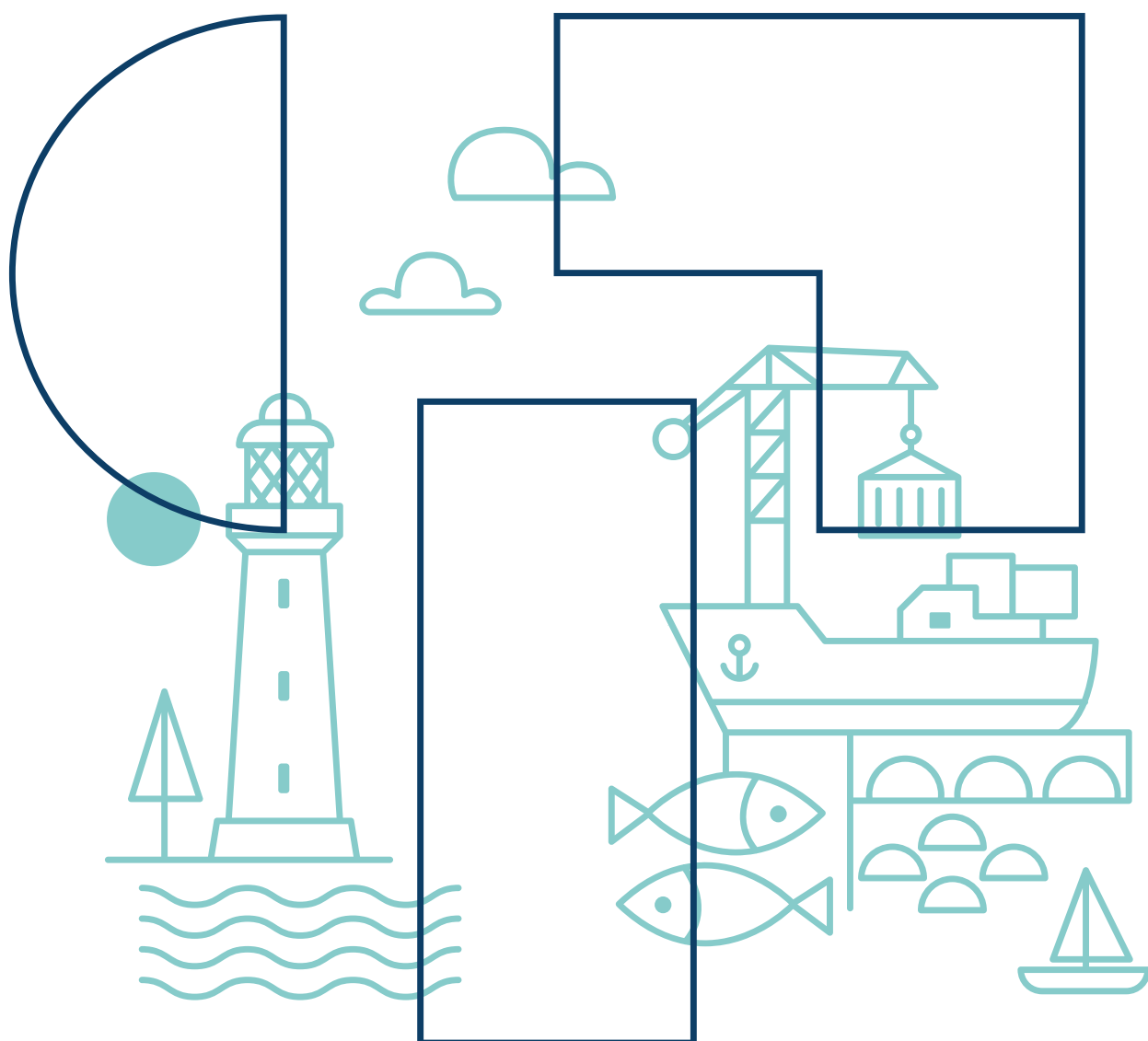


Innovation Report 2024



The reality
of a new port.




Welcome to our
Innovation Report
2024

A summary of the **main actions and achievements** in innovation-related matters by Algeciras Bay Port Authority (APBA), including their Innovation Ecosystem throughout 2024.




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Foreword by the Chairman and Director



The year 2024 has been marked by increased volatility, complexity and uncertainty in global logistics chains, which are subject **to unprecedented geopolitical and commercial tensions**. This scenario raises the competitive and resilience requirements of port enclaves to unprecedented levels.

Growing tension in the Middle East, the ongoing conflict in Ukraine, and the first anniversary of the Red Sea crisis cast a shadow over commercial prospects, foreshadowing a global economic slowdown. **These chokepoints** exacerbate the situation of a sector already burdened by a shortage of empty containers, severe fluctuations in demand and freight rates, and congestion at major global ports, among other factors.

All of this is framed within an **ambitious environmental context** (ETS, Fuel EU, MEPC 83, etc.) that highlights the need for a coherent global regulatory framework that allows for the reduction of emissions while safeguarding the competitiveness of our global port system and ultimately enables us to achieve our **sustainability and climate neutrality** goals.

Faced with this challenging scenario, the Port of Algeciras continues to move forward with determination, ready to strengthen its strategic role as **the international maritime gateway to Southern Europe**. To this end, we remain committed to our understanding of **innovation as a key business process**, the main axis around which to structure a customer-centric approach, the

deployment of integrated and physically and digitally interconnected logistics networks, and a service of exceptional quality for users and customers.

In this regard, we are proud to highlight the designation of the Port of Algeciras as one of the seven global hubs of the Gemini alliance (Maersk – Hapag Lloyd), in a new and demanding service structure that reflects **our role as operational orchestrator of the port ecosystem and creator of value**. Likewise, for the fourth consecutive year, we have retained the title of **the most efficient port on the European continent**, placing us in the global top ten according to the report 'The Container Port Performance Index 2023 (CPPI)', prepared by the World Bank and the consulting firm S&P Global.

Once again, we have combined record figures, exceeding the **100 million tonne mark** for another year, with new historic milestones such as the number of trucks crossing the Strait through our facilities exceeding 500,000. We also continue to position the Ports of Algeciras and Tarifa as **green energy Hubs**, thanks, among other initiatives, to the upcoming deployment of OPS (Onshore Power Supply) systems and the launch of Europe's first zero-emission green corridor connecting two continents and linking the cities of Tarifa and Tangier.

To consolidate all these and other initiatives, in 2024 we began drawing up the new Strategic Plan for the ports managed by the Port Authority of the Bay of Algeciras



2025–2030, with a horizon of 2040, in which **digital transformation** and **innovation will play a fundamental role**.

In any case, it is essential to combine strategic vision with tangible short-term results. In this regard, 2024 has brought us significant successes and joys thanks to the practical application of innovation and digital transformation, supported by projects that maximise the impact of our activity and various initiatives in favour of open innovation, digital talent management, and collaboration with our logistics-port ecosystem.

The development of different artificial intelligence models is enabling us to make progress in monitoring road traffic behaviour at our facilities, as well as increasing the predictive capabilities of our Just-in-Time ship scheduling models, with a view to achieving greater operational efficiency. In addition, we continue to optimise our operational management systems, with a new Hercules platform for coordinating the Strait Crossing Operation (OPE) and advances in the renewal of our **Port Community System (PCS) Teleport 2.0**.

In terms of **environmental sustainability**, notable progress has been made in the development and implementation of digital and IoT (Internet of Things) solutions to measure and analyse maritime-land transport emissions in real time, support environmental decision-making and contribute to compliance with the APBA's Green Strategy.

In addition, this year has seen the consolidation of the ambitious **"Algeciras Port Digital Academy"** programme for attracting, retaining and creating local digital talent, which also aims to increase the employability of citizens in our region. Within this programme, we can highlight the second edition of the University Expert Course in Digital Transformation applied to Port Logistics, in collaboration with the University of Cadiz, as well as the collaboration initiative with vocational training centres, focused on bringing port and logistics activities closer to young digital talent. This initiative, Algeciras Port Digital Academy,

is offering encouraging results, with an increasing number of participants entering the labour market directly after completing the programme.

On the other hand, we have strengthened our open innovation ecosystem, with the **Port of Algeciras Innovation Committee** celebrating its first year of activity, demonstrating the innovative potential of this working forum with the Port Community. In addition, we are preparing to deploy a **pioneering digital entrepreneurship hub**, in collaboration with the Regional Government of Andalusia, which will enable start-ups to apply the latest technologies and innovation within the Port of Algeciras to improve port logistics.

We conclude this introduction by thanking all the employees of the Port Authority, the companies that make up the Port Community of Algeciras, and our customers and partners for making our Journey of Innovation possible and for helping to keep it moving forward.

We look to the future with enthusiasm and responsibility. We are aware of the magnitude of the challenges we face, but we are confident that, with the collective effort and commitment that characterises us, we will continue to take the Port of Algeciras, an internationally renowned **Digital Innovation Hub**, to a new dimension, facilitating the socio-economic growth of our region and contributing to the future of the maritime-port industry.



Innovation at APBA

02

□ The Port of Algeciras Innovation Committee Celebrates its First Anniversary: Promoting Innovation Activities and Increasing Membership.

Throughout 2024, the Port of Algeciras Bay Innovation Committee continued to consolidate its role as a **pillar** for **aligning, coordinating and boosting collaborative innovation** from within its port-logistics ecosystem.

In its first year since the opening session in autumn 2023, the Committee has held another two scheduled meetings – as well as a briefing focused on the region's digital innovation ventures – that have strengthened an active work dynamic geared to the interests of its members. The year's balance had some notable success stories, and has drawn attention to the achievements and initiatives it has promoted. The forum has shown itself to be a catalyst for open and cooperative innovation between the various players in its ecosystem.

Among the various innovative solutions and service that have been presented to the public, there have been a wide range of highlights – from tools and hubs based on **AI (Artificial intelligence) and digital twins, VR (Virtual Reality), IoT (Internet of Things) artificial vision, and autonomous vehicles to a disruptive solution for modular containers** by ESES-Container,

who have taken part within the framework of the European *ePcenter* Project hand-in-hand with APBA (Port of Algeciras Bay Authority) and TTI-A (Total Terminal International Algeciras).



At the same time, we have explored several **mechanisms to fund RD&I projects, identify paths to collaboration** and we have been able to **encourage the Committee's joint participation in innovation projects**. Good examples include: the WISeSmartContainer Project, the result of the association between WISeKey and Bernardino Abad; our backing of proposals submitted to tenders such as OPPE's (the Spanish State Ports Department) Puertos 4.0; the assessment of paths to innovative promotion through tenders such as CDTI's (Centre for Industrial Technology Development) Missions; CTA's (Andalusian Technology Corporation) RD&I Incentive Programmes; and SME subsidies managed by the Campo de Gibraltar region's Chamber of Commerce.

During the year, key areas such as **technology monitoring** and the **development of innovation**



support tools have also been strengthened. In addition, lines of work have been promoted within the framework of the **Algeciras Port Digital Academy** initiative, thanks to the active collaboration of various members of the Committee.

The first year of activity has been marked by the **incorporation of new strategic allies**, who join the 36 initial organisations. In particular, the Campo de Gibraltar Chamber of Commerce has joined as a **new Member**, along with **six new Expert Advisors**: Navozyme, Global Candace, CTA, Terminales Marítimas del Estrecho (TME), ADDocean and OnNet Center. These additions have enriched the debate and provided a more cross-cutting and inclusive view of the challenges and opportunities facing the maritime-port sector.

It should be noted that the Port Authority of the Bay of Algeciras (APBA) launched the Innovation Committee, established as a working group and shared forum for reflection and knowledge sharing among companies in the Port Community with the aim of improving, through collaborative innovation, the competitiveness and sustainability, as well as the value proposition of the Port and its Port and Logistics Community.



□ The Port of Algeciras – Mission Project Ground Zero for Logistics Innovation.

In this key moment for the digital transformation of the Andalusian productive fabric, the Port of Algeciras is one of the **Mission Initiative's** pillars. The Mission Project is an ambitious programme launched by the Andalusian Government's Digital Agency, along with several local partners who wish to encourage digital ventures in strategic sectors of Andalusia's economy.

The mission offers programmes that are adaptable and meet the requirements of digital ventures in terms of strategic resources, key connections and investment opportunities for start-ups who want to drive transformation in their sector, and turns around four innovation centres that are distributed throughout our region. One of them is located within **the Port of Algeciras Bay Authority's** premises with a clear focus: to provide a boost to digital talent and revolutionise port-maritime logistics.

The centre's road-map for 2025 is perfectly defined. With a **€1.4-million budget**, it has been conceived – along with its counterparts located in **El Ejido, Jaen** and **Alhaurin de la Torre** – as an open innovation co-working space where start-ups, SMEs, huge corporations, universities and public administration can come together.

The centre in Algeciras is specifically set up to specialise in accommodating projects that explore emerging technologies, such as AI (Artificial Intelligence), the IoT (Internet of Things), cloud computation and Blockchain, all applied to the maritime supply chain. Such tools will enable complex challenges like cargo tracking, port operation automation, energy efficiency and environmental sustainability to be tackled. Its purpose is a dual one: on the one hand, to accelerate the development of disruptive digital solutions to meet port-logistics sector challenges; and on the other, to strengthen the Andalusian business ecosystem by facilitating

its adaptation to an ever-more competitive, technologically-demanding environment.

One of the distinctive elements of the centre is its state-of-the-art **technological equipment**. It has been fitted out with IoT networks, portable 5G hubs, Augmented Reality goggles, smart sensors, drones, and other development kits for GPS, RFID and NFC technologies. This infrastructure will provide entrepreneurs a real environment with cutting-edge tooling where they can experiment and validate their solutions.

Apart from a tech focal point, the centre also offers entrepreneurs a comprehensive support programme that includes **incubation services, top-level customised acceleration** and **assessment**, as well as access to funding via Business Ángel networks, venture capital and Family Offices. It will also have **exhibition and laboratory facilities** where entrepreneurs can test and demonstrate their solutions under real conditions.

What is more, the centre is to include a complete **sectorial training curriculum**, focusing on subjects such as terminal automation, artificial intelligence as applied to logistics, the use of Blockchain to track cargoes, and cybersecurity in critical infrastructure. It will also shed light on key questions like energy sustainability, circular economies in port environments and maritime route-planning by using Big Data. The curriculum will be based on workshops, master classes and presentations, in order to publicise the various aspects of the port-maritime business at the hands of experts, and make known the successes of applied technology in this field, or within the digital ecosystem of a latest-generation logistics hub, such as the Port of Algeciras.

The centre is set to arrange multiple **networking sessions** oriented towards strengthening ties among partners, experts and institutions to reinforce its potential as a partnership network. This will help participants glean a wider outlook of the ecosystem, identify partnership opportunities and contrast

their strategies with expert profiles. Finally, project partnering will be boosted by a network of more than **300 specialist mentors** and a continuous-learning community.

Throughout 2025, the project will continue to roll out its main landmarks: from the centre being fitted out and its official opening ceremony, to the launch of calls for proposals and the full deployment of its offer of programmes and services. At the same time, a grant incentive scheme will be put in place for start-up and SMEs to be able to develop and implement their digital solutions.

This initiative will not only consolidate the Port of Algeciras's role as the benchmark logistics hub in Southern Europe, but it will also position it as a genuine laboratory for open innovation, and drive forward the work that has been underway for many a year at its Port Authority within its "Travesía de la innovación programme".

APBA Reaffirms its Commitment to Innovation by Renewing its RD&I Management System Certification for the Sixth Year Running.

The Port of Algeciras Bay Authority has renewed – for the sixth year running – its RD&I Management System Certification, first awarded in December 2019, attesting to the fact that APBA continues to comply with the **UNE 166002:2021** Standard for research, development and innovation activities in the fields of logistics and port operations.

The **UNE 166002:2021** Standard **"RD&I Management: Requirements of RD&I Management Systems"** certification, granted by **AENOR**, bases its objectives on organising, systemising and permanently improving RD&I activities to achieve maximum efficiency in research, development and innovation work.

By renewing this certification, APBA is underlining its unwavering commitment to RD&I and the high level of

quality reached over the last few years in **coordinating and systemising innovation processes focused on achieving excellence, and increasing customer and user satisfaction at the Port of Algeciras Bay.**

It also acknowledges that our port authority continues to hold a mature, competitive, quality, time-sustainable RD&I Management System that supports good practice in this field, and strives for continuous improvement and the highest level of quality in the innovation projects that it carries out.

The RD&I Management System does not only help APBA **regulate and systemise the key processes of cross-sectional projects and initiatives from conception to execution**, but it also allows us to start up new procedures that improve aspects such as **high-tech surveillance, know-how management, open innovation and the commissioning of innovation back-up tools that are key to evolution and growth**. This is all to do with ensuring strategic compliance and the directives that characterise the Last Generation Port concept.



Misión



_LogísticaPortuaria
_PuertoDeAlgeciras



Voices of innovation

03



María Nieto Fajardo,
Expert in Venture Capital
and Open Innovation. Head
of the RETECH Project.

>> **María Nieto Fajardo** is head of the SANDETEL Project, an Andalusian Government instrument. With over 15 years' experience in the fields of innovation, ventures and investment, she has curated a career in international organisations, public administration

and the private sector. She worked at the European Commission's JRC (Joint Research Centre), where she managed RD contracts and projects with European funding. She then set up a consulting company specialising in financing and strategizing start-ups, and became the interim manager of a private investment fund. Since a year and a half ago, she has designed and promoted public schemes to support digital ventures in strategic sectors for Andalusia. She is also an external assessor for programmes funded by the European Commission.

Boosting Digital Venture and Open Innovation in the Port-Logistics Sector.

[Q] To begin with, we'd like to know a bit more about María Nieto: could you tell us a little about your career to date and how you became a reference for digital ventures and open innovation in Andalusia?

[A] My personal career has been developed on the crossroads of innovation, ventures and investment; always with my sights set on the public impact. I began at the European Commission's JRC (Joint Research Centre), where I worked for several years managing R+D contracts and projects and working together with scientific units to supervise tenders, subsidies and

technical assessment. That experience allowed me a deeper knowledge of European financial frameworks and how tough and demanding innovation policies are regards territorial impact.

Later on, I set up a specialised consultancy firm to help start-ups and public agencies to access funding and design strategic projects. That stage in my career saw me work with very diverse ecosystems and helped me understand the real divide between politics, finance and execution. I then became the interim manager of a private investment fund and, later on, as Senior Innovation Manager at the Andalusian Technological Corporation, where I designed scale strategies and strengthened the network of alliances with European investment funds.

A year-and-a-half ago, I decided to join the Andalusian public administration with one clear objective: to put all my experience in the service of designing and executing more efficient venture policies that were more ingrained in the production fabric and had a greater capacity towards transformation. At SANDETEL, I currently lead back-up programmes for digital ventures, and work with both public and private sector players to position Andalusia as a competitive region that is innovative and able to create opportunity for its talent. Moreover, I continue to collaborate as an external assessor of European programmes, which allows me to apport benchmark models to our regional context.

[Q] We know that, in the professional world, every road has its key moments and that challenges are inevitable. Could you share a couple of the most significant challenges that you have come across throughout your career and how you have overcome them? What prior experience do you think have been decisive in terms of the current role that you play?

[A] One of the greatest challenges I have faced was the management of huge international consortiums in projects funded by the European Commission, where agents from several countries are involved, each with their own strategic priorities, as well as cultural and operational foibles.

Being a leader in that context requires a little more than just technical know-how: it implies an overall vision, diplomacy and a great ability to align everything. I learnt to create stable collaboration frameworks, to establish shared priorities and create a work dynamic that allowed us to move forwards, even in highly-complex situations.

That experience was key for my current role, because many of the programmes that I head up today in public administration also require the coordination of a great number of very diverse players. The dynamics are not too dissimilar: each player has its own timescale,

goals and working logic – the challenge is to design public-sector instruments that can generate cohesion, commitment and tangible results for the territory.

[Q] Continuing along the venture line, what is your view of their current state in Andalusia and what do you believe are the main obstacles and opportunities? What do you feel are the prospects for regional talent in the coming years?

[A] Andalusia has a venture ecosystem that is becoming more and more dynamic, diverse and connected. The last few years have seen sectorial hubs, specialised acceleration programmes and a network of young talent emerge that bring together a huge capacity for innovation both on a local and global level. Nevertheless, there are still structural challenges that remain: scattered resources, the lack of scalability in many projects and – above all – a disjunction that still exists between venture and our economy's engine-room sectors.

We have to leave behind this idea that digital venture is an isolated phenomenon. Its true value is in its ability to transform sectors: how it can modernise port logistics, optimise the agrifood chain or revolutionise mobility in urban or rural environments. That is precisely the logic of the programmes that we are trying to drive forwards from the Andalusian Government: to connect up ventures with the economic reality of territories, generate traction from demand and build a specialised smart strategy based on our regional strengths.

As for talent, I am very optimistic. We have highly-qualified, creative profiles that are ambitious on an international level. What we need to do is to offer them an environment where they feel they can stay, grow and collaborate; and that means creating real conditions: funding, ventures, stable public policies and an administration that not only facilitates, but also actively drives everything forwards. Andalusia has a great chance of becoming a benchmark region for applied innovation, if only we can put its talent on centre stage.

[Q] The Port of Algeciras – hand in hand with the Andalusian Government – is set to open a Port-Logistics Applied Digital "Entrepreneurship" Centre. Focusing on the initiative, we'd like to get to know more about its scope. Could you give us a brief overview of the project: what it involves, what investment it can count on, and what main objectives it hopes to achieve?

[A] Algeciras Digital Entrepreneurship Centre was set up within the so-called Mission Project, an Andalusian Digital Agency initiative financed by the RETECH programme. Its main aim is to promote the transformation of strategic sectors by means of boosting digital ventures with a total investment of €5 million for the start-up of four sectorial centres in various locations in the region.

One of them specialises in port logistics and is located in Algeciras, due to its key role in the Andalusian economy and its ability to attract technology.

The Centre arises from a desire to become a benchmark location where start-ups and entrepreneurs can develop digital solutions that are applicable to real, port-logistics sector challenges: be they automation and tracking, sustainability, operational efficiency or the integration of emerging technologies such as artificial intelligence and IoT.

However, this is not only about accelerating projects; it deals with connecting up the ecosystem. The Centre coordinates the open innovation group dynamics that players such as the Port of Algeciras Bay, logistics operators, universities, the public administration and venture capital take part in. We want digital ventures to stop being parallel activities, and become an active innovation lever located within the great production sectors themselves.

The final goal is clear: to reinforce the port's position – not only as a top logistics hub – but also as a magnet for technological innovation on an international stage.

[Q] Implementing a Project is usually split up into several phases. Could you explain the stages involved in bringing this scheme to light?

[A] The initiative has been built on three big phases: the first was to apply for funding to the RETECH Programme, in coordination with the Ministry for Digital Transformation. From there, a second phase opened up that was focused on the operational design of the project and on developing the legal and administrative instruments required for it to be set up (partnership agreements, framework agreements and protocols for the partners involved). At present, we find ourselves in the third phase – execution – which the Digital Entrepreneurship Centres are already working on.

[Q] Apart from the methodological approach of the scheme's development, we're far more interested in the regional impact that the project will have. How do you think the scheme will benefit the Campo de Gibraltar area specifically, and Andalusia in general?

[A] The impact of this initiative is double: local and regional. On the regional – Campo de Gibraltar level, the Digital Venture Centre Will allow the economy to diversify, create opportunity for local talent and position the area as a benchmark for innovation applied to the logistics sector. It is a very specific way of linking the port's potential – as it is already a key international trade hub – with venture, digitalisation and business development.

The scope goes much further, though. On a regional level, the project reinforces the commitment to a more skilled Andalusia: one that is connected and competitive. Port logistics is one of our strategic sectors and, placing it at the very hub of this digital venture programme means activating new value chains, attracting investment and creating qualified jobs. It is also replicable model: what works for Algeciras could easily be scaled up to suit other logistics environments in the community, thereby expanding the project's impact beyond its immediate radius.

In conclusion, we are not just talking about helping start-ups; we are talking about the way we can innovate from within our turf.

[Q] In this way, the local venture ecosystem is fundamental to economic development. How do you hope the scheme will affect the local venture ecosystem? What kind of back-up or specific resources are being lent to start-ups through this scheme?

[A] The Port of Algeciras Authority has had a fundamental role from the project's very beginnings, not only as a strategic partner, but rather as an active driving force of a shared vision: to convert innovation and digital venture into real tools that can improve the port's surroundings and competitiveness. Its involvement has been a key factor to identify specific technological challenges, allowing the project to touch down within its territory and legitimise the Centre vis-à-vis the whole logistics ecosystem.

The collaboration between the Andalusian Government (through its Digital agency) and APBA is a shining example of how institutional cooperation can generate a transformative effect. When the objectives of a port authority and a regional innovation policy align, the door opens to a richer sense of collaboration: infrastructure, sectorial know-how, international relations and the tractive effort on the business fabric all come together.

The alliance has helped us go much further than mere classical acceleration: we are talking about real piloting, technological transformation in an operational context, creating qualified employment and international positioning; to transform our port not only into a top-level logistics platform, but also into a state-of-the-art innovation hub.

[Q] And to finish with, we'd like you to share a few tips for the entrepreneurs who are starting out and want to maximise the opportunities offered by this scheme. In the same light, what message or words of encouragement would you offer to those students or young professionals who are considering a career – or are just beginning a career – in the digital field?

[A] Andalusia has all the ingredients to launch great projects: talent, technical know-how, powerful sectorial ecosystems, and – last but not least – public structures that are really partnering at last.

The message that I want to put across to people who are just starting out is clear: you honestly don't need to

[A] The Centre was born as infrastructure to serve the local ecosystem. It did not start out its life from scratch, though: it was built upon existing regional know-how and capabilities, and was reinforced by fresh public resources. The aim is to generate a multiplying effect that attracts talent, connects agents and facilitates access to opportunities that have so far been unavailable on a local level.

The Mission Programme offers specialised acceleration programmes, strategic advice, practical training in digital competence and direct access to open innovation opportunities with the big hitters from the port-logistics sector. The programme also provides contact with investment networks, and strives to help solutions be piloted in the real world.

All of this has a direct impact on the ecosystem: it not only supports existing start-ups, but also creates more fertile ground for new initiatives to grow, existing ones to flourish and generate synergies among companies, institutions and tech agencies. In the end, what we are looking for is to create a community, to connect and help ventures become a real and sustainable option for more people in the region.

[Q] In terms of institutional collaboration – which can be very powerful – what is your opinion on the role played by the Port of Algeciras Bay Authority in the initiative? How do you think that collaboration between the Andalusian Government and our Port Authority can boost the project's outcome?



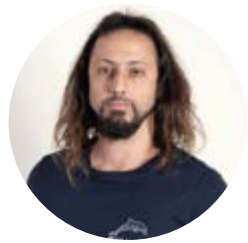
go abroad to start up. You can build up solutions with a global impact from right here, if you know how to seize the moment.

Right now, we have the resources, the institutional back-up and there is a clear commitment by the Andalusian Government to make digital venture a real path to develop the economy and transform sectors. The Centre in Algeciras is proof of the pudding: it is a space where talent and real port logistics challenges

come face to face, where ideas don't just accelerate, they take off in operational environments, with top level partners.

My advice would be to believe in it. Move yourselves, get busy, have a good close look at these ambitious programmes - because the ecosystem is readier than ever to go along with you; and because the future benchmark in Andalusian ventures is already among us: it just needs a little push for it to take off.





Alessio Maglio,
Project and Business
Manager – Expert in
Underwater Noise
Pollution and Biodiversity
Assessments.

>> **Alessio Maglio** is an environmental monitoring and assessment specialist with more than 15 years of consultancy experience since gaining his MSc in Marine Biology at the University of Genoa. He also received training in business management and innovation development under the European SME-Instrument program. He has a wide range of

experience in ecology, biodiversity and pollution assessment gained across various industry projects and scientific programs, especially focussing on the impact of maritime activities on marine wildlife in various European areas. Member of the expert group on underwater noise of three international wildlife conservation agreements – ACCOBAMS, ASCOBANS, and CMS – and of the EU-Task Group on Underwater Noise, Alessio contributes to the implementation of marine environmental policy through the dissemination and uptake of digital technologies.

Artificial intelligence, digitalisation and new technologies at the service of ocean protection.

[Q] SINAY has developed a long history of offering services and solutions in the field of sustainability, decarbonisation or environmental protection. Can you tell us more about the company and its business lines?

[A] Yes, absolutely. At SINAY, our conviction is that technology can be used to protect the ocean while supporting the growth of maritime industries. We're a French tech company that combines marine science and data science to create solutions that help ports, shipping companies, and offshore developers reduce their environmental impact.

We've developed a range of products and digital tools that cover several areas. For instance, we provide real-time monitoring of underwater noise to protect marine mammals, calculate and forecast emissions from vessels, track air and water quality in port areas, and deliver metocean analytics to support offshore operations. At the core of all these services is our ambition to enable smarter, more sustainable decisions in maritime contexts.

[Q] Ports are essential allies for the development and growth of the Blue Economy, as they constitute the physical interface where all industries and sectors related to the oceans, seas and coasts converge. Based on your understanding and experience, what are the priority challenges of the sector in terms of the loss of biodiversity, the loss of environmental quality in port waters or the compatibility of port activity and the marine ecosystem?

[A] Ports are really at the frontline when it comes to balancing economic activity with environmental responsibility and hence they can act as "enablers" of sustainability. There are righteous examples where Ports are offering detaxation for vessels that demonstrate lower underwater noise emissions. On the other hand, a key issue is the continuous growing of Port infrastructures and the consequent artificialisation of coastal habitats and ecosystems. What we're seeing is a growing awareness of these issues, but there's still a long way to go in terms of integrating sustainability at the strategic and operational levels.

[Q] In this sense, how would you describe the current state of digitalisation and technological

development aimed at the Blue Economy in ports, what would be the main measures and solutions to be implemented to improve environmental sustainability? What emerging trends do you consider key for the future?

[A] Digitalisation in ports has made significant progress, particularly in areas like operational optimisation—cargo tracking, berth management, and logistics. However, when we look at the environmental dimension of the Blue Economy, we're still at a relatively early stage. Yes, technologies such as IoT sensors, AI, and cloud-based platforms tailored for environmental monitoring are becoming increasingly available, and we're starting to see their potential. But their adoption within ports is often hindered by a lack of clear regulatory integration. In many cases, ports struggle to connect these emerging tools to specific compliance requirements, which can delay investment and deployment.

Moreover, while these digital solutions play a critical role in raising awareness of environmental impacts—helping ports better understand their ecological footprint—they are not, on their own, sufficient to drive sustainable change. True impact comes when this data is embedded within a structured decision-making framework—one that allows ports to avoid, reduce, or compensate for environmental impacts in response to what the monitoring reveals. In that regard, one of the most promising trends we see is predictive modelling. This technology doesn't just support regulatory compliance; it empowers ports to move toward a proactive approach—anticipating environmental risks before they occur and integrating mitigation strategies into day-to-day operations. That's where digitalisation can become a real enabler of sustainability, not just a support tool.

[Q] SINAY has established itself as an innovative company in the sector. How would you explain, in a simple way, the portfolio of products and services you offer and how do you add value to the maritime-port sector?

[A] What sets SINAY apart is that we bring together scientific expertise and advanced technology developed in-house. The company is articulated around 3 pillars: Biodiversity, Weather, Visibility. The first concern the monitoring and assessment of marine biodiversity, including through conventional and advanced technologies, and is aimed at providing our client data for sustainable projects: estimating the impacts and risks, alerting in case of non-compliance with regulation and similar. The second concern the support we give to the maritime sector by helping them integrating weather parameters in their operational planning, in order to reduce environmental but also operational and financial risk. The third pillar is focussed on ships and container tracking through a combination of satellite data and AI, to increase the visibility of industry about the overall status of their routes and shipments, which implies both streamlining port activities and better managing the ecological footprint of shipping.

The value we bring lies in helping our clients act with clarity and confidence. Whether it's a port authority trying to understand its impact on marine biodiversity or a shipping company aiming to decarbonize its routes, we provide them with real-time data, advanced analytics, and intelligent insights that support better decision-making.

[Q] With the digital transformation of ports, which is currently very focused on operational management and optimisation tools, how can these tools be complemented with environmental monitoring platforms? What benefits are derived from the potential synergies between them?

[A] That's a very important point. Traditionally, operational and environmental systems have existed in silos. But we believe the future lies in convergence. For example, if you know a vessel's ETA and you're also tracking real-time underwater noise levels, you can make decisions that minimize acoustic impacts on marine mammals. By linking these datasets, ports can move from reactive to proactive management.

They can optimize schedules, reduce emissions, avoid biodiversity hotspots—all in real time. The benefits are huge: operational efficiency, regulatory compliance, and improved environmental performance.

[Q] Artificial intelligence and advanced data analysis are revolutionizing all economic sectors, including the port sector. How are you incorporating these technologies to optimise processes and offer intelligent solutions in the port sector?

[A] AI is central for what we do in that we are both users and developers of AI. For instance, we develop machine learning to automatically detect marine mammals in long-term acoustic monitoring data with unprecedented accuracy. On the other hand, our engineers use generative AI to help them coding new algorithms, and I guess this example draws a good picture of the place AI has for companies like ours today.

[Q] Changing gears, talent management is crucial for the success of digital transformation and technological development. As an organization with a large technological base, what initiatives do companies have to undertake to be at the forefront of the sector?, what innovation processes should be incorporated internally to continue to offer a competitive advantage to customers?

[A] Talent is the backbone of any tech company, especially in a niche sector like ours. It's essential to build teams that are both diverse and interdisciplinary—marine biologists working alongside software developers, data scientists collaborating with UX designers.

Innovation also needs to be baked into your processes. That means being agile, willing to experiment, and open to external ideas.

We've set up internal R&D and we have also participated in European research projects, which are great for exploring new directions while staying grounded in practical applications.

[Q] The APBA has been working for many years with different start-ups and technology companies. This year, for example, you have collaborated with SINAY for the deployment of a digital tool for the active monitoring of underwater noise and cetacean populations. How do you assess this type of collaboration?

[A] The collaboration with APBA has been very positive because it's a great example of how ports can take the lead in environmental innovation. By deploying our model-based underwater acoustic monitoring system, APBA has shown that it's possible to integrate biodiversity considerations to meet environmental regulation in a proactive way. We were glad to start this collaboration as it allowed to validate our solutions in real-world conditions, while the port gained access to cutting-edge tools that enhance its environmental strategy. It also sets a precedent for other ports to follow.

[Q] The rise of the Blue Economy and digitalization are driving entrepreneurship in the maritime sector. What do start-ups need to thrive in this space? Are ports prepared to provide their support by offering environmental data, technological platforms or spaces for testing innovative solutions?

[A] Start-ups in the Blue Economy need access—to data, to testing environments, and to customers who are willing to take a chance on new ideas. Ports can play a huge role by acting as innovation hubs.

They can offer testing spaces, open data, and innovation procurement schemes that allow start-ups to run pilots without facing huge upfront barriers. Some ports are already doing this, but we need to see



more structured support across the ecosystem. If we want to foster real innovation, ports need to be both enablers and adopters.

[Q] Starting to finish, you have researchers and scientists in your work teams. In your opinion, how do you assess partnerships between technological companies and research centres or universities? What results do they bring and how could they be enhanced?

[A] They're absolutely vital. Our collaborations with universities and research institutes help ensure that our technologies are scientifically sound and state-of-the-art. They also keep us connected to emerging trends and methods, from AI to marine ecology, and finally it is a win-win approach because it allows research centres and universities to keep contact with the maritime sector and better understand the potential of their research in terms of market uptake.

[P] Finally, what is SINAY's future horizon? What strategies and objectives are you implementing to ensure its growth? How do you plan to adapt to the changes and challenges of the sector in the coming years?

[R] We're very focused on scaling our impact. That means growing internationally—particularly in Europe and North America—and continuing to expand our portfolio with new modules and features that respond to emerging needs in the maritime sector.

But more broadly, we want to help ports and maritime stakeholders transition from compliance to sustainability leadership. With the rise of the Blue Economy, we see a future where environmental data is as central to maritime decision-making as cost or logistics—and we want SINAY to be at the forefront of that transformation.





José María Terrés-Nícoli,
Co-Founder & CEO
of Oritia & Boreas.

>> **José María Terrés-Nícoli** is co-founder and CEO of Oritia & Boreas, a University of Granada spin-off that specialises in researching the effects of the wind on planetary systems. With more than 25 years’ dedication to this field, he has taken part in research world-wide, such as on: the Tsing Lung Bridge in Hong Kong, the Great Belt Bridge in Denmark and the Bay

of Cadiz Bridge in Spain; and also on emblematic buildings, such as: Torre Sevilla in Seville, and – more recently – the O Tower in Rabat – the highest in Africa. As a University of Granada Professor, he combines scientific discipline with practical application, integrating artificial intelligence and predictive modelling to improve operational safety and efficiency in critical environments, such as ports. He was the youngest Professor ever to be awarded the National Medal for Professional Merit by the Guild of Civil Engineers.

□ Innovation and Partnerships Drive the Future.

[Q] Could you explain briefly your career path and what you’ve done to get where you are today?

[A] My career has always been closely bound to the analysis of the wind as a physical phenomenon and how it interacts with structural, operational and environmental scenarios. After training to be a Civil Engineer in Granada, I specialised at Western University – a world-renowned pioneer– first with a Master’s Degree and then with a Ph.D. in this field.

In 2010, we set up Oritia & Boreas with the aim of making advances capabilities – like boundary-layer wind tunnel testing, CFD simulation and predictive modelling – a hands-on experience for sectors that needed to transform complex physical data into operational decisions.

[Q] Achievements are an important part of any career. Is there any particular one that you feel especially proud of?

[A] I’d say that one of my most relevant landmarks was the design and commissioning of the first domestic boundary-layer wind tunnel that was opened by the King and Queen of Spain. A top-level technical assessment team has been consolidated around the facility, from a very small, but highly-qualified company that has become world-famous. Specifically, the development of predictive tools for critical infrastructure – such as ports or power stations – that integrate physical modelling and artificial intelligence, has been especially significant. Our partnership with the Port of Algeciras Bay Authority is a good example, whose eventual aftermath was the Safeport Project.

[Q] We’d also like to get to know something about your company. How and when did Oritia & Boreas come into existence?

[A] Oritia & Boreas was born almost 15 years to the day as a spin-off that was supposed to fill the void between academic knowledge and its practical application in the field of wind engineering. From Granada – as an official technological partner of Western University in Canada – we have grown as a so-called “LACIAD” (Laboratory for Civil, Industrial, Environmental & Sports

Aerodynamics); a highly-specialised laboratory that has become an international benchmark and now houses the Extreme Wind Environment Simulator. Basically, we focus on helping people to design and manage safer, more efficient buildings and infrastructure that adapt to the climatic and urban world.

[Q] Your company focuses on the research, tech development and advanced assessment services of how wind affects structural systems. How would you explain your work in layman’s terms? What type of solutions do you create at Oritia & Boreas? Could you mention any relevant projects?

[A] Oritia & Boreas basically has two business halves. The first centres on studying the effects of wind on structures and the environment. This is where we study its impact on buildings, infrastructure and other types of elements by means of wind tunnel testing and simulations. In the other half, wind research focuses on the territory. We analyse winds in varying environments – such as ports or cities – at a very high-resolution to create climatic models.

Our RD&I department promotes innovation projects in the other two areas in a cross-sectional way, thus generating a unique and rewarding sense of know-how.

As for projects that are the most relevant to climatic models, I’d point out SAFEPORT, SAMOA, SAMOA 2, PROAS and – more recently – a project under the Life Programme that was highly innovative and studied improvements in PM10 and PM2.5 air pollution at dry bulk ports (Life PM-Free Ports).

[Q] It’s obvious that the market for renewable energy is important for you. What is your role in the market? Does your work go beyond wind-driven energy?

[A] Of course, the technology we use to study the effects of wind on systems is applicable to other fields such as renewable energy. Paradoxically, the field we find most work in is in the solar energy sector, whether photo-voltaic or solar thermal. In this regard, we help our customers to build reliable structures that are optimised to resist the actions of the wind, which has turned out to be one of business model drivers for these huge power plants. We also carry out field research into off-shore wind farms, on-shore micro sitting and the development of new tech for wind turbines.

[Q] At the moment, you’re developing a predictive tool for the Port of Algeciras Bay that focuses on ensuring the safety and efficiency of port operations with forecasts from the physical environment to help plan scheduled ship calls and operations. What are the main goals of the initiative? What benefits could it provide?

[A] The main aim is to deliver a predictive tool that can improve operational safety and efficiency in ports by integrating weather, oceanographic and logistics data. It implies pre-empting operational risks, optimising resources and expediting decision-making in dynamic scenarios. The project is one that reflects our philosophy very well: it combines advanced technology, emerging technologies and institutional partnership to create a real impact.

[Q] Focusing on tech, we understand that artificial intelligence has always been a basic tool for your solutions – it’s now on everybody’s lips and revolutionising key sectors like finance, health and education, to name but a few. What do you think of this revolution? How has the rise of augmented AI – and the rest of the new revolutionary models – affected you?

[A] We've been embedding AI modelling into our work – above all in predictive tasks, time series analysis and uncertainty management. Generative AI opens new doors, especially in visualisation, scenario development and the automated interpretation of complex outcomes. However, AI has to be integrated with strict technical criteria; in our case, it doesn't replace physical modelling: it complements it.

[Q] Do you think that companies and organisations could lose their competitive edge if they don't commit to these new disruptive technologies? What advice would you give them from your personal experience?

[A] I think it's more than just a technological risk – there's also a strategical one: losing your relevance. The incorporation of new tools – AI, digital twins, advanced simulators – are no longer merely optional, if what we want is to solve real problems swiftly and accurately. It's not just about adopting the latest tech trend; it's about the impact. My advice would not be to wait for the perfect system to arrive, but rather to start with specific use-cases that allow you to learn, and measure value and scale. In the port sector, we have just recently carried out an R+D project with Red.es to try and improve the very high-resolution forecasts that we deliver to port environments.

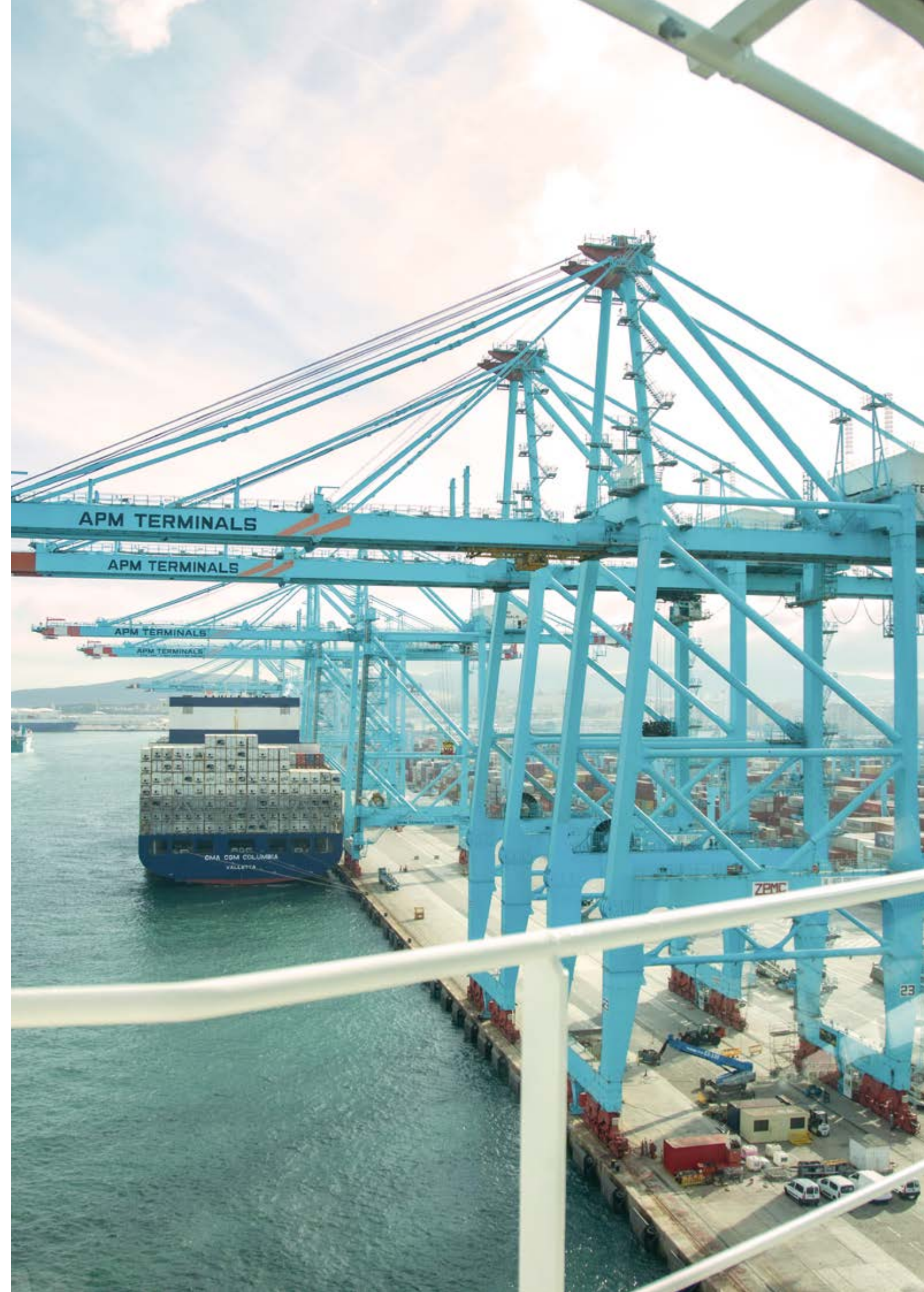
[Q] Let's take a moment to talk about the support that the Public Administration gives start-ups and other companies. You started off as a spin-off: do you think that institutions give enough back-up to start-ups? What could they do more to support ventures? How would you assess the support you got from our Port Authority?

[A] There has been tremendous progress, such as the Puertos 4.0 Programme, that have been fundamental for many start-ups. In our case, we especially appreciate

the sustained, strategic support of institutions like APBA, who has understood the importance of cultivating relationships of trust, backing pilot schemes and creating collaborative environments. There is still room for improvement regards data access, simplifying processes and accelerating decision-making, but at least the road has been laid out before us. I'd really like to stress that streamlining administrative processing times and documentation is a must; especially with all the activities that R+D entails, because R+D moves forward at breathtaking speed.

[Q] To finish up, what is the most important lesson you have learned throughout your career as an entrepreneur and businessman? What tips would you give to someone who is thinking about setting up their own company on a marketplace like the port-logistics one?

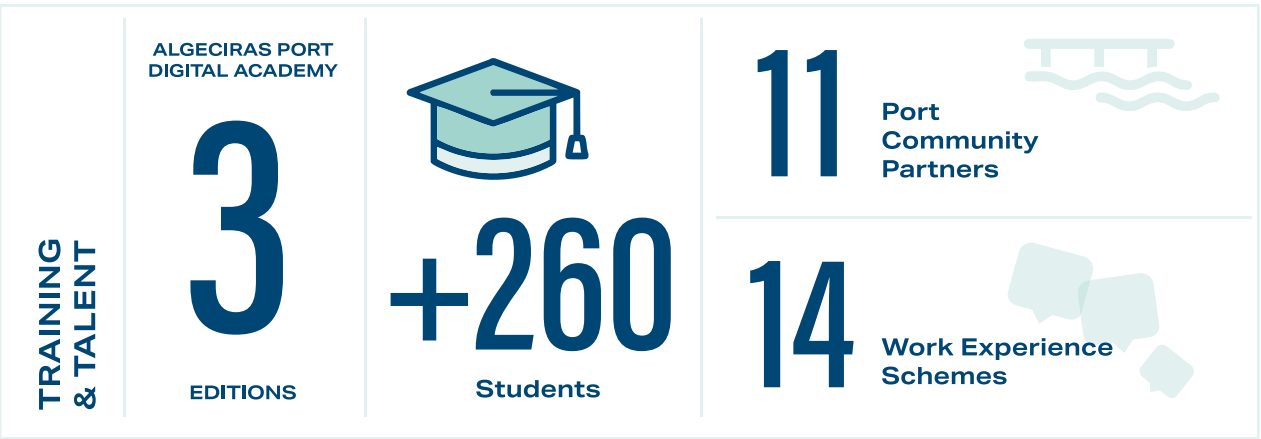
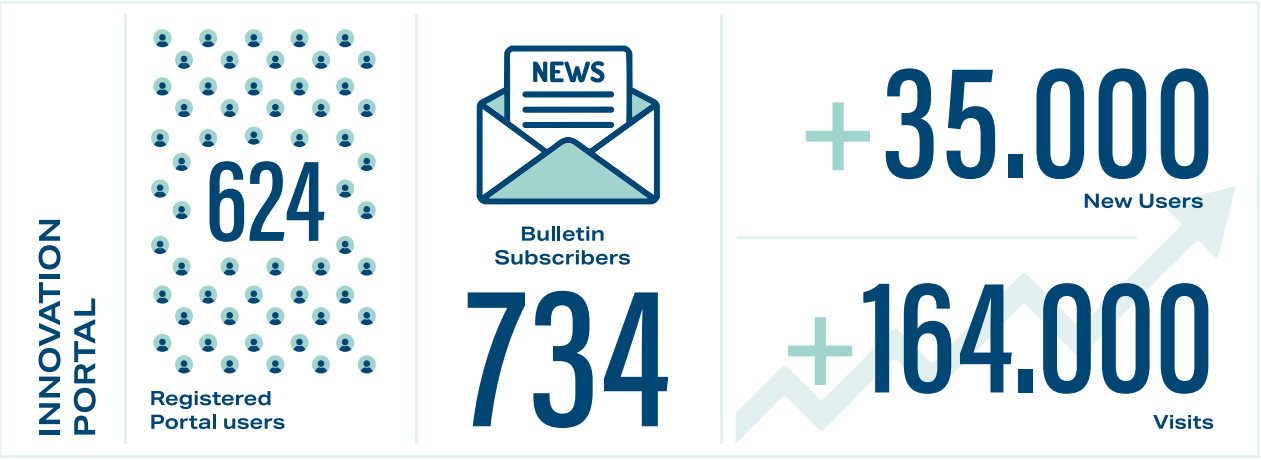
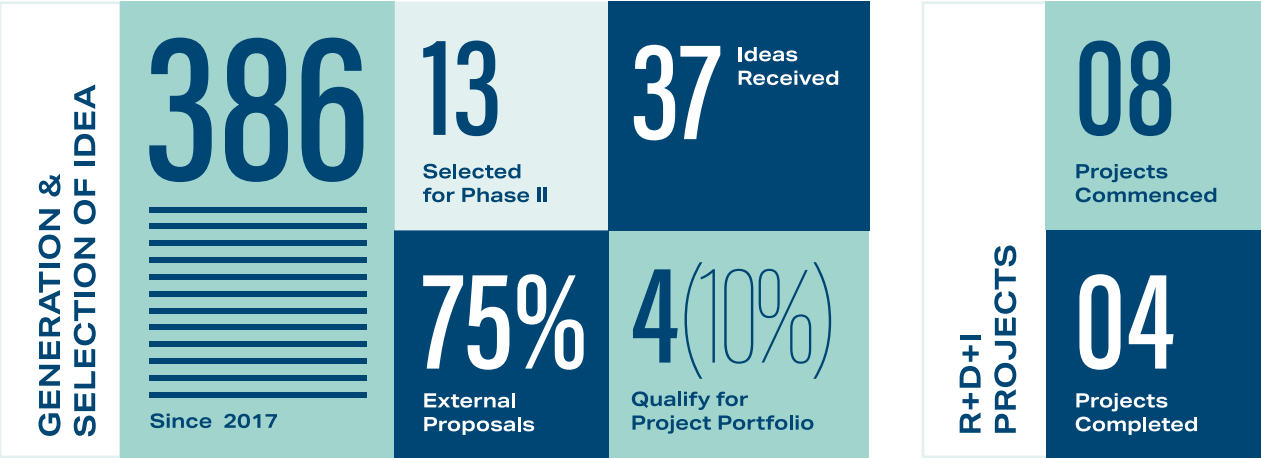
[A] It could be that long-term technical credibility and coherence are worth more than any shortcut. In a sector like the port sector, projects are complex, cycles are long and the impact is a real one. To whoever wants to venture out into this environment, I'd say: choose a problem that deserves to be solved, surround yourself with people who know more than you; and cultivate honest relationships with whoever surrounds you – be they customers, partners or the administration. And that is the difference...

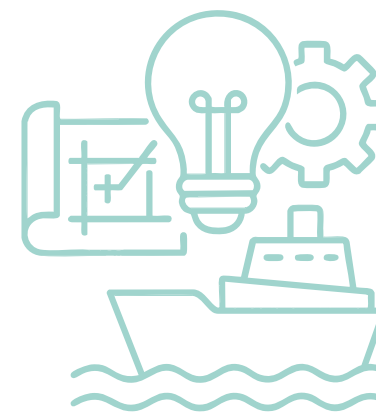




Figures & Milestones

04





RD&I Projects

05

📌 Digital Solution to Measure and Analyse Real-Time Maritime & Land Transportation Emissions.

Maritime transport makes up about **90% of all trade worldwide**, and **2.5% of the world's GHG** (Greenhouse Gas) Emissions: in Europe alone, it is estimated that transport represents a quarter of all GHG emissions.

It is on this scenario that ports play a significant role in making sure the **European Green Deal** directives is enforced, obliged as they are to reduce emissions from their own port activities by 50% in 2030, and by 90% in 2050 (relative to the emission levels registered in 1990). As a result, port authorities are expected to cooperate with this process and lead the way towards transition by encouraging sustainable land-maritime transportation and logistics and, at the same time, maintaining financial prosperity for their regions.

To tackle the emissions panorama, the Port of Algeciras Bay Authority set down an exclusive innovation focal point in our **2021-2025 Innovation Strategy**: "Climate Sustainability & Neutrality", with the strategic aim of decarbonising our port activities and thus mitigating pollutant gases such as GHGs and aerosols. This should: help reduce climate change and improve air quality; increase the quality of the environment where port activities are carried out along its urban borders; and preserve marine ecosystem and biodiversity, thereby

guaranteeing the compatibility of port business, among other improvements.

The first step towards to **decarbonisation** is in **identifying port-related emissions** from all the various **sources and port-logistics activities**. As ports chase the goal of climate neutrality, it is essential that GHG emissions and carbon footprints are measured accurately. This is the only way that we can gain a granular insight towards setting out base lines: **identifying opportunities for reduction, and monitoring the progress and success of policies and projects that are undertaken**.

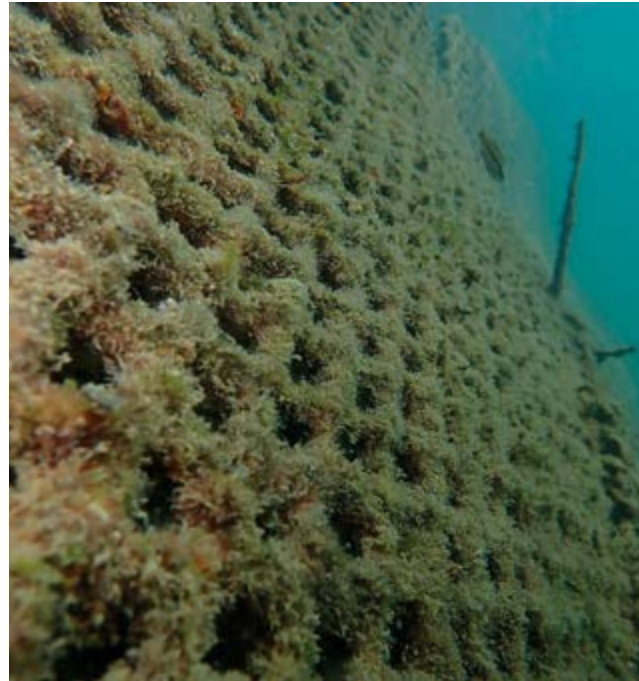


This is why APBA has decided to implement the so-called "**EmissionInsider**" solution, designed by the Dutch start-up **PortXchange**. Set up in Rotterdam, the start-up designs innovative digital solutions that help shipping companies and port communities all over the world learn how to be more efficient and reduce the carbon footprint of the industry.

The aim of the project focused on deploying an innovation tool that can **identify the source of emissions by modal split** in real time that backs up **APBA's Green Strategy** and can draw up a baseline inventory of emissions from our facilities. The tool is mainly based on the use of: ships' **AIS and tonnage**

data; the trade route's geolocation; the modality and covered distance of land transport. The product will compile the data in combination with **artificial intelligence** algorithms and modelling techniques to obtain **specific indicators** (heat maps, seasonal series, hot spots and detailed reports), and **comprehensive control panels** with self-service analytical capacity.

This **active digital monitoring tool** for fighting port-maritime pollution, focused on controlling GHG emissions, will allow us to use reliable data to be able to: prioritise decarbonisation initiatives and budget further investment in consequence; lead the transition towards a more ecological, sustainable port that encourages our Port Community to take measures; assess the effectiveness of green policies and sustainability projects, and monitor our progress towards a port with zero emissions.



Implementation of a Bio-Mimetic Micro-Reef System to Improve Marine Bio-Diversity.

Ports are essential allies for the **evolution and growth of the blue economy**. They make up the physical interface where all ocean, sea and coastal-related industries come together: both those founded on the marine environment (maritime transport, fishing, power generation), and those established on land (ports, shipyards, land-based fish-farming, seaweed production, seaside tourism). We could even include the newer sectors such as ROE (renewable ocean energy), the blue bio-economy, biotechnology, and desalination plants.

One of the more specific challenges that the Port of Algeciras is addressing is that of **conserving and protecting marine biodiversity**: not only as an invaluable prerequisite for businesses such as fishing, biotechnology and tourism to exist, but rather as a contribution to help mitigate climate change and combat it. Thus, the Port of Algeciras Bay Authority – aware of the numerous problems faced by the marine environment (fundamentally, those related to the loss of biodiversity) – has taken on the **challenge to identify and implement innovative solutions** that can: help encourage the sea's recovery; offset human activity by generating a net neutral effect, and clean up certain areas to **allow marine ecosystems and biodiversity to be preserved and guarantee the compatibility of port activities**.

Whenever APBA takes on a project that involves a disturbance or modification to port infrastructure, the Secretary of State for the Environment (highest government body reporting to the current Ministry for Ecological Transition & Demographic Challenge) demands the direct- and indirectly-affected marine habitats to be identified and assessed; it may also order the redress and restoration of those most relevant, in order to preserve the ecological wealth and biodiversity of the setting, if deemed appropriate.



In this context, APBA wants to drive the substitution of its grey infrastructure for **"green" infrastructure that could promote and enable life and biodiversity to thrive** in its surroundings, both **minimising its environmental footprint** and guaranteeing its functionality at the same time. Positioning such biodiversity-boosting elements does not only have a positive effect on local marine habitats, but they also improve water quality, act as GHG sinks, and allow us to estimate and compare the growth and evolution of benthic-zone habitats.



The project will be carried out by the innovation start-up, **Ocean Ecostructures**, a Spanish company that combines pioneering engineering and sustainability to offer disruptive solutions for the marine environment.

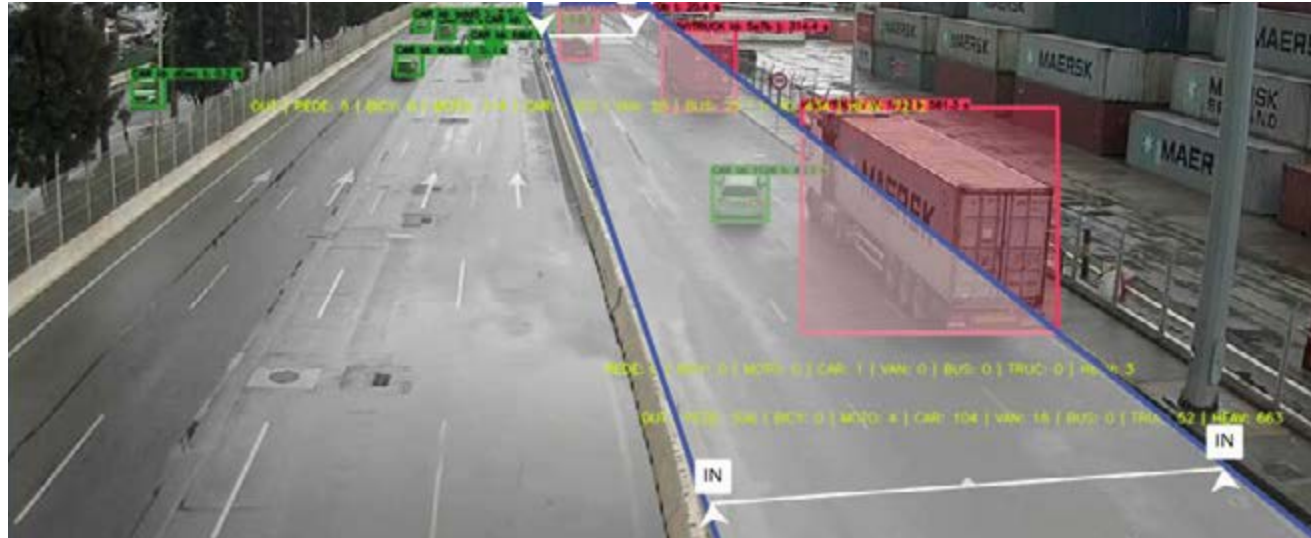
The **scope of the pilot** scheme involves manufacturing and installing biodiversity-boosting elements at Port of Algeciras facilities to imitate natural reefs and provide an ideal substrate that maximises the attachment of marine life and creates spaces for fish and crustaceans to shelter and breed. By monitoring and assessing the results of environmental improvements (in terms of biodiversity, biomass and

carbon fixing), we should also be able to track the presence of exotic and invasive species. Tracking will be done thanks to submarine drones, an artificial intelligence-driven data-processor, and the digital exploitation of information (iOceans hub, impact reports, and the Ocean Ecostructures application).

Pilot Scheme Focused on Using Artificial Vision Tools to Manage & Monitor Port Traffic.

Road traffic management in ports and at port terminals is a growing concern for international logistics and trade at the moment, especially due to the freight volume increases witnessed over the last few decades. As global trade has grown, some port infrastructure has had difficulty in catching up at the same speed, creating bottle-necks and traffic jams both at facilities' points of access and on internal roads.

At the same time, another problem has been the **lack of integration and synchronisation** among the supply chain players (haulage companies, port operators, and local and Customs authorities), all of which has exacerbated the predicament. The **increase in cargo transit times through port**



facilities may create heavy financial losses – both because of the direct cost of delays and the negative impact on operational logistics planning. All of this affects the quality of service on offer drastically, and causes unhappiness among users and customers.

Among the innovation challenges that the Port of Algeciras Bay Authority has set down features a project to **find pioneering tech solutions to improve traffic flow through our port premises**, especially in the areas most susceptible to traffic jams. This would help optimise the transit of passengers, port users and cargo at the Port of Algeciras overall.



As part of our response to this situation – and other open innovation challenges to be tackled – APBA took part in the European **AspBAN (Atlantic Smart Ports Blue Acceleration Network)**, Project: a project that helps identify innovative solutions on an international level, but ones that are not necessarily or specifically linked to the port-logistics sector. Among these, is a solution designed by **Isarsoft**, a German start-up that should be able to help foster competitiveness in the industry.

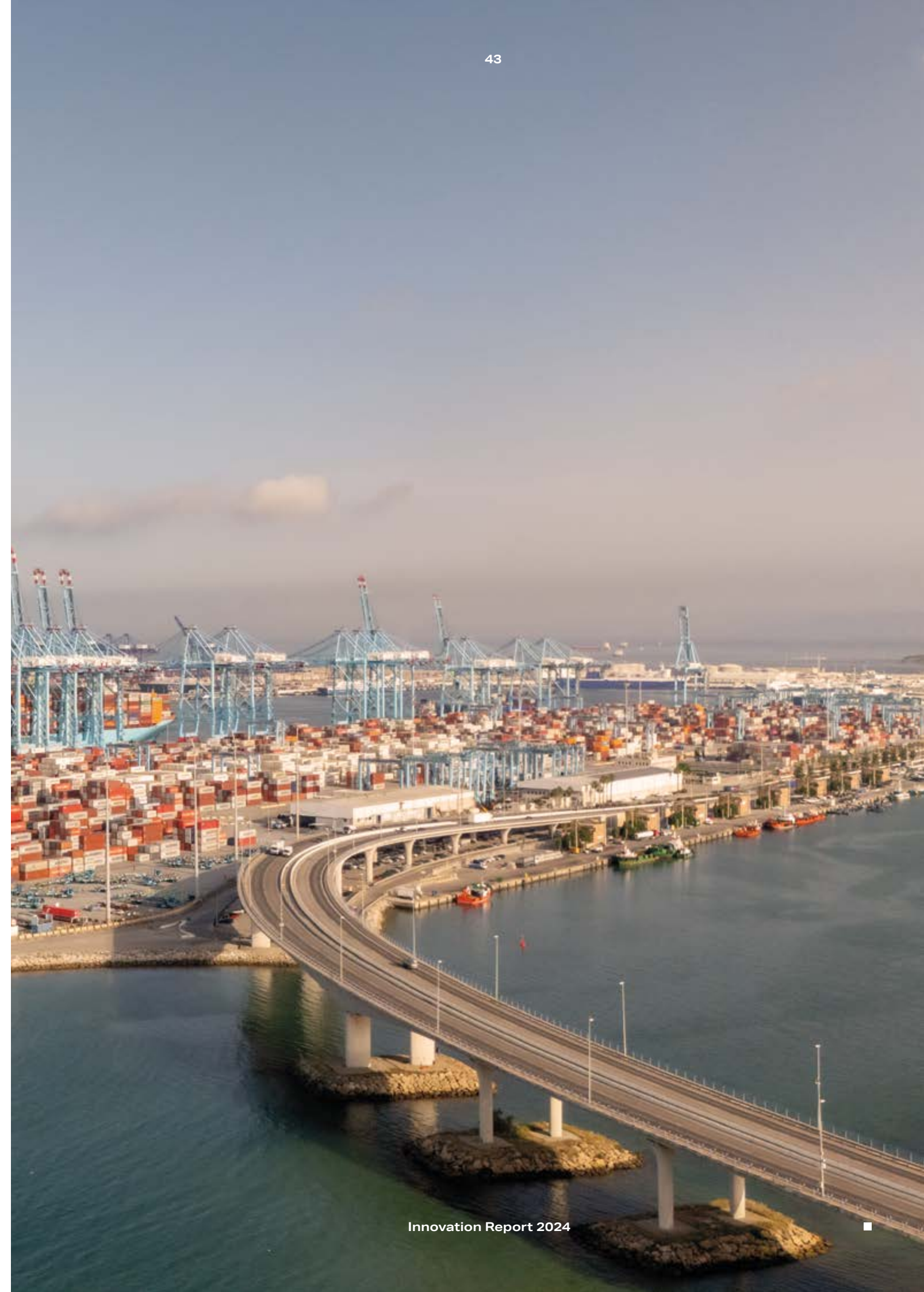


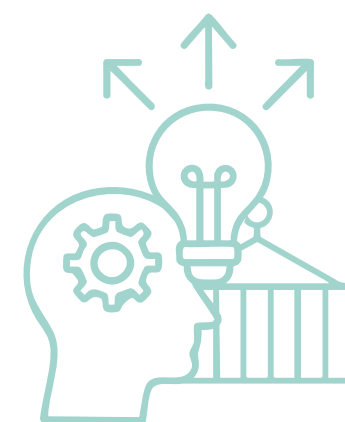
Established in 2019, Isarsoft has already deployed around 1,000 use-cases of its **artificial vision** tool that is based on **video recognition technology** and

artificial intelligence modelling. This innovative technology has enabled the company to develop functional features such as parking-space occupation, passenger flow assessment, queue management and footfall detection in airports, car-parks and other public transport terminals.

This is the reason that APBA has been working closely with Isarsoft on an innovative pilot scheme focused on **trialling the artificial vision tool at the Port of Algeciras facility**. In this respect, the project contemplates the development of various use-cases that tackle the operational needs of land and multimodal traffic environments.

Among the expected results are the following goals: (1) **apply AI to automatically detect events of interest** from the analysis of stills and videos from the APBA's in-house ICS (Image Capture System), without the need for specific devices that require external interaction (sensors, tags, beacons, etc.); (2) glean a **deeper understanding of road traffic** within Port of Algeciras facilities, to **minimise traffic congestion** and in order to **improve the quality of service on offer**; and (3) **assess KPIs** that will allow us to **provide quality information to transport companies** in the near future, and thereby facilitate decision-making on planning stays at our port, improving operational efficiency, and reducing heavy goods traffic-related emissions at the same time.





Initiatives

06

APBA and UCA Promote the II University Expert Course in Digital Transformation Applied to Port Logistics.

On the 12th February, the Port of Algeciras Bay Authority and the University of Cadiz held an event to celebrate the launch of the second **University Expert Course in Digital Transformation Applied to Port Logistics**. This post-graduate university qualification, sponsored and organised jointly by both institutions, shows the value of an excellent partnership between the port and academic organisations; their commitment to a dual training model that meets the port-logistics ecosystem businesses' needs for education and innovation reflects a vocation to connect with the socio-economic fabric of the Campo de Gibraltar region.

This second cycle of courses lends a continuity to the specialist academic curriculum, having witnessed the success story of last year. It strengthens the philosophy of the APBA-backed **Algeciras Port Digital Academy's** lines of work, where the course is held. The University Expert qualification seeks specifically to **enable non-technological university students and Port Community professionals in digital matters**, allowing them to reorient their careers towards the tech sector and/or lead the digital transformation of their companies as a part of the overall goal, which is to create, attract and hold on to local digital talent.



During the opening ceremony, Mr. **Gerardo Landaluze** – APBA Chairman – emphasised the significance of this partnership that permits value creation through knowledge and its subsequent application in maritime, port and business environment at the same time, Mr. Landaluze also noted the relevance of team-work in an inter-connected world, underlining that the joint venture with UCA provides a clear example of a collaborative task that strives to achieve a common goal.





Led by Professor Ignacio Turias and co-managed by Jesús Medina (Head of APBA's Technological Development Area), the Course has been organised jointly by [UCA](#) and APBA, and held for the first time inside its official headquarters: the UCA-SEA Centre for Innovation. The course also counts on the sponsorship of [Sopra Steria](#), the technological consultants.

Transformation in Ports (port sector digital transformation; innovation; enabling technologies; digital transformation and innovation strategy at the Port of Algeciras; and the digital ecosystem) and (3) **Process Management & Simulation** (project management; Agile Scrum development methodologies; fusion teams; an introduction into Locode/Nocode/Business Profile Modelling/Robotic Process Automation; and process simulation).

The course tutors include UCA professors and lecturers, APBA experts and professionals from port-logistics sector businesses, all of whom offer a practical-style educational focus to tools and solutions in the Port of Algeciras digital ecosystem, which is a world-renowned benchmark for digital transformation and innovation.



The course's curriculum is oriented towards **university graduates in any subject matter**, and undergraduates in their final academic year requiring 30 European Credit Transfer System credits or less, thereby promoting the involvement of various disciplines into port digitalisation.

Medina stated that this qualification guarantees a **direct alignment with the current needs and challenges faced by the port sector**, and that this cooperation between academic and port institutions reflects their firm commitment to leading and adapting the organisational route-map in the digital era by providing the essential tools and knowledge if they are to evolve on such a dynamic scenario.

The content of the course is divided into **three major subjects**: (1) **Port & Logistics Management** (general issues of the sector; port traffic players; cargo throughput; governance; proficiency and competitiveness; port and intermodal infrastructure; and rail management), (2) **Innovation & Digital**



Algeciras Port Digital Academy Strengthens Partnerships with Occupational Training Centres, Increasing its Educational Scope and Impact on the Port Ecosystem.

On a scenario defined by tech acceleration, smart automation and a growing inter-dependence between the productive sectors and digital capabilities, organisations face the challenge of transforming their operational paradigms if they are to continue to be competitive.

This does not only demand robust digital infrastructure, but also a **local ecosystem** that is able to **generate, attract and hold on to qualified talent**. Nevertheless, as the gap between the demand for tech profiles and the educational supply continues to grow, it has turned the **lack of digital talent into** one of the main obstacles that holds back regions' sustainable and innovative development.

Well aware of this reality, the Port of Algeciras Bay Authority determined that talent management would be one of its fundamental priorities under its **2021-2025 Innovation Strategy**. It was within this framework in 2022 that the first seeds of what would be today's **APDA (Algeciras Port Digital Academy)** were sown – a programme geared towards creating and holding on to regional digital talent, directly linking up education with the business fabric of the port-logistics ecosystem and including a line of business to partner Occupational Training Centres, among others.

The 2022-2023 pilot scheme – in collaboration with El Saladillo High School in Algeciras – was a tipping point, such that its highly-positive outcome encouraged the second scheme to be put in motion, during the 2023-2024 school year. The second programme involved a **new group of students** thanks to Kursaal High School's inclusion; the supply of companies where students can gain work experience to complement their education has also been expanded to include **APM Terminals Algeciras and Sopra Steria**, all of which demonstrates the attractive prospects for the initiative within the Campo de Gibraltar region.



Participating students have had the chance to deep dive into the port's ecosystem through direct experience in the work place. Organised field-trips to key facilities, such as APBA's headquarters, TTI Algeciras' semi-automatic container terminal and APM Terminals' container terminal – one of Maersk Group's global hubs – and a sea trip by boat around the Bay of Algeciras port facilities have allowed them to **get to know the complexity of the maritime-logistics business up close**.

These encounters have been enriched by direct contact with professionals from the sector, all of whom have shared their wealth of knowledge and experience, offering a practical, modern and dynamic outlook on processes and tech tools that make up the day-to-day life of our port. This closeness to the port has hopefully been a decisive factor in awakening a vocational desire, by contextualising the theoretical knowledge acquired in the classroom and helping these young people gain a foothold on the job market.

The second programme finalised with a ceremony held on the 13th January 2025 at the Millan Picazo Auditorium, where more than a hundred students,



teachers and participant company representatives were gathered. The congress demonstrated the value of this **public-private partnership's impact**, gradually **forging a solid base for the present and future competitiveness of the Port of Algeciras Bay** thanks to the high added-value it generates in terms of the **connection between young talent and the real needs of the port-logistic sector**. The accumulated results over both editions of the programme, with a total of **14 students doing job experience** at companies in the sector and **three young professionals being taken on as staff** proves the transformational potential of this line of work.

The ceremony also served as a prize-giving event, with the so-called **"Algeciras Tech Talent"** award being given to the best End-of-Degree Project, which fell to Alejandro Aguilar (from El Saladillo High School, for his "Tasty Dash" Project), and **Jeremy Agsaway** (from

Kursaal High School, for his "Transit System Module" Project). These acknowledgements also symbolise APDA's commitment to academic excellence and applied innovation.

The event concluded as a starting-point for the **third edition of the initiative**, which was presented with yet further expansions to the business side of the offer and valuable opportunities for partnership. In the new programme, the **Balearia, Babel, Getronics and OnNetCenter** companies will be incorporated into the scheme, which empowers APDA as a **prime-moving hub** that can connect talent, technology and business. The ever-increasing number of players in the port ecosystem only confirms the **strategic value** of this initiative, which is starting to position itself **as a benchmark agency in managing digital talent in the field of port-logistics**.



📶 The Port of Algeciras Begins Operations as a Vodafone 5G Training Centre.

Last April, **Occupational Professional Training on digital specialties in 5G reception environments** began at the Port of Algeciras Passenger Terminal facilities.

The project is led by the Andalusian Government through its Department for Employment, Self - Employment & Business and – with a **€4.8 - million budget** – is partnered by Vodafone and Integra Conocimiento & Innovacion, the successful bidders of the tender to manage the programme.

The main objective of the project is to **train and qualify Andalusian professionals in new technological expertise**, so that they are able to increase their employability in the face of Digital Transformation processes that are ongoing in companies at present.

APBA is collaborating directly in this ambitious programme, as the port of Algeciras itself has been designated the **5G Training Centre for the province of Cadiz**, along with other cities in Andalusian provinces like Seville, Malaga, Jaen (Villacarrillo) and Huelva.

In this fashion, one of APBA's management of talent programme lines – the initiative known as **Algeciras Port Digital Academy** – is being pursued, to facilitate our regional **population with training in specific matters**

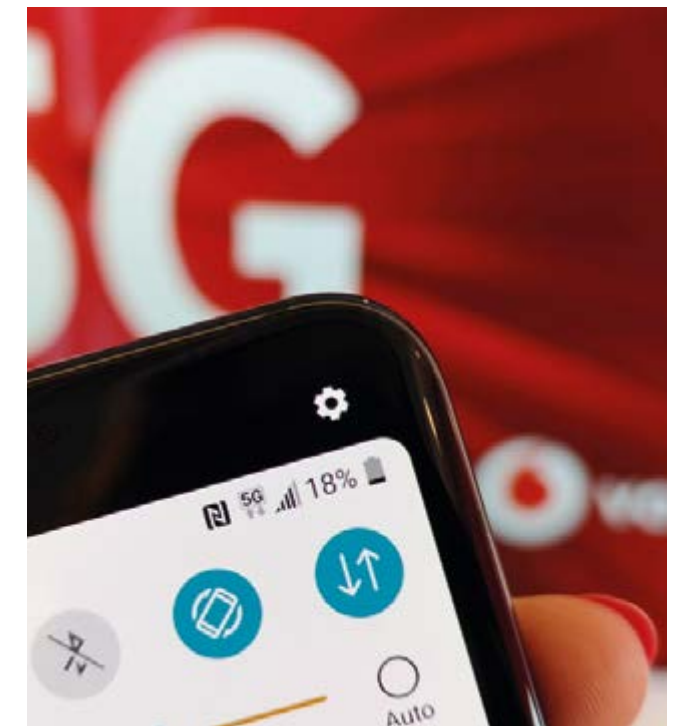
related to technology, as is the case of 5G technology – currently one of the most demanded skills.

This is the reason that APBA has refurbished a specific classroom and fitted it out with 5G technology – validated by the Department for Employment – at facilities in its Passenger Terminal to carry out training sessions and give a boost to the programme.

The project has 72 training courses to be developed over a 2-year period and should educate over 2,000 Andalusians to become professionally qualified in 5G technology. Specifically in Algeciras, nine **150-hour training courses** are scheduled to be taught to a **total of 405 participants**.

The training courses will centre around **three specific 5G environment disciplines**: (1) IoT (the Internet of Things) and Smart Cities; (2) Artificial Intelligence and Big Data; and (3) Virtual and Augmented Reality.

The courses will be taught in hybrid form (80% on-line and 20% classroom-based) and are free. At the end of the curriculum, Andalusian Government-sponsored diplomas will be awarded to students with pass-grades.

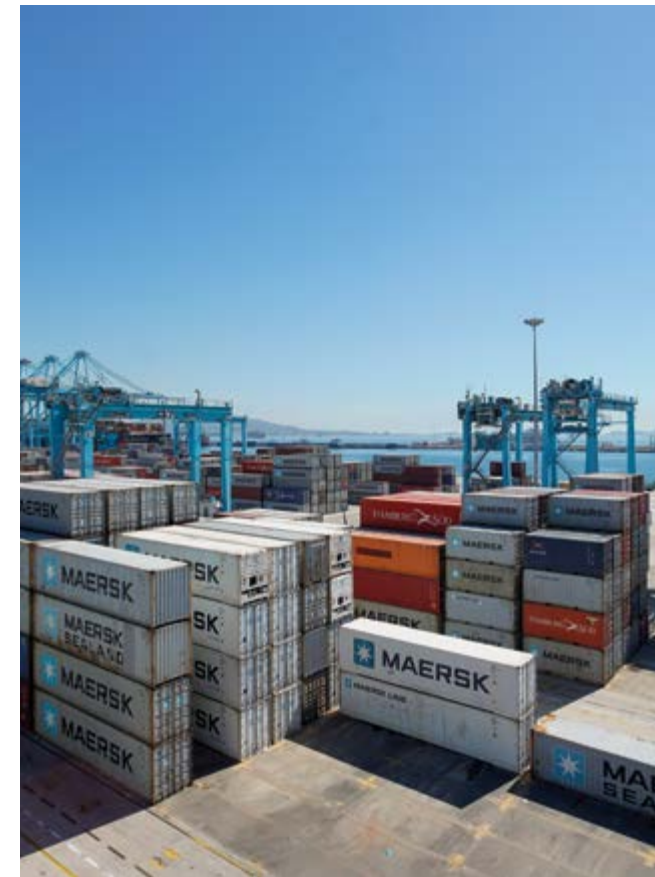


The Port of Algeciras Bay Authority – Strategic Partner of the European D2XCEL Project on Scaling European Port-Logistics Deep-Tech Start-Ups.



The **D2XCEL** Project has been chosen by the European Commission to start up a **collaborative pan-European scaling programme**, that brings together a top-tier industry network of 300-plus investors, public and private lead customers, and innovation hubs to support **100 portfolio deep tech and digital ventures** from a scouting process.

Through tailor-made mentoring, focus sessions and a combination of virtual and face-to-face events, start-ups will be able to access a dynamic network that will foster their growth and impact throughout Europe by **driving the adoption of technology in port-logistics ecosystems** and other sectors.



With a **three-year term**, D2XCEL will bring together 15 partners from countries such as France, Italy, Spain and Belgium. Among the strategic partners of the project – apart from the **Port of Algeciras Bay Authority** – there are innovation hubs such as TheDock and TheBeacon; port-logistics organisations like MSC, Yilport Holding, the Port of Haropa, TIC4.0 and Smart Freight Center; and high-impact organisations like Shell Ventures, Procter & Gamble and Marininnovators. Altogether, the project is being led by 14 partners, featuring TechTour, Miles Ahead, Maritime Street, ZAZ Ventures and BRYCK.

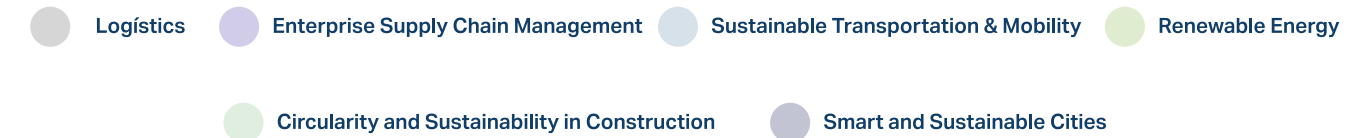
D2XCEL has been designed to tackle key challenges in several different industries through specialised work groups who foster digitalisation, sustainability and the use of high technologies in strategic fields. Its first open call has already launched five task groups, focusing on: Logistics; Sustainable Freight Transportation; Large-Scale Stationary Energy Storage; Sustainable & Circular Construction; and AI-Powered Digital Services for Sustainable & Smart Cities.

APBA has taken part in the **Logistics** and **Sustainable Freight Transportation** task groups. In the Logistics group, the aim is to **optimise the global supply chain** through digital technology, tackling issues such as transportation, warehouse management and last-mile delivery with solutions that increase efficiency and competitiveness. On another front, the **Sustainable Freight Transportation** group will promote high-tech digital innovation to ease transition towards the sustainable transportation of freight, including: solutions for transportation; hydrogen storage and refuelling; heavy cargo infrastructure; sustainable ports and airports; renewable energy in ports and port vehicles; and multi-modal optimisation to reduce greenhouse gas emissions.

The team will also lead the development of an interconnected network for the 60 expert investors, 60 lead customers and stakeholders, 40 partners and 40 independent mentors. As a prominent, active and balanced team of stakeholders, the team is to work collectively throughout the programme to open market

Open Call 1

Open Call 2



opportunities for businesses, share complementary expertise, global knowledge and renowned experience, while – at the same time – maintaining strong connections from inside and outside the network.

As a part of the project, at least **25 pilot schemes** will be fostered in key economic fields to attract **€8 million in private investment** and create opportunities for growth and efficiency in an ecosystem that contributes significantly to the European economy.

ePlcenter (Enhanced Physical Internet-Compatible Earth-frieNdly freight Transportation ansWER).

APBA has taken part in the **ePlcenter Project**, centred around enabling uninterrupted freight transportation, and focused especially on technological and operational opportunities that the Physical Internet, synchromodal operations and other disruptive technologies – such as Hyperloop, Industry 4.0 and AVs (autonomous vehicles) – can offer.

The project, funded by the **European Horizon 2020 Framework Programme**, has had an execution deadline of 42 months and has focused on developing innovative systems that could have a tangible effect on creating more efficient and sustainable logistics chains.

The project has seen a series of large-scale demonstrations take place on the main shipping lanes between Europe and Canada and the USA, as well as on newer trade routes – such as the North-Eastern Passage and the Silk Road – to try out new ideas that have arisen from the programme's framework.

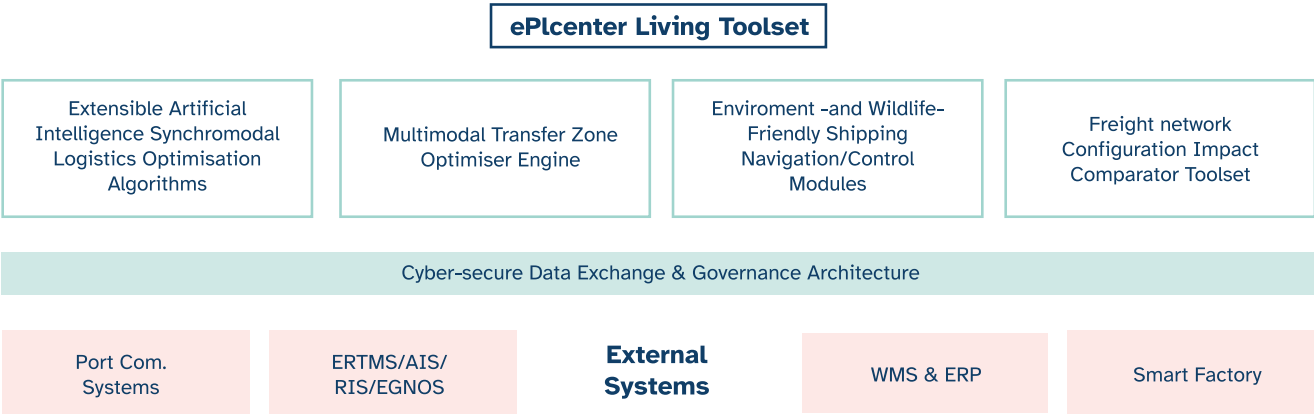
The overall concept involved setting up a live and inter-operable software toolset, with services and methodologies that could be deployed swiftly and used by a wide range of stakeholders in both the public sector and the industry to tackle numerous challenges and matters related to multi-modal freight transportation systems and logistics operations. The toolset should be able to react nimbly to volatile changes to markets, to the political scenario and to great climatic events that affect traditional freight transportation.



Within the project itself, a wide spectrum of solutions has been delivered and validated with a view to meeting the **MG-2-9-2019**, open call. Among its use-cases, it includes the following examples:

- Application of emerging technologies and logistics concepts (such as AI, Blockchain, synchromodality and the Physical Internet) to main international and inter-European shipping routes, to try to understand the repercussions and possible benefits vis-a-vis improvements to infrastructure use and capacity.
- Use of advanced algorithms and innovative research methodology to gain more understanding of the impact of the new Arctic Route and Silk Road shipping routes; tackling environmental and socio-economic factors, as well as the effects on cargo flow and the resulting interface/node capacities required to link up EU and world networks.
- Optimisation of multi-modal transfer zone operations, especially in the light of innovative concepts such as modularisation, new cargo-flow strategies and new transportation and handling methods (e.g., Hyperloop, and robot cars) to progress towards seamless door-to-door operations in an Industry 4.0 world.

Finally, we have intended that this “live toolset” – i.e., ePlcenter – should not only be a static set of applications and utensils, but rather deliver a framework that allows it to grow organically beyond the project’s deadline. For instance, as new data sources – or new research methods, new types of algorithms – are developed, it will be plausible to add them to the ePlcenter family with ease. In this sense, the project’s lifespan has established the governance, operational plan and rules appropriate for the process to be driven forwards even on completion. This assures us that ePlcenter Will continue to provide answers to the new questions and challenges that may arise in the future.



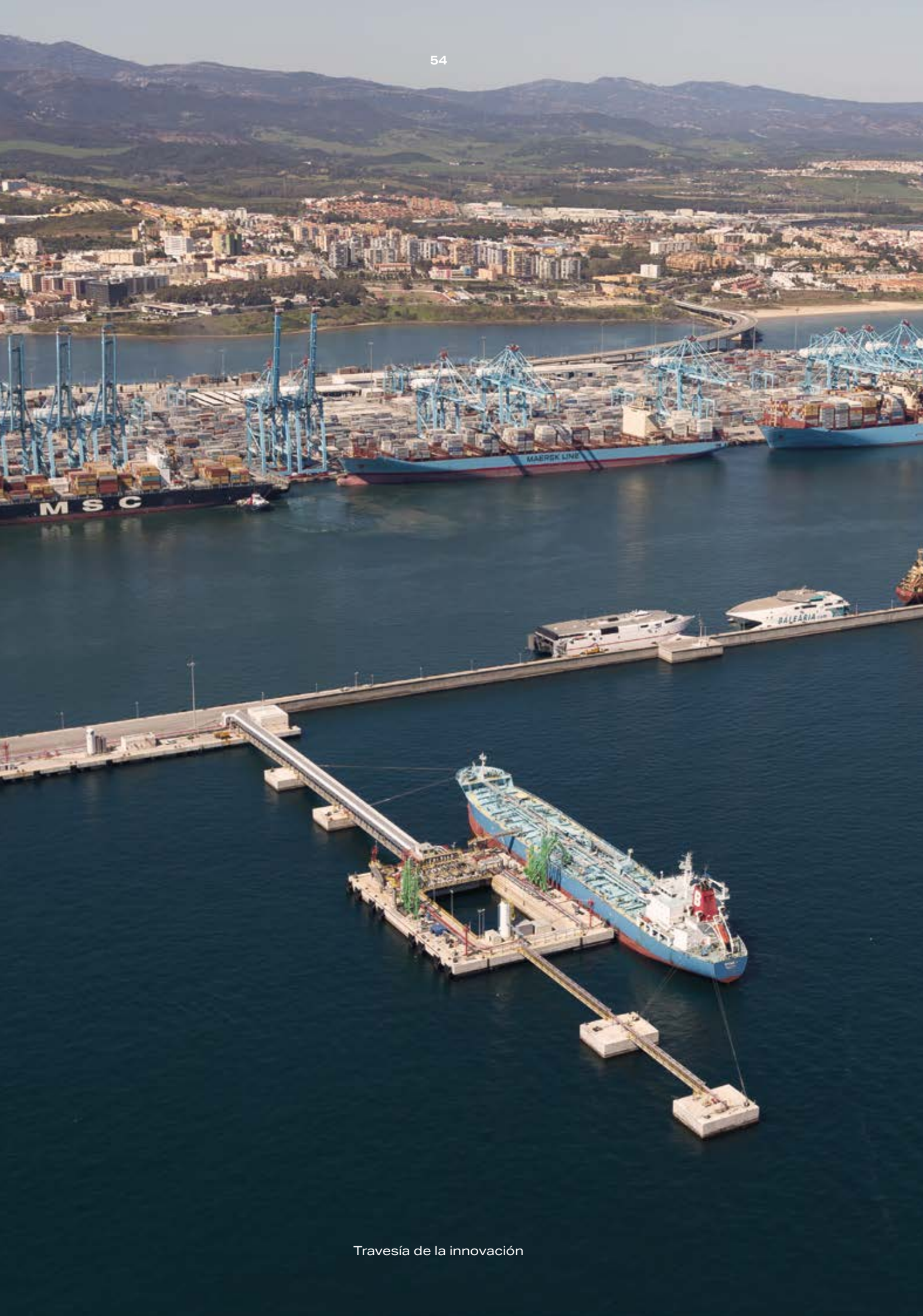
APBA has participated in N° 2 (Global Visibility Technologies & Governance) and N° 4 (Demonstrators, Showcase & Lessons Learned) Work Packages. Moreover, APBA has lent its support to the cross-sectional communication and broadcasting of the project, making good use of our experience in managing in-house initiatives such as the Algeciras BrainPort 2020 or Travesía de la innovación Projects. For each of the WPs, the scope of work has been as follows:

- **T2.3 Exploiting the Potential of Modularisation, Digitalisation and AI.** This task tackled the necessary research and design of the add-ons that should be applied to modular container “active” (RFID) tags (e.g. to Connectainers – a 40’ box that can be separated and converted into two 20’ boxes in transit), by using Distributed Ledger Technologies such as Blockchain. The possible impact of such modular containers was analysed in the concept of the Physical Internet, as was research into

the acceptance of these technologies on behalf of the authorities. One crucial matter that was also tackled was streamlining of planning (working to agreed schedules, having a team available according to fixed schedules, etc.).

- **T4.3 ePI Node Demonstrator – the DGG (Differentiable Graph Generator) “Node of the Future”.** This task was based on new transportation technologies and the optimisation of multimodal transfer zones, to test simulated capacities, optimise the ePlcentre toolset and generate new knowledge about the impact of these innovations on logistics networks. On the one hand, a T-POD (the first self-driving HGV in the world) pilot test was created that employed Continental’s operations as a test bed; and on the other hand, a Hyperloop technology P-o-C was undertaken, by employing the Volkswagen Group as a test bed. This involved lab simulators to identify optimal speeds, capsule sizes, acceleration and braking power, among other parameters.





Innovation awards

07

APBA Hands out Awards to the Best Employee and Tech Company Ideas at the IV Travesía de la innovación ideas Competition.



The Port of Algeciras Bay Authority handed out awards at the [IV Travesía de la innovación Competition](#), ceremony held at APBA's headquarters, presided over by our Chairman, Mr. Gerardo Landaluze.

The scope of this year's ideas – or innovation proposals – had to be related to the field of port-logistics and maritime activities at the Port of Algeciras Bay, and be aligned with one of the focal points and goals underpinned in our current **Innovation Strategy**: (1) Competitiveness & Logistics Orchestration; (2) Sustainability & Climate Neutrality; and (3) Innovation & Talent.

Just as in previous editions, the competition categories were: "Best In-House Idea", "Best External Idea" and "Most-Voted Idea", and tried to encourage anyone and everyone – not only employees and direct partners – in the Port Community innovation ecosystem (companies, undergraduates, entrepreneurs, start-ups and individuals) to join the initiative with an innovative proposal that could meet one of the predefined challenges, to **improve the Port of Algeciras Bay's**

competitiveness, and create value for customers and users. During the **six months** that the Competition was open to ideas, we received a total of **18 ideas from 13 different proponents and 7 partner companies and/or start-ups.** Five were group proposals, and 17 qualified through all the assessment phases, a process that was based on stage-gate management methodology and where – among other features – the strategical refinement of the ideas, their expected impact on a socio-economic level, the technical viability of their solution and the degree of innovation were all assessed. On final analysis of the Tribunal, **6 finalist ideas** were chosen.

- **Smart Roundabouts (José Carlos Lobato, APBA)**, proposing the implementation of smart roundabouts with road marking as seen on turbo-roundabouts, and counting on a back-up system to manage mobility based on artificial vision and AI.





- **eXCelente (Juan Antonio Herrera, APBA)**, based on the inclusion of improvements to the Algeciras Port Digital Academy, offering the top students substantial benefits and backing during their introduction onto the labour market, so that the Port Community can benefit from their talent.

- **Passenger Traffic Flow Optimisation & Efficiency (Carlos A. Sánchez & María Roman, APBA)**, an idea directed towards developing a smart management system for flows that arise from passenger traffic (Ro-Pax) operations at the Port of Algeciras.

- **PaaSPort Open Data Platform (Ficodes)**, its aim is to obtain an API-based data hub oriented towards sharing secure port-logistics data among stakeholders within the Port Community and Innovation Community to create new services/business models.

- **Green Port Emissions Traceability (Sopra Steria)**, this idea focuses on developing an innovative digital tool that can help APBA tackle environmental challenges caused by port activities. This solution would take advantage of an amalgam of readily available key data sources – including air quality stations, weather stations, AIS tracking and PMS (the Port Management System), among others – to offer up a holistic view of the presence and behaviour of ships at the port.

- **Sea Hyper-SmartEye (SeHySE) (Universidad de Cádiz)**, this idea proposes creating an automatic smart monitoring system of waters, to detect minor scale spills in real time, by combining hyperspectral imagery, machine learning and deep learning.

After the presentation of the finalist ideas by their proponents, the end of the ceremony was dedicated to prize-giving and getting to know more about the winners themselves.

The award for the **best in-house** idea – put forward by and APBA employee – went to María Roman and Carlos Alberto Sánchez's *"Passenger Traffic Flow Optimisation & Efficiency"*. The next award – for the **overall best idea** proposed by a non-APBA innovator – went to the Sopra Steria company's *"Green Port Emissions Traceability"*. Finally, the most popular idea – thanks to APBA's idea portal voting system – went to the Ficodes company's *"PaaSPort Open Data Platform"*.



The prize-giving ceremony was led by one of the most famous personal development gurus of the moment, Mr. **Juan Luis Muñoz Escassi**, who also gave a conference entitled *"Attitude: A Log-Book for Change"*.



The Port of Algeciras – Main Feature at Suncruise Andalusia Association's III Open Innovation Challenge Prize.

The *Suncruise Andalusia* Association officially launched its III Edition of the **Suncruise Open Innovation Challenge Prize** during the second half of the year. Geared towards established start-ups, tech companies and research teams, the competition's aim is to find innovative technological solutions to help **tackle innovation challenges** to digitally transform Andalusia's nautical and cruise industry.

This particular initiative is a joint venture between the Andalusian Government's Tourism Department and the Andalusian state-sponsored company for Tourism & Sports Management, with the Espacio RES start-up accelerator as a key facilitator. Their common goal is to create a unifying open innovation ecosystem, where businesses, universities and institutions can drive growth and sustainable development forwards in the industry.

The latest edition was focused on two specific challenges put forward by APBA and APH (the Port of Huelva Authority): firstly, the challenge proposed by the former port authority, entitled *"Improvements to Disabled and Reduced-Mobility Passengers' Experience at the Ports of Algeciras and Tarifa"*, which involved creating a technological tool to aid

accessibility to such passengers. Specifically, the proposal set out to provide these passengers with useful information throughout their journey process – visibility of accessible itineraries, ease of reduced-mobility assistance requests, and a visualisation of all the data contained on APBA's ISP (Information System for Passengers).

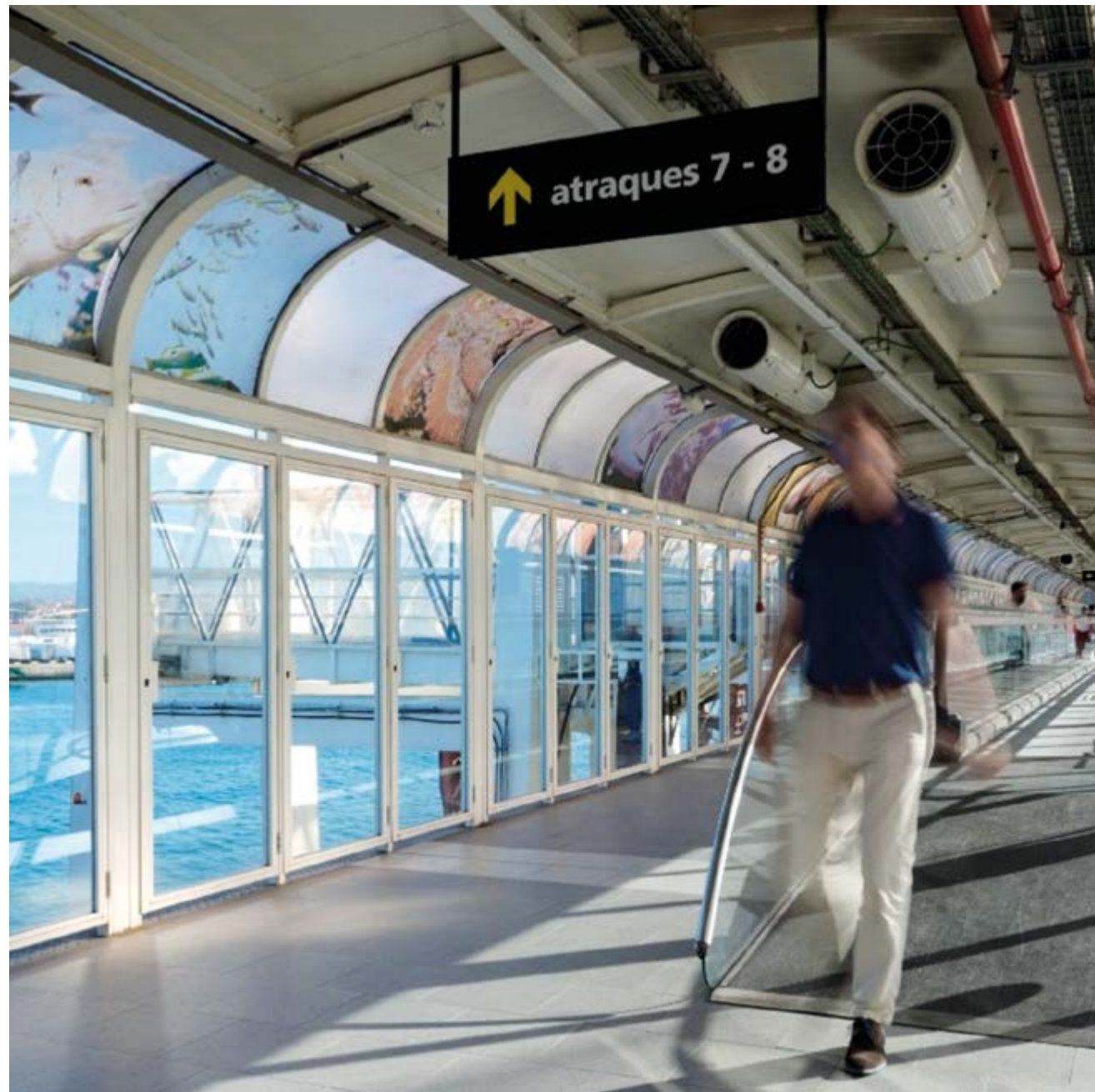
Secondly, the latter authority's challenge, entitled *"A Port for All: Development of Interactive Experiences for All Ages at the Port of Huelva"*, focused on creating an interactive experience to attract tourists of all ages, with a special feature for children. The challenge took its motivation from the need to overcome the lack of activities available for children that restricted their interaction with the port's urban surroundings, characterised as the Port of Huelva is by its industrial setting.





After the jury – made up of association members and partner organisations – received and analysed all the proposals, the prize-giving ceremony tagged onto the *“Innovation Challenges at Andalusian Ports” Forum*, also organised by **Suncruise Andalucía** and held at the Port of Huelva, with the two aforementioned proposals standing out clearly for their ability to solve the challenges laid out by the Port Authorities of Algeciras and Huelva.

For the first of the challenges, proposed by the **Port of Algeciras Bay Authority**, the winning proposal was the one put forward by **Optimiz3D Engineering**, who suggested the use of Augmented Reality techniques to develop an application that focused on improving special needs passengers’ experience at the port by guiding and offering information of interest as they passed through port facilities, thereby transforming these ports into more inclusive and participative environments.



On the other hand, the second challenge put forward by the **Port of Huelva Authority**, the winning initiative was awarded to **Mechanic Games**, who presented their technological solution based around gamification, which combined learning with fun for children, at the same time as it provided access to public information about the Port of Huelva’s tourist attractions.

With digital transformation and sustainability as their central pillars, the Open Innovation Challenge Prize endorses Suncruise Andalucía’s commitment to creating a unifying open innovation ecosystem that transcends regional borders, and involves national and international entrepreneurs in the search for real solutions to the sector’s challenges.



Conferences & Events

08

📍 The Port of Algeciras: Test Ground for the Autonomous Marine Drone Engineered by *BlackSand Marine Start-Up*.



On the 19th March, APBA attended the **PoC (Proof-of-Concept)** demonstration of the innovation project entitled “**E-3 – Advanced USVs & Autonomous Charging Hangars for 24/7/365 Limited Autonomy and Recurrent Operations**” designed by the **BlackSand Marine Technologies** start-up from the Canary Islands.

Specifically, the project addresses the development of a **USV (Unmanned Surface Vehicle) System** – or **advanced aquatic drone** – with an autonomous charging point, specifically designed to facilitate operations of interest in the control of spills, bathymetrics, weather, surveillance and control, and scheduled and preventive maintenance on port infrastructure.

The system’s proof-of-concept test, which will allow vehicles to operate continuously throughout the port premises with almost unrestricted autonomy, and was backed by APBA in its role as facilitator and **Living Lab Port**. Thanks to its open innovation strategy, the Port Authority has tried to profit from the agility and

know-how that external agencies – such as start-ups, RD&I hubs and port-logistics businesses and Port Community companies – can deliver to strive to achieve improvements in competitiveness and service quality at the Port of Algeciras.

The scope of the proof-of-concept test, which took place on the Port of Algeciras South Breakwater, specifically involved: trialling the USV’s autonomous approximation manoeuvres towards the future





charging point; its extraction from the water with automatic jibs; and its consequent release.



Once the demonstration was finished, the collated test data will be analysed to validate the outcome and draw conclusions. This is only one part of a more comprehensive innovation project that is currently analysing innovation funding, such as the State Ports Department's **Puertos 4.0 Funds** which the project drew from thanks to APBA networking and support.

APBA Features at the ePlcenter European Project's Final Conference.



The final conference of the **ePlcenter Project** was held between the 22nd and 24th May, with the Port of Algeciras Bay Authority represented by its Technical Innovation Office. The event – organised at the **Emden-Leer University of Applied Sciences** (Germany) – gathered together all the project's partners to present their final results, exhibit various demonstrations in real surroundings and make a series of field trips to the **Institute of Hyperloop Technology**, facilities, the University's Maritime Technology Institute and Volkswagen's electrical mobility plant.

Led by the Port of Antwerp and funded by the **European Horizon 2020 Programme**, the project has been carried out over 48 months since June 2020, with the aim of developing innovative systems that can have a tangible impact on creating more efficient, resilient and sustainable logistics networks. To such effect, the last of the initiative's work packages – presented at the final conference – included three large-scale business case demonstrations, based on **disruptive technologies** such as **Hyperloop**, **Industry 4.0** and **self-driving vehicles**. All of the above was to test out new ideas and solutions so that their viability, sustainability and feasibility could be assessed to prove their worth as ePlcenter innovation tools.

The first demonstration – **"ePI-Link"** – tackled the integration of global networks and the Trans-European Transport Network (TEN-T) from physical, logistical and data layers to optimise multi-modal cargo flows along a network that spans Europe, North America and China. The results obtained from the deployment of a significant data exchange initiative, to enhance



visibility and allow synchromodal optimisation of the cargo flow, were particularly outstanding, paving the way towards the Physical Internet.

The next turn was for the **"ePI-Node"** demonstrator, who focused on validating the impact of **new technologies on optimising multi-modal transfer zones** at main hubs on the logistics network, and resulting impact this would have on the global supply chain. On this occasion, pilot testing of **T-POD – the world's first electric, self-driving HGV** – was presented, by using Continental's operations as a test-bed; and assessing the progress made in developing a **Hyperloop** technology P-o-C (Proof-of-Concept), this time with the Volkswagen Group's operations being employed as a test-bed.

Results gleaned from the design of RFID "active tag" add-ons were then demonstrated. The add-ons use Distributed Ledger Technologies such as Blockchain for **Connectainers** – 40' patented boxes that can be separated and converted into two 20' boxes in transit – thereby significantly improving the handling of empties.

At the same time, the work carried out has covered different sets of analysis data on the basis of simulated capacity and optimisation of ePlcenter tool-sets to analyse **the impact of introducing this type of**



container and the increase in intermodality on current TEN-T networks.



It is in just this type of analysis that APBA has had relevant input, alongside **Total Terminal International Algeciras (TTI-A)'s** semi-automatic container terminal and **ESES-Connectainer**, due to their experience in modularisation, digitalisation, and artificial intelligence.

The results have thrown up promising conclusions as to the application of this disruptive type of container: it favours reductions in operational time, costs and emissions – the outcome of decarbonising transportation.

The last demonstration – **"Artic"** – went over the findings collected from the use of **advanced algorithms and innovative research methodologies** in order to gain an understanding of the impact of forging new sea lanes in the Arctic and the Silk Road. The presentation covered environmental and socio-economic factors, demonstrating the improvements made in the safety and efficiency of maritime transportation fuels in the Arctic, through the use of AI for navigational purposes and advance propulsion systems that minimise ships' environmental footprint on such a delicate ecosystem.



Apart from the magnificent technical presentations by several members of the Consortium, and the organised field-trips, the conference provided a chance to make closer ties and explore future opportunities with ports, forwarders, shippers, research hubs, logistics operators and tech companies on an international level for all the participants. At the moment, the Consortium is preparing the project's final paperwork for the European Commission, which should be ready in June.



APBA Continues to Back Innovation & Ventures among Students and Graduates by Featuring at the University of Cadiz XVI *atrÉBT!* Competition.

One more year, the Port of Algeciras Bay Authority took part as a member of the jury to at the **XVI *atrÉBT!* Competition**, whose final prize-giving ceremony took place at the University of Cadiz Engineering School in Puerto Real on the 6th June.

Juan Antonio Herrera, – APBA's Head of Innovation and a participant throughout the assessment process – was present at the final event that included prominent authorities, such as Mr. Casimiro Mantell (Rector of the University of Cadiz); and key people from the business and government sectors, such as Mr. Javier Sánchez Rojas (Chairman of the Cadiz Business Confederation) and Ms. Blanca Flores (Spanish Government Delegate to Cadiz).

atrÉBT! is an initiative organised by the University of Cadiz Venture & Employability Sub-Rectorate, whose aim is to foster the entrepreneurial spirit among its undergraduate and recently-graduated students, offering them a platform where they can present innovation projects with market potential and social impact. **Fourteen prizes, split into two categories – Ideas and Projects** – were awarded from among the **121 proposals** submitted to the competition, which has established itself as a meeting point for young talent who want to take their ideas to the next level.

The event not only served as a celebration of the participants' achievements, but was also turned into an inspiring networking ground for the public. APBA has taken part in this invaluable initiative for several years now and – through our participation as a jury member – is **committed in supporting the academic and professional evolution of the region's students, and encouraging their creativity and entrepreneurial spirit.**





The Port of Algeciras Features at the First Ever 2024 Digital Enterprise Show.



The Port of Algeciras Bay Authority featured at the **VIII Digital Enterprise Show (DES)**, held at Malaga's Fairs & Congress Hall – as have the last three DES events – on the 11th June.

With over 17,000 visitors coming together at the show to talk about company competitiveness and the digital impact on business, the event gathered more than 400 of the world's top tech companies, and over 500 of the leading experts who shared their exploits of digitally transforming organisations.

Under this year's banner that read *"Feel the Exponential Intelligence"*, DES became the European epicentre of digital innovation over its three-day conference. Hundreds of world-leading businesses – mainly tech companies, start-ups, SMEs, entrepreneurs and public institutions – were able to network and explore the current impact of Digital Transformation & the Economy, and disruptive technologies such as artificial Intelligence, blockchain, the internet of things and Cybersecurity. As well as setting itself up as a B2B hub to create new opportunities for its

audience, the **Digital Business World Congress** event combines over 375 sessions across eight auditoriums under eight different agendas that include: *CEO & Leadership Summit, the CIO Summit, the Public Administration Digitalisation & Modernisation Forum, Tech Series, The Scale-UP! World Summit and the Industry Forums.*

APBA featured at the latter agenda, with a presentation entitled *"Exponential technologies in logistics: a success story"*, given by Jesús Medina – APBA Head of Technological Development – who explored how pioneering technologies are successfully redefining the port-logistics panorama.

Medina delved into **PortCDM (Port Collaborative Decision-Making)** during his speech, and into the concept and use of **Port Community digital tools** to improve efficiency and optimise the ship call process. He stated that standardisation of events and processes – their digitalisation and real-time predictive data exchange – are key for coordinating the players involved in ships' calls to port and – ultimately – to encourage **JIT (Just-in-Time)** calls. This would imply an optimisation that would reduce ships' dwell times and increase operational efficiency as well as fostering the industry's decarbonisation by reducing emissions.



APBA Holds Digital Ventures Briefing with Andalusian Government and WISeKey Partners.

On Wednesday, 4th September last, The Port of Algeciras Bay Authority's Conference Room hosted the *"Forthcoming Digital Venture Initiatives for the Campo de Gibraltar Region"* conference. The audience was fully briefed on key open innovation matters, such as the Port of Algeciras' **RETECH** Programme, the future evolution of the **Industry 4.0 Hub** in La Linea de la Concepcion and the **WISeSmartContainers Project**.

The conference was directed by **Juan Antonio Herrera** (Head of APBA's Innovation Department), with **José Luis Hormaechea** (our Port Authority General Manager); Mr. **Juan Franco** (Mayor of La Linea); Mr. **Álvaro Márquez** (Algeciras Councillor for Economic Development, Employment & Industry); and many delegates of the renowned Port Community companies from the Bay of Algeciras being present among the audience.

Jesús Medina, (Head of APBA's Technological Development Area) was charged with welcoming guests to the conference. In his opening speech, he reminded everyone that – despite it strictly being a session of the Port of Algeciras Bay's Innovation Committee – APBA wished to make the conference open to all the Port Community, due to the huge development potential for the region.



Addressing the audience, he stated that “...**digital innovation and transition** play a key role for the Port of Algeciras, where we are striving to create a **state-of-the-art local digital ecosystem** that is able to deliver the competitive edge that both concepts can provide.”



The initial part of the session was led by Mr. **Carlos Moreira** (Founder and CEO of WISeKey), who addressed the audience over a video call, as he was unable to attend the conference. He entitled his presentation “**Cybersecurity & Satellite Technology in the Port-Logistics Sector – Synergies with LLG4IR**” and underlined the importance of getting on board the **new wave of deregulation in the tech sector** as part of the Fourth Industrial Revolution.

According to him, “...there is a unique chance of revitalising the Campo de Gibraltar region and its port sector through **centres of excellence that deliver tech value**”. He also stressed the importance of digital skills training, the implementation of specific projects and the creation of ecosystems that can encourage ventures.



Posteriormente, **Ignacio Moldes**, Following this, Mr. **Ignacio Moldes** (CIO of AvantIoT) and Mr. **Carlos Moreno** (Deputy Chairman of WISeKey Alliances & Partnerships) took the floor to explain the progress of the “**WISeSmart Container**” disruptive project.

Both underlined the differential value of the scheme, as all the key elements – software, IoT, communications and cybersecurity – have been developed from a holistic point of view within the consortium itself. This type of focus has given rise to new partnership agreements, given the tremendous potential the solution poses, as was later unveiled during the conference: the Cadiz logistics group, *Bernardino Abad*, is set to fit out its container fleet with WISeSmartContainer IoT sensors. The company is also going to begin P-o-C trials with the *Transitos y Transportes Logísticos* company to test the technology in HGV cabs and trailers.



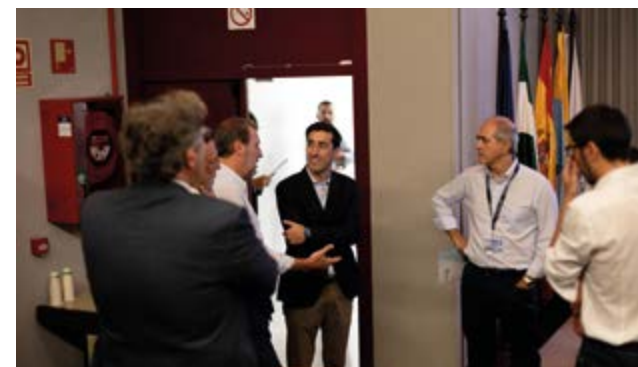
The conference drew to a close with the last presentation, entitled “**RETECH: Port-Logistics Node**”, in which Mr. **José Antonio González** (Technical Delegate of the Andalusian Digital Agency) and Ms. **María Nieto** (RETECH Project Manager at Sandetel) went over current news on the **digital venture hub** to be set up at the **Port of Algeciras**. Both speakers focused on the fact that “...this initiative has come together to **add capabilities and facilitate tech development** for specific projects”, thanks to the convergence of technology and talent



that the hub will provide, along with venture and open innovation services, cutting-edge equipment, and financial back-up for disruptive projects.

They also highlighted **APBA's fundamental role** as a local partner to attract businesses, SMEs and start-ups and boost solutions to tackle the sector's challenges.

And finally, it should be mentioned that representatives from the *Seville Global Radio Systems* – specialists in developing advanced communications systems and a partner recently associated with WISeKey – also took part in the conference.



□ The Port of Algeciras – Feature at Smart Digital Ports of the Future 2024.



The Port of Algeciras had the opportunity of taking part in the eighth edition of the **Smart Digital Ports of the Future** event, organised by **Port Technology International**, and held in the Dutch city of Rotterdam on the 24th and 25th September.



The event brought more than 100 people together and was supported by more than 45 speakers from the main European ports and leading port-maritime industry companies. Various panels had been arranged for maritime transport, ports and tech experts to analyse the main trends and challenges faced by the sector.

On behalf of APBA (the Port of Algeciras Bay Authority), **Jesús Medina** – Head of Technical Development – took part in one of the key-note speeches during the first day. He was accompanied by **Ángel Martínez** – *NextPort.AI*'s Senior Product Manager.

Under the heading “**Enabling Port Digital Ecosystem to Optimise Vessel Operations with AI**”, they spoke about how innovation and applied artificial intelligence is able to: optimise the management of berthing and dwell times for ferries; encourage the orchestration of port processes at the sea-land shore interface; and improve decision-making on the complex scenario of Operation Cross the Straits.

During the two days of the event, multiple subjects of interest were dealt with, with the following debates taking on a prominent role: the dual goals of digitalisation and sustainability at ports; the state-of-the-art of digital adoption; and the presentation of success stories at ports that have profited from emerging technologies' potential, like 5G or drones.



Port of Algeciras Bay Authority – Key Player at ALICE's 1st Logistics Innovation Summit.



The Port of Algeciras Bay Authority took part in the **1st Logistics Innovation Summit**, held by the **European Tech Hub ALICE (Alliance for Logistics Innovation through Collaboration in Europe)** in Brussels on 6th and 7th November.



The event – celebrating *ALICE's* tenth anniversary – brought together more than 40 leaders of the logistics and port-maritime sectors to debate on the **future of logistics and its role in the digital transition and sustainability duality**. During the two days, experts addressed key matters, such as: European logistics innovation policies; collaboration among logistics clusters to exchange knowledge; the adoption of digital solutions to handle data; and practical examples of European transport electrification.

The programme included masterful conferences, elevator pitches for European projects that *ALICE* has been involved in and round-table debates.

APBA featured on the **“Digital Transition: Leveraging Technologies for Efficient and Zero Emissions Logistics”** panel through our OTI (Office for Technical Innovation) and we shared our views on the role that digital transformation, data, and stakeholder collaboration to foster logistics network sustainability and efficiency play.

Representing our Port Authority, **Nacho Serra** – from our OTI – made a presentation together with: Mr. **Eric Ballot**, professor of Paris Sciences & Lettres Mines School; Mr. **Jon Kuiper**, Senior Aide to the



Netherlands Ministry for Infrastructure; Ms. **Marianna Levto**, Head of Network & Advocacy at *AELER Technologies*; Ms. **Cristina Martin**, CEO of *USYNCR0*, and Dr. **Evangelos Mitsakis**, Director of Transport Research at *CERTH/HIT*.

During his presentation, Mr. Serra highlighted the transformation process underway at the Port of Algeciras to help it become a **Business Facilitator and Port Ecosystem Orchestrator**. This will drive cargo flow efficiency and competitiveness as freight passes through our facilities, with **innovation** and **technology** as main enablers. He also underlined the fact that **APBA's digital ambitions** are allowing the implementation collaborative digital solutions that promote operational excellence and decarbonisation; he particularly underlined the projects that are ongoing at our port authority to encourage **JIT (Just-in-Time)** operations, that are bound to reduce port-maritime operational dwell times and idling, thereby

increasing overall efficiency and decreasing emissions. The event itself gathered over 150 delegates from several sectors, among them: the European Commission (*DG MOVE* and *DG Research and Innovation*); port authorities, such as the one from Valencia; logistics operators, such as Amazon Logistics, *La Poste Group* and *GEODIS*, research hubs and universities, such as the Technical University of Delft, and Fraunhofer Institute for Material Flow & Logistics; and retail and manufacturing giants, such as Volvo, Scania, *IKEA*, *P&G* and *L'Oréal*.

It is important to note that the *ALICE* hub – officially launched in 2013 – was originally set up to draft a strategy that included the deployment of research, innovation and implementation for the European logistics and supply chain market, with the goal of making the industry more competitive and sustainable.



□ The Port of Algeciras Features at the “Andalusian Port Innovation Challenge” Organised by Suncruise Andalucía.



On the 27th November, the Port of Huelva held the “**Andalusian Port Innovation Challenge**”, organised by **Suncruise Andalucía** and the Port of Huelva Authority.

Over the years, this has become an event that is a benchmark forum where players can debate and share ideas on digital transformation and sustainability in Andalusia's nautical and cruise sectors with the goal of reinforcing the region's leadership in innovation and port management. By means of a hybrid format (face-to-face and streaming), the congress brought together various notable delegates from both the public and private sectors, as well as technology, sustainability and digital transformation experts. The main aim of the event was to **foster operational efficiency and sustainability in Andalusian ports, by exploring the latest tech solutions to tackle current and future industry challenges.**



During the event, Suncruise Andalucía took the opportunity to hold its **Open Innovation Challenge Prize** awards ceremony, awards that – now in its third year –

continue to focus on researching disruptive solutions that can drive: digital transformation; accessibility and sustainability in the port industry sector; promote partnerships among businesses, start-ups, universities and institutions. Two proposals stood out for their ability to meet challenges posed by Algeciras and Huelva Port Authorities this year.



One of the most significant moments of the congress was the round-table debate moderated by Ms. Esther Molina – General Manager of Suncruise Andalucía – where APBA was represented by **Daniel Hernández**, – our Innovation Office Manager.

Under the slogan “**Innovation as a Driving-Force for Change in Andalusian Ports**”, the discussion brought together several institutions and companies who shared their views on the opportunities and obstacles faced by the digitalisation of the sector.

With digital transformation and sustainability as its central pillars, the *Open Innovation Challenge* Prize This initiative reasserts *Suncruise Andalucía's* commitment to **creating an ecosystem that integrates all the sector's stakeholders to promote sustainability, innovation and digital transformation** as the cornerstones of its strategy.



□ APBA Takes Part in the IX Algeciras Tech Campus Foundation's RD&I Awards.



On the 18th December, FCTA (Algeciras Tech Campus Foundation) held its **IX Algeciras RD&I Awards**, prize-giving ceremony.

The event is funded by the Andalusian Government's Department for Universities, Research & Innovation and **promotes innovative schemes and supports knowledge transfer in the realms of business, venture and universities** every year. This year, as a novelty withing the realm of universities, four special mentions were granted in the fields of Social & Legal Sciences, Engineering, Health Sciences and Educational Sciences.

Twenty-plus projects were presented at this open call, all linked to fields included under the S4 – *Andalusia Intelligent Speciality Strategy for Sustainability in Andalusia* for the 2021-2027 period.

The awards ceremony, held at FCTA's RD&I Building was presented by Mr. **Jesús Verdú** – FCTA Coordinator – and was attended by Ms. **María de la Luz Martín** – Deputy Rector of the University of Cadiz Bay of Algeciras Campus; the Algeciras Councillor for Education, Universities and Environment; and the Deputy Chairman of the Campo de Gibraltar Commonwealth of Boroughs.



In the Entrepreneurial Ventures Category, the winner was Mr. **Andrés Lasry Hernández**, with his *AQUABACK* project; the University Category award went to the *First-Aid Hyperspectral Predictive Control of Diabetic Foot*, by **María Gema Carrasco y María Inmaculada Rodríguez**; and in the Entrepreneurial Initiative Category, the prize was awarded to **Alberto Taja's** *Nurturing Sustainability in the Kitchen*.

All of the proposals were assessed by a committee made up of 12 delegates from renowned organisations and institutions in the province of Cadiz – among whom **Juan Antonio Herrera** (APBA's Head of Innovation) was present – and who evaluated each project according to the parameters established in the specifications of the competition: its scope; its degree of innovation; the added-value it would generate for society; and its technical and economic viability.



Collaboration with start-ups

09

ETA Prediction & Emissions API Project.

A recent study recently stated that more than a third of the time spent by containerships at port is employed in arrival and departure manoeuvres, mooring, unmooring and idling while waiting for port services.

It is only the remaining time that is given to the actual loading and unloading of cargo onboard the ship. The main factors that influence the ship's on-time arrival at port are usually berth and service availability, and sea conditions, among others.

The **efficiency of port calls** therefore depends on Port Authorities, terminals, shipping lines, and – above all – whether all the agents involved have been briefed and are able to **receive up-to-date information**, especially during the hours prior to a ship commencing arrival or departure manoeuvres. **Better transparency, more efficient data exchange** among the agents who work together and **smart tools** that back up the different processes are required.

In this light, the Port of Algeciras Bay Authority has established a strategic innovation mission to achieve the status of a **Last Generation Port of Algeciras**: an aspirational goal that requires implementing an **advanced digital port orchestration hub** that can

provide functions such as real-time visibility and operational predictability, among others. All of this has to meet the objective of **improving competitiveness and synchronising port-logistics operations** to offer a quality service edge.



On the basis of this situation, and with a firm commitment to operational excellence, APBA is currently partnering **Awake.AI** (a Finnish start-up specialising in maritime business AI tools) and **SafetyTech Accelerator** (the Lloyd's Register innovation promoting, maritime sector tech accelerator) to develop a PoC (Proof-of-Concept) called **"ETA Prediction & Emissions API"**.

The aim of the project – undertaken during the first half of 2024 – was centred around analysing just how **accurate and reliable ETA predictions could encourage Just-in-Time arrivals to optimise port call scheduling and improve overall operational efficiency**.

This was carried out through AI algorithms and AIS data, as soon as ships announce their approach to the Port of Algeciras. **Awake.AI** customised its SaaS platform for APBA by developing personalised computational analysis located on the cloud to

provide a **real-time situational awareness** with APIs and **decision-making back-up functions** for scheduled calls to the Port of Algeciras, specifically:

1. **Continuous ETA Updates** for ships scheduled to call at the Port of Algeciras.
2. **Estimated CO2 Emissions** for the remaining sailing time of scheduled calls.
3. Automated weekly analytical reports on the **detailed use of port zones** and their estimated emissions.
4. **Key Performance Indicators** to identify the zones and calls with the **greatest potential for optimisation**, and quantification of related savings.

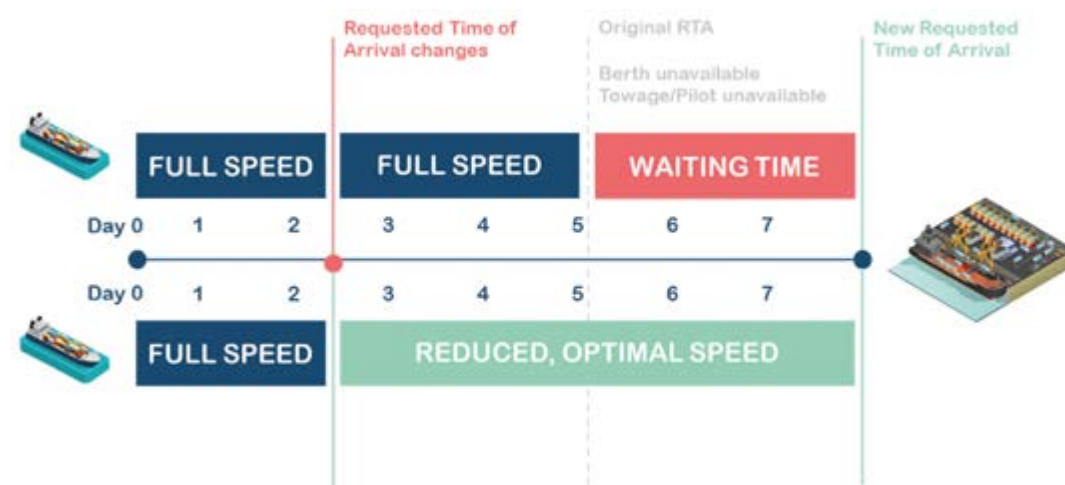
APBA was assigned the task of exploiting the above data via the creation of a **BI integrated control panel to track shipping traffic**. This control panel required the data integration from various Port Authority digital systems – such as its PMS (Port Management System) – and functions were enabled for the following:

1. **Real-time tracking of scheduled calls.**
2. Identification of **early, on-time or delayed calls**, as well as the behaviour of cases with dwell times.
3. Analysis of **speed profiles** and **maritime approach sailing patterns** towards Strait of Gibraltar waters.

4. Compilation of **KPIs (Key Performance Indicators)** to assess scheduled ETA deviation according to the calendar and on the basis of operational facilities, ship type and other parameters.

The results gleaned have allowed us to gain an understanding as to **how this type of solution could suit the particular case of the Port of Algeciras**, encompassing several categories of port traffic, and **how to manage comprehensive ship call predictions** during maritime sailing. In the future, all of this will help support operational decision-making in order to encourage JIT arrivals, thereby minimising dwell times and emissions.

The future prospect of this product could serve as a **back-up tool for planning** expected ship manoeuvres at the Port of Algeciras, in such a way as to allow us to optimise our service provision. The solution could also serve as a complement to **Port Collaborative Decision-Making tools** that have already been implemented at APBA, to support the optimisation of port calls that follow the v model. Finally, the solution could give us a **wider knowledge of various port traffic maritime sailing behaviour** as ships approach the Strait of Gibraltar's waters.



□ Benchmark Smart Tool for Bunkering Competitiveness.

AIS is the acronym that stands for **Automatic Identification System**, a system that allows ships to transmit their identity, position, course, speed and other such data to other ships that are sailing in their vicinity, as well as to the competent port authorities in their area. Data transmission is done on a common VHF radio channel.

Nevertheless – and despite their availability and evident usefulness – AIS data have not been exploited as much as they could have by many sectors of the port-maritime industry. Their integration and analysis, combined with pioneering technology, may be able to unlock new scenarios where maritime operations, process automation or knowledge generation can be optimised.

One of APBA's innovation challenges in facing this situation involves finding solutions that can **analyse AIS-generated data in real time** and return high-quality useful **information for strategic and operational decision-taking** based on new indicators. Their fields of application could be associated with AIS data-

mining, navigational safety, emissions inventory, commercial analysis and operational performance, among others.



This is why APBA has been partnering **Space-Ship**, – a German start-up who specialises in the development of AI (Artificial Intelligence) solutions for the maritime industry – in an innovation project focused on achieving an **international benchmark tool** for port competitiveness in **bunkering services**. This is all done by detecting port events through AIS data exploitation and Machine Learning modelling.

This type of port throughput has been suffering major fluctuations due to the current fragility of global supply chains, motivated by political, economic and commercial tensions, the Red Sea Crisis, and other such factors. Therefore, the main aim of the Project is to create a **detailed control panel**, based on advanced data analysis to study bunkering services in a very specific way along the main shipping lanes.

On the basis of new knowledge generated from competitive benchmarking, the tool will eventually

lend support to strategic and operational decision-making and should be able to help improve the Port of Algeciras Bay's **efficiency** and **value proposition**.



Finally, it is important to mention that the project is co-funded by the **ESA (European Space Agency)** start-up hatchery programme and the Regional Government of Bavaria (Germany).

It was through APBA's assistance as an Industrial Partner in developing the product that Space-Ship was able to gain a foothold in the ESA.



Developing an Autonomous Control System for Maritime Transport Emissions.

From the 1st January, 2020 the worldwide limit for **ships' fuel sulphur content** was reduced to 0.50% (from the previous limit of 3.50%), pursuant to IMO's 2020 Regulation coming into effect.

This control and correct application of this restriction corresponds ultimately to the Governments and national authorities of each member-state signatory of MARPOL Treaty's Annex VI. Apart from this, flag states and port-governing states also share responsibility for guaranteeing compliance on behalf of the merchant fleet.

Unfortunately, authorities continue to face **numerous challenges and obstacles** that prevent the maritime sector from complying fully with the regulations on fuel emissions. The tremendous number of ships that call at ports, together with the difficulty of correlating ships' itineraries, make it **really difficult for controlling authorities to be able to police ships efficiently** via manual operations.

As a result, there are still loopholes for undetected ships to carry on using non-compliant fuels that cause a higher level of pollution.



Well aware of this situation, the Port of Algeciras Bay decided to lend support to a project presented by the **MarineHound** start-up, as a **facilitating agent**.

The project came under the pre-commercial category of projects in the 2nd Round of the State Port Department's **Puertos 4.0** funding.

The proposal made by this emerging Maltese company established in 2021 is based on **continuous remote sensing of pollution through disruptive technology**. Located on a buoy, it is capable of **controlling ship emissions autonomously** and – with the help of drones – determining whether the ship is using a legal SOx fuel with low sulphur content, thus aiding authorities to control and enforce the MARPOL Treaty effectively, sustainably and efficiently.

The project has received a grant from the abovementioned fund and has an execution deadline of **24 months**. It is set to **test the pioneering system at the Port of Algeciras**, as well as seeking validation from the stake-holders involved in the solution's business model.

The scope of the pilot project consists of developing a SaaS (Software as a Service) Hub located on the cloud that is able to offer up a **smart system to monitor and control** ship emissions – from emission data gleaned from advanced IoT (Internet of Things) devices,



mathematical modelling of atmospheric gases, AIS-tracking data analysis and met-ocean conditions – and **support decision-making** for compliance with the regulation. At the same time, we hope to validate alternative power sources for the equipment that is to be fitted onto the network of buoys.

Among the expected results, we hope to (1) develop an **active digital maritime pollution monitoring tool**,

centred around controlling sulphur emissions, to enable more efficient and effective compliance, (2) **increase the environmental quality** of port activities in its urban areas; and (3) **reduce the impact of port and maritime activities** on the marine environment.

RADAR START-UPS 2024

Image&Video Processing



Maritime Instrumentation



3D Impression



IoT&5G&NextGen Communications



Cybersecurity **Enthec.** **biometrid**

Advanced Analytics, IA&ML



Logistics & Mobility



Future Transportation



Drones - AUV



VR & AR



Location Intelligence & Geo-Mapping



Blockchain



Energy Efficiency & Sustainability





Press Release

10



Article 1

" The Port of Algeciras – Committed to Innovation and Digitalisation".

Summary: Published in the *"Smart Ports: A Voyage towards Knowledge"*, December 2024 special edition in Cadena de Suministro, and penned by *Chain of Supply's* editors themselves, the article discusses several initiatives carried out by the organisation in the fields of digitalisation, open innovation and sustainability, featuring the launch of the Digital Venture Centre, a review of the latest on-going innovation projects and an update on the APBA-sponsored Green Strategy



You can read the full article by scanning this QR code.





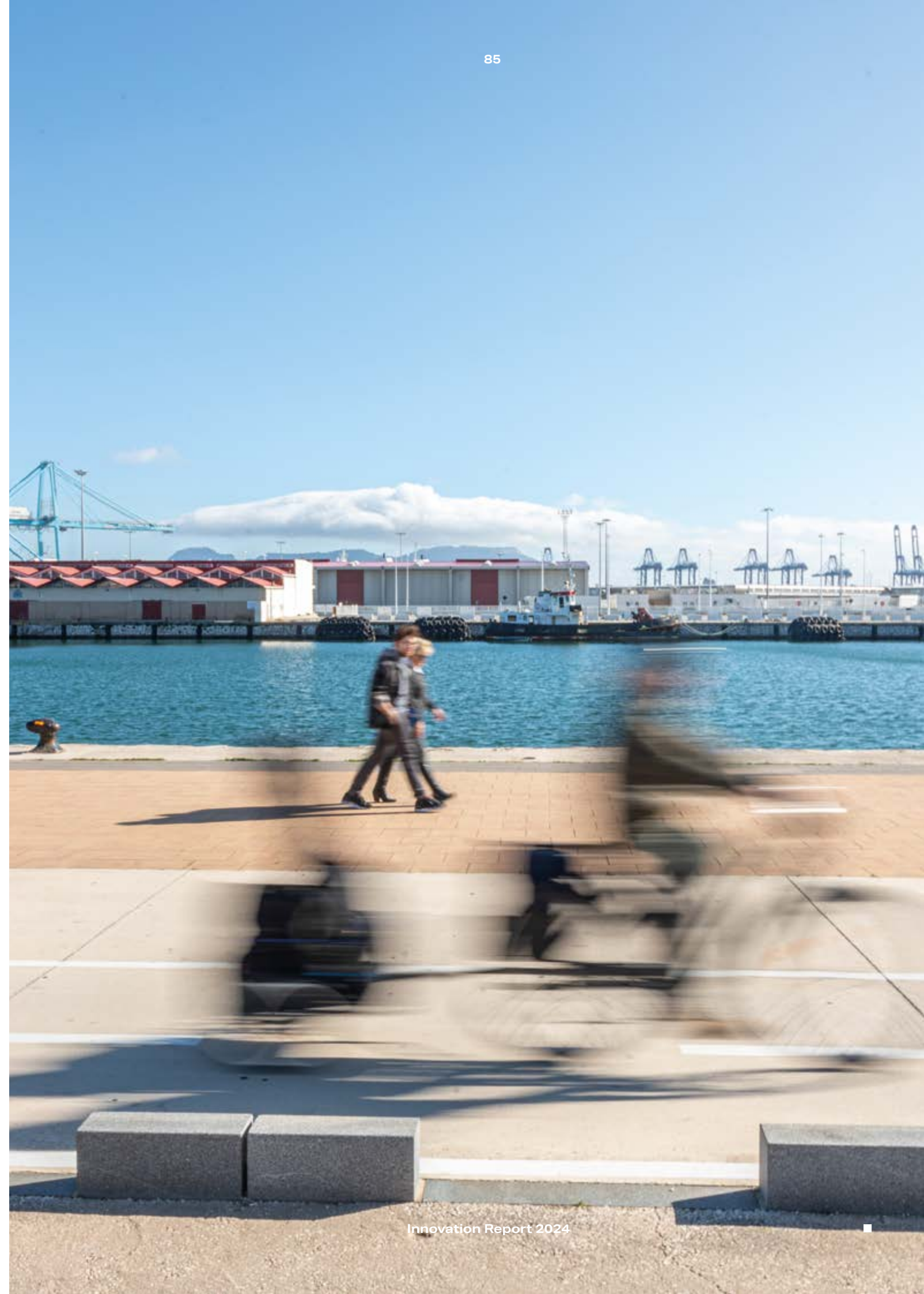
Article 2

“Interferometric Synthetic Aperture Radar Phase Linking with Level 2 Coregistered Single Look Complexes: Enhancing Infrastructure Monitoring Accuracy at Algeciras Port”.

Summary: Scientific article, published in the Swiss academic *Multi-Disciplinary Publishing Institute* (MDPI) magazine, penned by Jaime Sánchez-Fernández (*Detekia*), Alfredo Fernández-Landa (*Detekia*), Álvaro Hernández Cabezudo (*Detekia*) and Rafael Molina Sánchez (*DeepInsight*), which presents an advanced work-flow to process piles of radar imagery via PSDS (Persistent Scatterer & Distributed Scatterer) interferometry to increase spatial coherence and improve the accuracy of displacement detection, within the scope of the “VIPE (Vulnerability of Port Infrastructure from Space)” innovation project, financed by Puertos 4.0 Funding and partnered by APBA as a procuring agent.



You can read the full article by scanning this QR code.



MAIN NEWS



"Algeciras Bay Port Authority begins vessel arrival optimisation pilot." Press: Smart Maritime Network.



"Andalusian government opens enrolment for nine Free 5-G, artificial intelligence and big data technology courses."

Press: Diario de Sevilla



"NextPort reinforces its port presence with the deployment of three digital twins in Spain."

Press: El Mercantil



"Algeciras to host a digital entrepreneurship hub for improving port logistics."

Press: Diario del Puerto

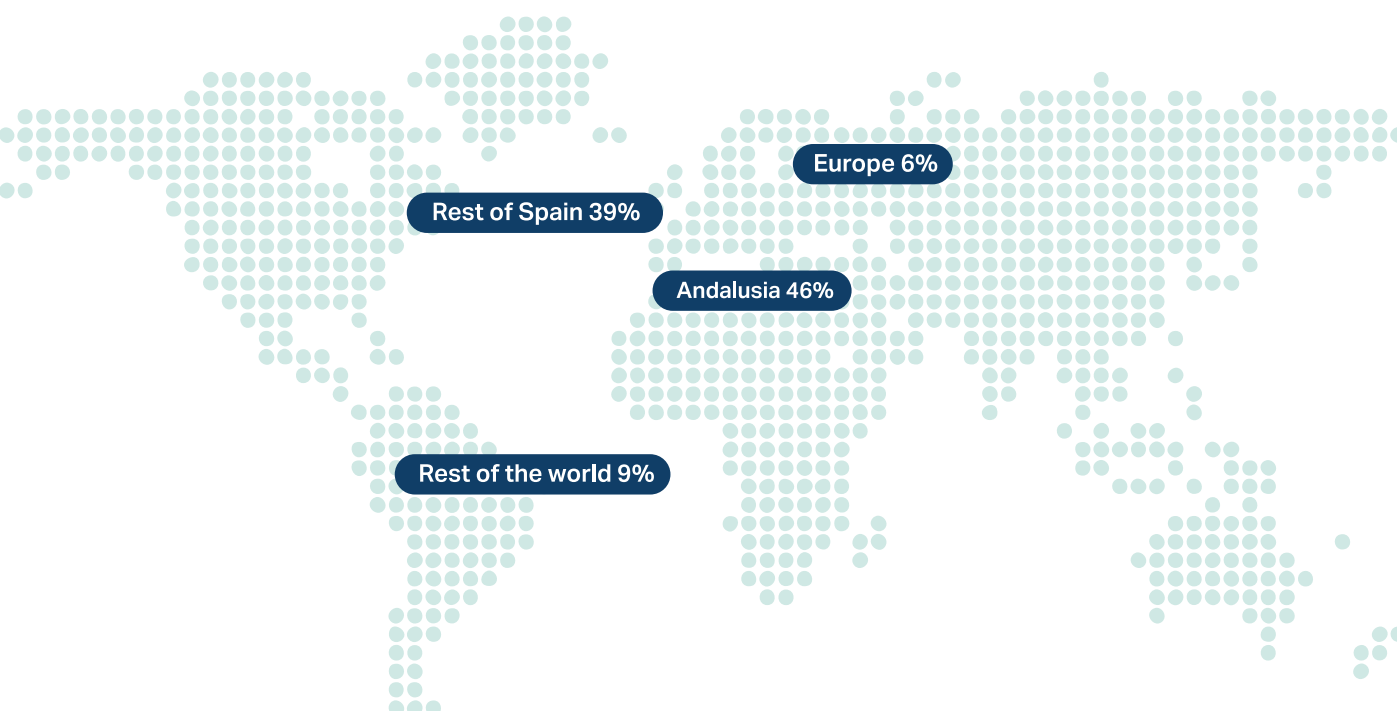


"The Port of Algeciras to invest €5.3 million on computer applications in two years."

Press: EuropaSur



ORIGIN OF PUBLICATIONS



"The Port of Algeciras Bay Authority takes part in the ePicenter project final conference."

Press: Infopuertos



"AllRead expands its control points with artificial intelligence at the Port of Algeciras."

Press: Port Technology



"The Campo de Gibraltar area paces itself within the world's elite in logistics and transportation degree and post-graduate qualifications."

Press: EuropaSur



"The Port of Algeciras stands out at the 8th silk road forum for its advances in sustainability and innovation"

Press: Empresa Exterior

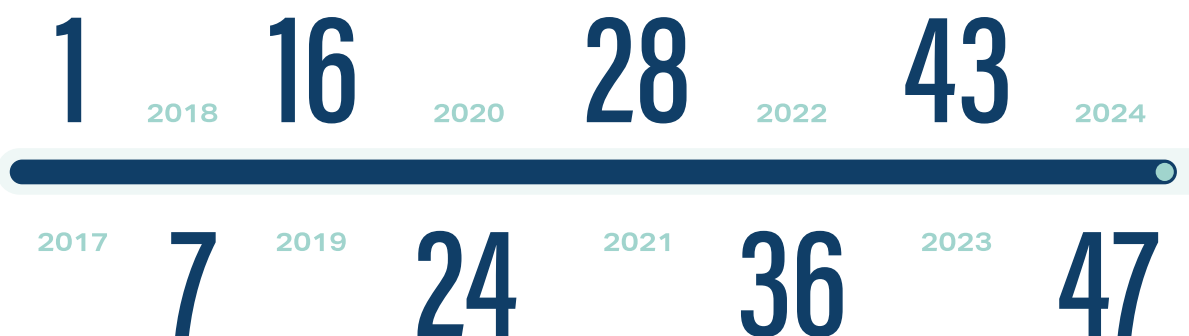


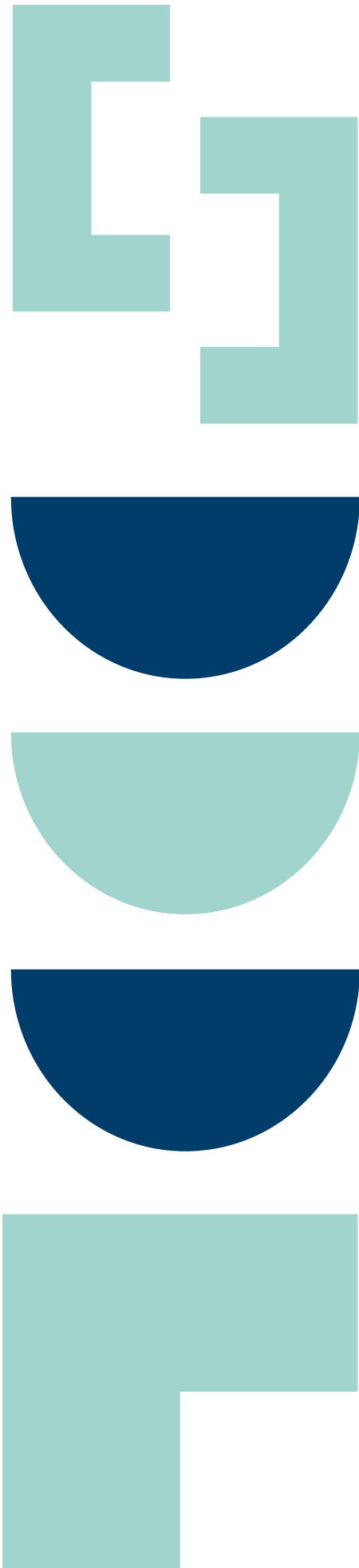
"Navozyme applying maritime solutions to nine Spanish port authorities."

Press: Diario del Puerto



PRESS APPEARANCES





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**And all those who make
innovation possible in the
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very much!**

