and cycle paths, but all kinds of other uses are possible. Wattway Pack works like an independent electric socket, as it is equipped with a few Wattway panels, a battery and an electric device, like recharging terminals for electric bikes or scooters, for example. The battery-based storage system means the device can be powered day or night, hence the analogy with an independent power socket. The solution is particularly suited to areas with little or no access to energy supplies, or places where it would be too costly or technically difficult to connect to the power grid.

We are currently continuing our efforts to develop a self-generation solution for larger surface areas (around a hundred square metres). We are convinced that we can make a real contribution – even a modest one – to preventing the artificialization of the soil by using existing surfaces and giving them a new function. The pilot site in Réunion, for example, is on a car park. It has generated 120KWh/m²/year since it was commissioned, making it one of our most productive tests, and it can be used to recharge electric vehicles. Taking advantage of port land for use as thoroughfares could also open up a host of other uses, at a time when solar power is becoming increasingly important in the maritime world. Similarly, we firmly believe that places like islands,

where access to energy has always been a thorny issue, could benefit greatly from deploying solar roads to supplement the renewable energies already in place. If we are to succeed in the challenge posed by the energy transition and achieve European commitments for carbon neutrality by 2050, we believe it is vital to explore every avenue.

Example of implementation the "Wattway" in the city of Le Port (La Réunion, France) © Colas group

PUERTO MADERO: NEW QUALITY PUBLIC SPACES PROMOTE WALKING AND CYCLING

INTERVIEW BY JOSÉ M PAGÉS SÁNCHEZ

Eduardo Albanese, Architect and Technical Manager of Corporación Puerto Madero. Photo from Argenprop

The Puerto Madero Corporation (CPM) was created in 1989 to urbanise and manage 170 Ha belonging to the old port. The many international prizes awarded in the last 30 years bear witness to the success of one of the largest waterfront transformation projects in Latin America. Today the Puerto Madero Corporation is involved in different urban regeneration projects in several Latin American cities, sharing the knowledge accumulated over these three decades. Port cities have evolved since the 1980s, and today mobility is one of the main issues. In this interview, Eduardo Albanese, Architect and Technical Manager, explains the mobility-related initiatives that the Puerto Madero Corporation is carrying out.

Corporación Puerto Madero has been a member of AIVP since 2017.

AIVP | *Puerto Madero's original Masterplan (PDF) is now practically 30 years old. Over this period the way in which urban spaces and city life are conceived has evolved enormously, particularly in terms of mobility. Do the main urbanisation decisions taken all that time ago still work, or has it been necessary to modify them? What have been the main changes in mobility that you have seen over these decades in Puerto Madero?*

EDUARDO ALBANESE, TECHNICAL MANAGER OF PUERTO MADERO CORPORATION | The ideas expressed in the Masterplan have been developed and executed on the 170 hectares of Puerto Madero. They are present in the large public works carried out by the Corporation and in the quality, quantity and scale of the public space which has been integrated into the centre of Buenos Aires. It must be considered that the spirit of the project as originally

drafted has been respected over these three decades, although other elements have been introduced consistent with policies that have been applied in the city.

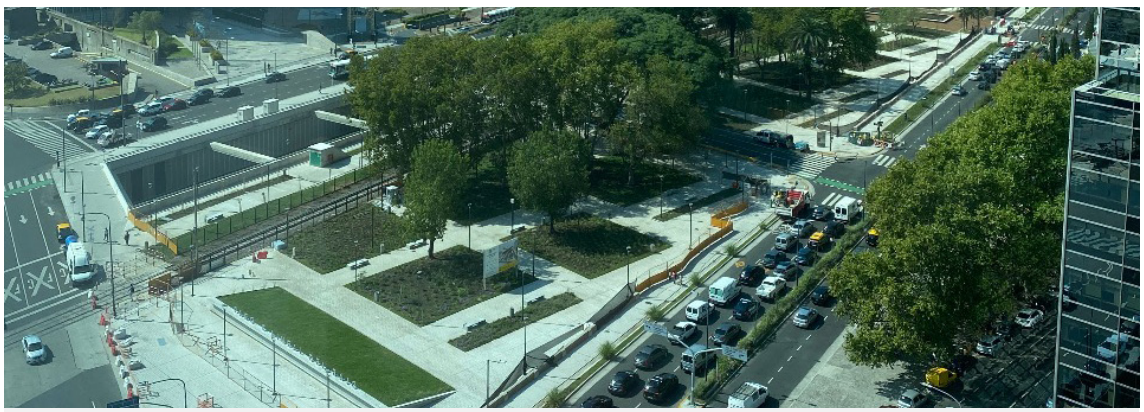
In the last 5 years, CPM has carried out surface works at Paseo del Bajo, which was the last large road and city-planning project. This work has involved the inclusion of 10 new hectares of squares, parks and promenades on the north-south axis, structured by the urban highway combining two avenues: Madero-Huergo and Alicia Moreau de Justo. In city-planning terms, it has connected the northern and southern parts of the city of Buenos Aires, while also forming the definitive east-west connection between the Puerto Madero quarter and the city centre.

As part of the Paseo del Bajo works, a further 10 hectares of parks and squares bordering the Puerto Madero quarter to the west have also been remodelled, bringing the total public space of this unified city zone to 20 hectares.

AIVP | *In Buenos Aires, "combis" (minibuses) are widely used for public transport as an alternative to private cars. How have these vehicles been built into the Puerto Madero plan, and how is the area connected with the rest of the city?*

EDUARDO ALBANESE, PUERTO MADERO CORPORATION | Just seven years ago, an agreement between the CPM and the City Council led to the installation of a new combi terminal on land owned by the CPM at the corner of Av. Corrientes and Av. Madero, opposite Luna Park and CCK. This terminal, which has enabled us to organise and centralise the passenger transport activities of the combis, is strategically located not only in the nerve-centre of central Buenos Aires, but also 100 metres from a "Subte" (metro) station and a large number of bus stops.

AIVP | *In recent years, and even more with the impact of Covid-19, we have seen that bicycles are being widely adopted as a more sustainable alternative for mobility. The City Council of Buenos Aires has launched various programmes to support the urban use of bicycles, such as the "Friends of Safe, Sustainable Mobility Programme", for example. What projects are being run in Puerto Madero to support the use of bicycles for urban mobility?*



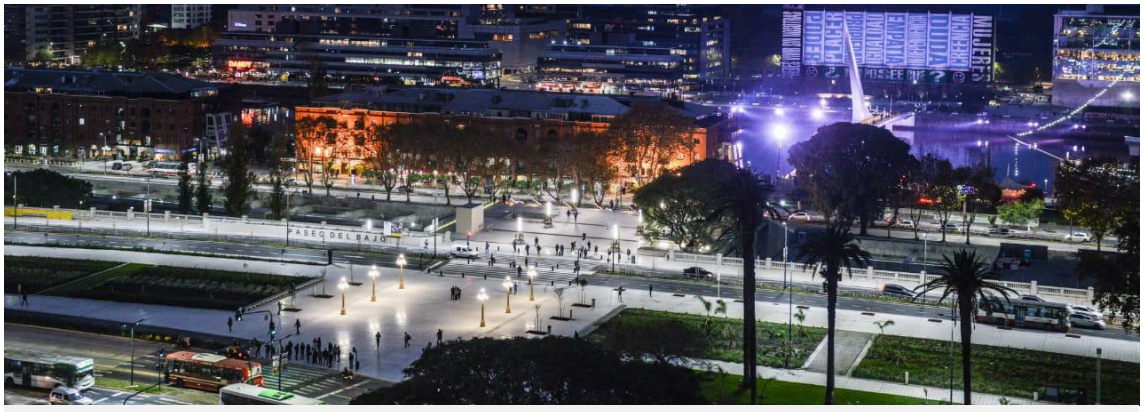
Paseo del Bajo, © Corporación Puerto Madero

EDUARDO ALBANESE, PUERTO MADERO CORPORATION | To start with, all the works carried out in Paseo del Bajo and the surrounding area have included bicycle lanes and bicycle use as part of the proposed new public space project. This development includes a different spatial and pedestrian organisation, with high levels of connectivity, and links the whole area to the general bicycle lane circuit of the city.

Furthermore, the "BA Bici" programme is being implemented in Puerto Madero as in the rest of the city, offering a free community network of bicycles for short journeys between different points. The Puerto Madero quarter contains several stations for collecting or returning bicycles.

AIVP | *The presence of water is a determining feature of Puerto Madero. In many cases around the world we see that navigable waterways are also becoming a resource for sustainable mobility. We would like to know whether projects are being developed in Puerto Madero to encourage the use of ferries or launches for passenger transport or last-mile delivery of goods.*

EDUARDO ALBANESE, PUERTO MADERO CORPORATION | This is a pending item. Attempts have been made to start a tourist circuit up and down the river, and public transport services along the whole coastline of the River Plate from Ciudad de La Plata to Tigre (Parana Delta). So far this exists only in a very incipient form; it is not yet consolidated. Without doubt it is an opportunity for the future.



Stairs and esplanade in Paseo del Bajo © Corporación Puerto Madero

AIVP | *Many Argentinean and international companies have offices in Puerto Madero, with thousands of employees working there. We have seen that to create a more sustainable mobility that works, it is essential to coordinate efforts between public institutions, users and companies. Are there any examples of this type of coordination in Puerto Madero? What types of solution does the private sector propose to achieve more sustainable mobility?*

EDUARDO ALBANESE, PUERTO MADERO CORPORATION | The Paseo del Bajo works have delivered excellent urban articulation between the Puerto Madero quarter and the

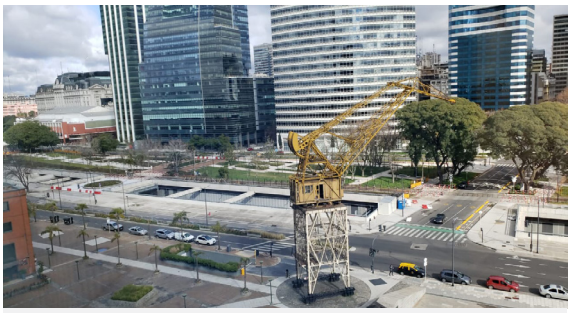
rest of Buenos Aires. So although bus lines and other forms of public transport have not yet been introduced into the quarter, very good, wide coverage of the new public space has been achieved.

AIVP | *One of the main features of Puerto Madero (PDF) is the variety of high quality public spaces that it offers. When we talk about sustainable mobility we must never forget to include the creation of spaces that invite people to walk while ensuring safety and access. What are the main characteristics or special care that must be taken in these spaces to attract the city's inhabitants to use them?*

EDUARDO ALBANESE, PUERTO MADERO CORPORATION | We believe that the architectural design of the public spaces in Puerto Madero has played a vital role in this. This design was based on a cultural study of the possibilities for use, the architectural scale, the attractiveness of the whole and recognition of its urban nature. We also believe that the quality of the constructions, the materials used and the urban furniture are fundamental for the effective use of space that has been achieved. Finally, landscaping studies were carried out to determine which plant species to use and how, always preferring local indigenous flora.

Unlike most city spaces, the Puerto Madero quarter was projected as a whole, with a central idea around which the development was articulated. Among the guiding lines of this idea were the quantity and quality of the public spaces, which have resulted in the characteristic boulevards, promenades and parks which beautify the urban experience and invite people to immerse themselves in the area.

Public space in Puerto Madero, © Corporación PM



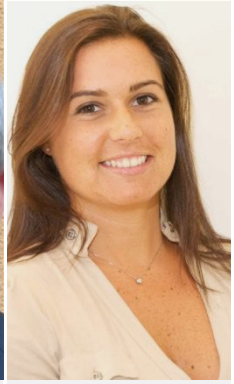
Paseo, © Corporación PM

Plaza Adultos Mayores © Corporación Puerto Madero

SUSTAINABLE MOBILITY IN PORT CITIES: CHALLENGES AND SOLUTIONS

EXPERIENCES FROM THE CIVITAS PORTIS PROJECT

Dirk Engels
Mobolity Expert,
Transport & Mobility
Leuven (Belgium)



Valentina Boschian
Digital Port Unit
Port of Trieste (Italy)

Fabio Lammana
Mobility Consultant
City of Trieste (Italy)

Chris Van Maroey
Project Leather
City of Antwerp
(Belgium)

Jan Buytaert
Mobility Advisor
Antwerp Port Authority
(Belgium)

AIVP is organizing a series of webinars entitled "Port City Talks" to continue to debate, to build the port city of tomorrow and to keep in touch with our members.

The most recent AIVP webinar was held on Thursday 26th of November 2020 at 15:00 (CET / GMT +1) and was moderated by Mr. Dirk Engels, mobility expert from Transport & Mobility Leuven (Belgium) and transferability manager of the European project Civitas Portis. With the participation of: Ms. Valentina Boschian – Manager of European Projects and Digital Port Area at Autorità di Sistema Portuale del Mare Adriatico Orientale (Italy); Mr. Fabio Lammana – freelance consultant on mobility and transportation networks at City of Trieste (Italy), Mr. Jan Buytaert, Mobility Advisor at Antwerp Port Authority (Belgium) and Ms. Chris Van Maroey, Project Leader at Smart ways to Antwerp – City of Antwerp (Belgium).

ABOUT THE WEBMINAR

Mobility is one of the unavoidable challenges of any port city. It is also - sustainable mobility - one of the objectives that AIVP is pushing to achieve by 2030. What is sustainable mobility? How can traffic flow? We answered these questions during the webinar through the examples of Trieste (Italy) and Antwerp (Belgium).

The port and its inherent goods flows, often via polluting trucks, can be the source of conflicts with other users sharing the road, often causing considerable congestion. Clearly, to realistically aim at reducing polluting emissions, green mobility is a crucial sector.

New technological tools related to the concepts of “smart ports” and “smart city”, based on real time data, allow more efficient coordination and planning of traffic for both port and urban authorities. At the same time, on a different scale, commuting in port cities is also changing. The pandemic has emphasized even more the role of cycling in urban settings, framed in a multimodal mobility policy. A correct combination of these two key ideas, efficient use of traffic data and cycling, can greatly improve the life of port city citizens and reduce port nuisances.

In this webinar, we learn about the experiences developed during the EU funded Civitas Portis project. More concretely, we had a debate with representatives from the port authorities and municipalities of two European port cities, Antwerp and Trieste. We saw what are the lessons y

WATCH THIS **WEBINAR**

THE CIVITAS PORTIS CONCEPT: A GAME CHANGER FOR SUSTAINABLE MOBILITY IN PORT CITIES

DIRK ENGELS

Dirk Engels
Mobolity Expert, Transport & Mobility Leuven (Belgium)

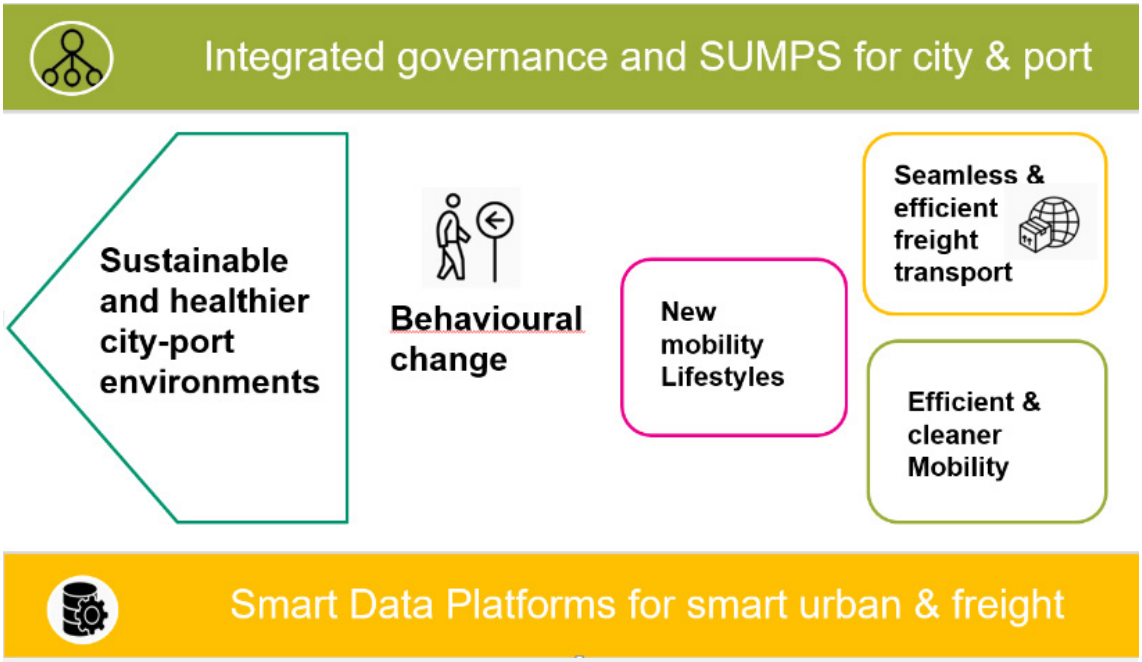
Sustainable mobility is one of the priorities for the European Commission. Hence, there are several EU-financed projects focusing on this issue, fostering cooperation and sharing good practices between different cities. It is the case of the Civitas family of projects, of which one is focused on specific port-city mobility challenges, the Civitas Portis. As Dirk Engels, moderator from our mobility webinar, explains in his article, the approach defended in the project, based on smart data sharing for better governance and planning, has produced clear positive results in the five cases: Aberdeen, Antwerp, Constanta, Klaipeda and Trieste.

Funded in the framework of the CIVITAS Initiative dedicated to cleaner and better transport in Europe and beyond, the CIVITAS PORTIS project implemented over 40 mobility and logistic strategic measures in the partner port cities of Aberdeen, Antwerp, Constanta, Klaipeda and Trieste. This approach has proven to be a game changer for sustainable mobility in all of the PORTIS cities, leading the way to clean and liveable cities, and undoubtedly has a strong take-up potential for other port cities and cities with a comparable traffic generator. Analysis of the approaches showed evidence that the CIVITAS PORTIS measures will result in an improved functioning of the cities and ports with the introduction of innovative strategies and measures in the different CIVITAS policy fields. This will have a strong positive impact on the way stakeholders cooperate and citizens make use of and perceive the transport system, on the transport system itself, and on related aspects such as environment, economy and energy.

THE CIVITAS PORTIS SUSTAINABLE PORT CITY

First of all, the CIVITAS PORTIS approach will inspire other port cities to build up and strengthen a strong framework for a sustainable port-city including a strong governance model and a sound data management system.

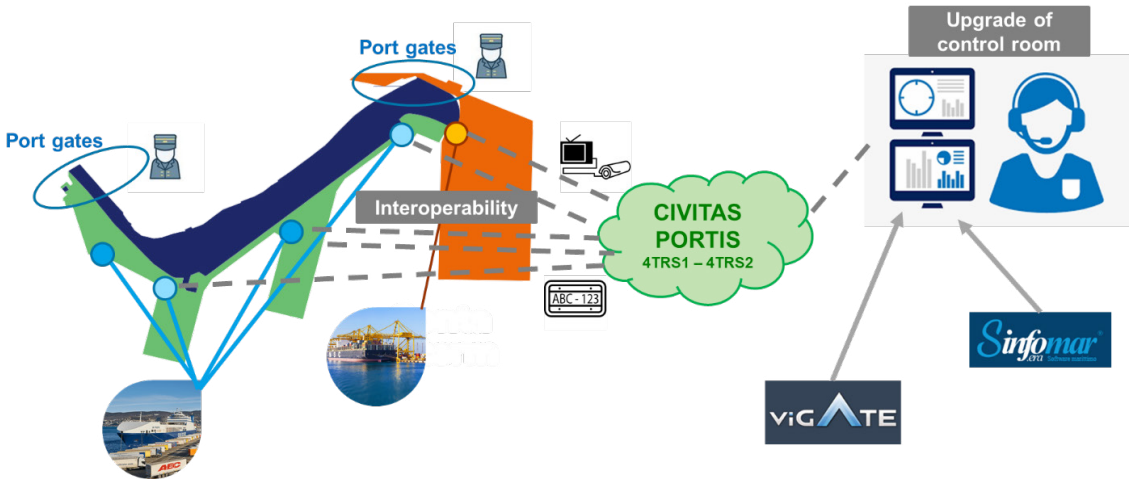
Depending on the typology of the port city, defined by port ownership, the scale of the port in relation to the city, and the city and port traffic and special interaction, different measures will lead to a strong governance structure. Key elements of this framework are integrated policy decision lines and planning of SUMPS, and common Masterplans and strong technical cooperation to develop and manage the multi-modal transport system. This more formal governance structure is supported by informal discussion platforms integrating local and regional approaches e.g. new collaborative institutional structures on different operational and decision levels, workshops, focus groups, events, knowledge-sharing platforms and intensive cooperation with all stakeholders. The integrated SUMP is the basis for the implementation of a common sustainable mobility vision with integrated packages of measures.



The CIVITAS PORTIS integrated approach

Responding to the current and future challenge to handle planning, historical, and real-time mobility-related data required to manage our multi-modal mobility system, and to inform and push optimal mobility behaviour and choices of stakeholders and end users, different layers of data platforms are built up in a gradual and integrated way. Key elements for such smart data systems are good organisational concepts with clear agreements or licences dealing with the way

data are provided and used by public and private stakeholders, and robust technical networks to transmit data. Data are defined according to existing and newly developed standards with intelligent formats to embed data of different sources in a common platform. New EU standards will support cities and regions to ease further integration of the data.



Smart data platform in Trieste coordinating freight movements & Regulating access to the Port area

Based on these smart data platforms, smart applications will be operational both for the planning, design, and functioning of performant multi-modal mobility systems as well as to inform stakeholders, businesses, citizens and commuters on mobility possibilities and push them towards sustainable choices.

Multimodal routeplanner 'Smart Ways to Antwerp', nudging behavioural change among Antwerp's residents, commuters and visitors

These smart applications are used as strong tools in the intensive, permanent, and inclusive behavioural change campaigns to encourage individuals to use alternative transport modes, such as active or collective travel, rather than using the private car. This is supported by intensive interactions with local communities to discover any barriers or challenges to modal shift, to optimise the range of products and services as well as the focus of the campaigns. Port companies and other freight- generating or logistic companies are also involved in an intensive and permanent interaction with the city. To this end, specific initiatives such as a mobility market place and employers' platforms are being set up to develop common public-private alternative and sustainable solutions for road traffic; both for goods and for the trips of employees.

Within the CIVITAS PORTIS cities, cycling and walking is the basic urban mode, including for commuting trips to the port. All citizens, visitors, stakeholders and businesses perceive it that way and an appropriate and sufficient physical infrastructure is in place, such as wide, safe and consistent cycle tracks, safe pedestrian footways and crossings, supporting services like a cycling bus to cross the port canal, and car-free lively public spaces in the cities.

The new cycle bus facilitates sustainable commuting to the Port of Antwerp. ©ViaVictor,

The backbone of the larger urban and regional transport system for citizens and visitors is a performant public transport system with full priority and high frequencies. Integrated hubs guarantee the link with the other transport modes, assuring an optimal sustainable use of the multi-modal transport system with limited car use in the sensitive urban areas.

Road-based public transport and passenger car traffic is optimally managed with a performant traffic management system with well-chosen priority rules for all interacting modes. As this is linked to the data platform, users get reliable planning and real-time multi-modal transport information supporting sustainable mobility behaviour.

Port cities also have different strategies in place to manage the freight traffic, specifically in relation to the port, to avoid or minimize the negative effects of this kind of traffic on the urban living areas. A dynamic signage system combined with route guidance leads the trucks via dedicated routes that link the port area with the TEN-T network, while intelligent access schemes are implemented to keep trucks in waiting areas around the city until they can enter the port gates, avoiding congesting and related noise and emission in the urban areas around the port. Above that, part of the freight transport is replaced by inland shipping towards hubs in the region.

When synthesising these elements, we can conclude that integration is the key principle for the implementation of the CIVITAS PORTIS concept; integration of decisions and planning, integration of transport modes, inclusive mobility for all; and the integration of measures strengthening each other to achieve the integrated goal of a clean, smart, liveable and dynamic port-city.

EXPECTED IMPACTS TOWARDS A CLEAN, SMART, AND INTEGRATED MOBILITY

The effective impact in a city or region implementing the CIVITAS PORTIS strategies will depend on a range of contextual factors. Based on the findings in the CIVITAS PORTIS cities, it is expected that port-cities with a successful take-up of the CIVITAS PORTIS measures will benefit from a significant improvement of their mobility system leading towards a clean, smart, integrated mobility supporting a liveable city environment and a strong economy. The observed changes in the PORTIS cities can already give an indication of the changes to be expected.

First, there is a strong increase of awareness and acceptance among citizens for sustainable mobility solutions, and a significant behavioural change resulting in a higher modal share for public transport and even more so for cycling. In Antwerp, for example, where cycling is already quite popular, cycling shares raised from 27% to 35%, with more significant increases for port workers, from 6% to 16% of the total trips. In Aberdeen and Trieste, where cycling is rather limited, we have observed increases of cycling shares from 1-3% to 2-4%. In all of the PORTIS cities, the car is less used; with observed decreases of 5 to 10% in Trieste, Antwerp and Aberdeen.

The strategies have a clear impact on the environment; with improved air quality levels in the centre areas of the cities due to the reduction of the number of cars (in Antwerp also because of the cleaner vehicles pushed by the Low Emission Zones). A reduction in transport emissions CO2 in the city/port interaction zone of Klaipeda of 7.5% was observed.

Measures reduced the freight traffic in the living areas of the cities with enhancements to freight routing away from the city centre with 11% in Aberdeen, and a reduction of freight road traffic in the city of Antwerp with 3 100 truck trips per month.

The PORTIS approach also results in a positive evolution of the employment in city and port, with an observed growth of employment of 1 to 7% in Aberdeen, Antwerp, Klaipeda, and Tri-

este. Mobility has proven to be very important both for the accessibility of the port for freight transport and the mobility of employees of the port-related businesses.

It is important to note that these figures give an indication of the evolution to be expected in port cities taking up the CIVITAS PORTIS strategies. Indeed, the observed changes in the CIVITAS PORTIS cities are changes that occurred within the rather short term of the project, whereas the qualitative evaluation of the implemented measures indicates a further, far-reaching evolution to be expected on the longer term.

More info on Portis measures and the result of the strategies can be found: https://civitas.eu/portis

More information on Goal 3 of the AIVP Agenda 2030, about sustainable mobility.

DIGITIZATION AND CO-CONSTRUCTION FOR A SUSTAINABLE MOBILITY IN HALIFAX (CANADA)

INTERVIEW BY DENIS DAVOULT

Lane Farguson
Manager, Media Relations and Communications, Halifax Port Authority

In 2015 the Port of Halifax started to work on an infrastructure plan aiming at building a competitive future for the Port including the possibility to welcome the next generation of ever larger container vessels. Consulted in 2016, the inhabitants and the broader port community were supporting the need for maximizing the Port' growth potential, but they also expressed their concerns regarding Port truck traffic through downtown Halifax. This is a challenge directly linked to the goal 3 about Sustainable mobility of the AIVP Agenda 2030. Since then, the Port of Halifax has implemented several initiatives to reduce truck traffic on downtown streets. For example, the CN intermodal terminal where cargo has been taken off the highway and put onto rail, or the planned connection between two container terminals by rail. But another key strategy is the digitization of the Port launched in 2018. We are going to focus on this digitization strategy here.

The Port of Halifax has been a member of AIVP since 2018.

AIVP | *In June 2018 you have launched the first phase of your "Port Operations Center", a digital tool for sharing real-time information with your customers and the community, notably trucking companies and cargo owners. This initiative was awarded by the American Association of Port Authorities (AAPA) in their Information Technology Awards program. You also implemented the Terminal Traffic Monitoring system, for which you also received the Intelligent Transportation Systems Canada award in 2019. Could tell us a bit more about these tools, and how you evaluate their impacts since then?*

LANE FARGUSON, MANAGER, MEDIA RELATIONS AND COMMUNICATIONS, HALIFAX PORT AUTHORITY | At the Port of Halifax, we are very focused on data reliability and transparency. The Port Operations Centre on the Port of Halifax website has become a critical digital tool for the sharing of real-time information with customers and the larger community, especially now as we fluidity and terminal status updates. Now more than ever it is critical that we demonstrate our efficiency and reliability.

Shippers and cargo owners can find up-to-the minute information on terminal gate metrics, weekly dwell time, predictive air gap, arrivals and departures, and special alerts. We have been working closely with our terminal operators and CN Rail on this initiative.

The Terminal Traffic Monitoring System shows wait times and truck service times at the container terminals in Halifax. This information is provided in real time to truckers, logistics companies and to the public through our website to help shorten wait times and in doing so, reduce congestion and greenhouse gas emissions.

The Vessel Forecast Summary (VFS) application on the Port of Halifax Operations Centre provides accurate estimates of container vessel arrival times at the Port of Halifax. The application is powered by eeSea, a Copenhagen-based leader in global vessel forecasting.

Vessel forecasting © Port of Halifax

AIVP | *In 2018 you also joined TradeLens, a blockchain-focused digital global shipping platform developed by Maersk and IBM. Could tell us how this tool is complementing the two other ones we just discussed about?*

LANE FARGUSON, MANAGER, MEDIA RELATIONS AND COMMUNICATIONS | Each element of our digital strategy is like a piece to a puzzle, and by putting those pieces together a picture starts to emerge. TradeLens is an important piece of this overall strategy. We are grateful that we were invited to join in 2018 and remain committed to working with all partners toward the development of a modern, visible, data-focused information sharing platform for the global shipping industry.

© Port of Halifax

TradeLens has the potential to address challenges around obtaining quality data from shipping lines by providing a single, authoritative platform to obtain this information.

Container Track and Trace capabilities will be enhanced through TradeLens. The Halifax Port Authority presently has visibility on containers from vessel discharge to their inland rail destination. The container visibility that TradeLens will provide will include container events from overseas terminals, potentially providing visibility from the time a container is stuffed, provide visibility for transshipment, and enhance inland transport visibility. We expect there will be other benefits as well as the platform develops and additional players become involved. Through working with TradeLens, we are learning to work with global shipping platforms which are expected to fundamentally change the flow of information in the shipping industry.

AIVP | *Your last digital initiative is a quite recent one: this autumn you signed a contract with Saab regarding a Port Management Information System – PMIS. What are you expecting from it?*

LANE FARGUSON, MANAGER, MEDIA RELATIONS AND COMMUNICATIONS | The Saab Port Management Information System is a huge step forward in our digital transformation roadmap. This supports port operations and financial processing of vessel calls and facilitates the digitization of the departure and arrival of ships, dock planning, and cargo handling.

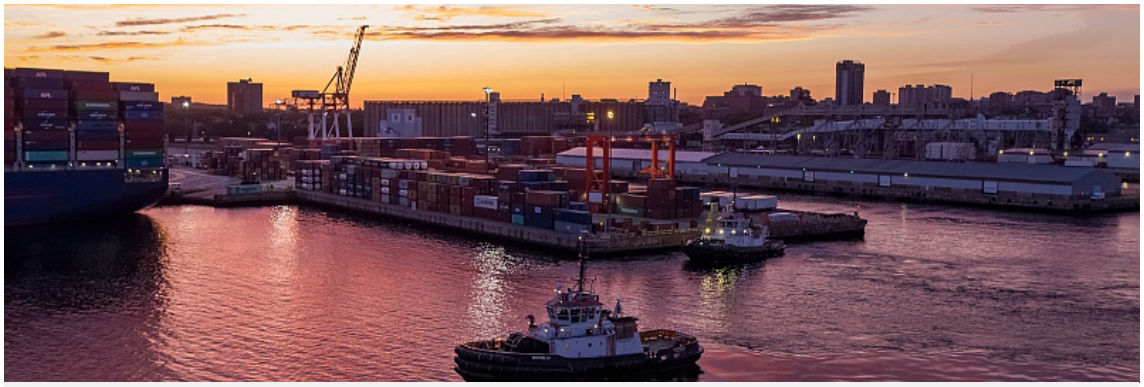
The Halifax Port Authority was seeking a scalable, user-friendly Port Management Information System with real-time operational monitoring and reporting capabilities, and the Saab system has the best mix of functionality, cost and proven results in the market.

The goal of this project is to build our own capacity by obtaining the right software platform that allows our operations and finance staff to receive, integrate, review, and store information through a well-designed and integrated system that is in line with our overall digital transformation strategy.

© Port of Halifax

AIVP | *Collaboration can be considered as a fundamental component for this PMIS, but probably also for your other digital initiatives. Do you think it may facilitate a new governance strategy embracing co-construction as we also defend on Goal 04 of the AIVP Agenda 2030?*

LANE FARGUSON, MANAGER, MEDIA RELATIONS AND COMMUNICATIONS | To be truly effective, Ports must do more than simply adopt smart technologies. They must make it easier for stakeholders to work together to transform the safety and efficiency of the entire Port ecosystem including the surrounding community.



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Ensuring the right capacity, at the right time and place requires unprecedented visibility and control across multiple independent systems and multi-modal networks.

One solution we are exploring is from a company called Sentient Hubs which offers a new class of decision support platform that enables integrated impact assessment across economic, environmental, and social dimensions.

It's an open platform that enables convergence across diverse ecosystems at scale – delivering a better understanding of when, where and how to deploy resources.

AIVP | *We have seen that engaging with the inhabitants and the broader port community is key for you too, for example in the public consultations for your infrastructure plan in 2016, in 2018, etc. Reducing Port truck traffic through downtown was then a main concern and request. Did you involved citizens and/or port community when looking for solutions? How do they see now this concern regarding congestion and fluidity? Do they perceive the impacts of your digital initiatives on urban mobility?*

© Port of Halifax

LANE FARGUSON, MANAGER, MEDIA RELATIONS AND COMMUNICATIONS | Historically, we have worked to engage with our partners, stakeholders and the larger community in different ways either ahead of major projects, during the planning stages or after construction has commenced. This has taken the form of planning workshops, face-to-face meetings, telephone calls and email correspondence and various online surveys.

In June, the Halifax Port Authority announced the creation of the Port Community Liaison Committee which is designed to foster meaningful communication and information sharing between the Port and members of the public, and to solicit feedback from those affected by port operations and projects.

The committee is made up of a broad range of people beyond traditional port users, focusing on experience, insight and diversity.

There is a lot happening with the Port of Halifax right now, and the CEO and the Board of Directors felt strongly about making sure the larger community is actively engaged in the changes taking place.

WHAT MEASURES CAN BE TAKEN TO DECARBONISE MOBILITY? INTERVIEW WITH CARLOS RUBIO, PRESIDENT OF THE PORT OF MALAGA

INTERVIEW BY THÉO FORTIN

Carlos Rubio, President of the Port Authority of Malaga

The Port of Malaga is an important cargo and cruise ship port in Andalusia, Spain. It plays an essential role in the cruise ship industry in the Western Mediterranean. Malaga, in the heart of a tourist region and at the crossroads between Europe and Magreb, is a city where mobility is of the essence. The port is located close to the city centre and forms part of the urban tissue, thanks to a rigorous port-city remodelling process. This means that the Port of Malaga is necessarily an actor in the urban planning and the mobility of the city. After the participation of the Malaga City Council in our webinar on cruise ships, we wanted to interview the Port of Malaga on the subject of mobility. We spoke to Mr. Carlos Rubio, president of the Malaga Port Authority.

The Port of Malaga has been active member of AiVP since 2016.

AIVP | *In the Port of Malaga, one of the principal cruise ship ports of Andalusia, mobility between the cruise ship terminals and the city centre is one of the greatest challenges. Indeed, flows of cruise ship passengers to tourist attractions are frequently the cause of urban congestion and negative externalities for the local populations who live close to the port.*

What measures could be taken to ensure sustainable mobility, despite the mass tourism brought by the cruise ships?

MR. CARLOS RUBIO, PRESIDENT OF THE PORT AUTHORITY OF MÁLAGA | Although it is true that Malaga is an important port for cruise ships, with an annual flow of around 500,000 passengers, for the moment we have not observed congestion caused by this activity. In 2019 the port received nearly 300 cruise ship calls. On average that is less than one per day, so in that sense the Port still has plenty of potential for growth.

We are aware of this problem, and we have assumed the responsibility and the commitment to carry out our activities sustainably. The Port of Malaga has three cruise ship terminals. One of them is only 5 minutes from the city centre on foot, so access without the use of motor vehicles is 100%.

The other two big terminals are located 15 minutes' walk from the city centre; nevertheless, there is a wide range of public transport services, such as taxis, buses and the tourist train, to offer the passengers the best alternatives.

If the passenger wants to move around in the city centre, other alternatives are available on the wharves, such as bicycles and scooters.

Docks 1 and 2 of the port of Malaga ©Malagaport

AIVP | *You took part in the European "Locations" project, of the INTERREG-Mediterranean programme, in cooperation with the Port of Durres and other active members of AiVP. This project was about cruise ships and their impact on the urban tissue of the port cities of the Mediterranean.*

Can you tell us about the Port of Malaga's role in this European project?

MR. CARLOS RUBIO, PRESIDENT OF THE PORT AUTHORITY OF MÁLAGA | Malaga was the only Spanish city included in this international work group. Together with 7 other European territories, we developed low-carbon-emission urban mobility plans and specific measures associated with cruise ships and their impacts: passenger movements, luggage transport when the port serves as a base port, goods deliveries to resupply the ships, etc.

Meetings were organised with the city's main agents to hear their opinions on the proposals for sustainable alternatives for this issue; in this way we helped to work out a methodology which met the city's needs, in order to reduce pollution and the environmental impacts of this sporadic mobility in the city centre.

Members of the Locations EU Project ©Malagaport

As part of the activities carried out in the framework of the project, Malaga also started specific awareness campaigns which encouraged both city inhabitants and passengers to participate, learning about their experiences in the city in order to fine-tune measures that would ensure a better quality of life for the inhabitants while maintaining the attractiveness of the city to tourists.

On conclusion of the project, which lasted three years and established the basis for sustainable mobility in all the cruise ships ports of the Mediterranean, Malaga continued to promote these measures locally. Our experience is now being transferred to other port cities and countries around the Mediterranean Basin.

AIVP | *In 2016, the City Council set up a "Sectorial mobility committee", of which the Port is obviously a key member. There are a number of work groups, addressing everything from heavy goods transport to bicycles. This committee arose out of a "special sustainable mobility plan" developed jointly with the Port in 2011.*

What is your view of port-city cooperation on mobility? And what are their proposals to improve mobility at the port-city interface?

MR. CARLOS RUBIO, PRESIDENT OF THE PORT AUTHORITY OF MÁLAGA | In view of the Port of Malaga's location within the city, integration between the port and the city, and coordination between the institutions involved – with whom we work closely – is fundamental. In fact, the Port Authority is cooperating with the City Council and a transport company, AVANZA, in a project called AUTOMOST. This is an R+D+I initiative to introduce automatic-driving technology in a 12-metre bus, to reinforce the commitment of the port and the city to the application of new technologies to sustainable mobility.

New autonomous buses of the Project Automost ©Malagaport

This coordination is not limited to cruise ship traffic, as we have mentioned here, but also applies to goods transport.

For this reason, bolstering intermodal transport is a very valuable factor for the sustainable development of our activities. Building a tunnel for the railway line from the station to the port, part of which currently runs through the city, is one of our main proposals and a good way of decongesting traffic in the city, while at the same time promoting goods movement which at the moment is limited for this reason.

Symphony of the Seas en Málaga

CARLOS MORENO PUBLISHES A NEW BOOK ON THE "15 MINUTE" CITY

HERMELINE DELEPOUVE

Entitled "Droit de cité, de la "ville-monde" à la "ville du quart d'heure" ("From the Global City to the 15 Minute City"), the latest book by Carlos Moreno, a member of AIVP's network of experts, is published by Editions de l'Observatoire (currently available in French only).

Over the course of this 179 page essay, Moreno casts an expert eye over the urban and territorial world of the Anthropocene period, and explains the key issues and transformations accelerated by the process of urbanisation and "metropolisation", at a time when life on our planet is at threat from climate change, human activity, and new forms of disease.

The author, who coined the globally recognised concept of the "15 minute city", suggests solutions for tackling the environment, economic and social challenges facing cities in the future.

A scientist and expert in urban matters, Carlos Moreno invites the reader to consider our relationship with the spaces we inhabit our idea of "useful time". **In his vision of a polycentric city, the six essential social functions** – life, work, food, medical treatment, education, and personal development – **must be available within a 15 minute radius.**

Moreno, who has kick-started a crucially important global debate in this time of worldwide health crisis, analyses the complex, living laboratory that is the city, a place where our contradictions are laid bare, and changes in the way we live are tested and experimented. Cities are home not only to the majority of the world's population, but also to the biggest issues facing the development of humankind, whether cultural, environmental, technological, or economic. Urban territories are now in the grip of the challenges of the century, and urgently need to reinvent themselves.

With his systematic analysis of the city, Carlos Moreno looks at what can be done to ensure a better way of life, and identifies the issues posed by the rapid pace of change driven by urbanisation and "metropolisation".

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