



D3.1.3 FEASIBILITY STUDY ON EMERGING MARITIME CLUSTERS

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Summary CallmeBLUE Project

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The role of maritime clusters is increasingly important in the process of connecting public and private entities working in all transversal sectors related to the blue economy at both national and Mediterranean levels. Maritime clusters are indeed crucial facilitators of networking, technology transfer, internationalisation, and innovation between SMEs, large companies, research centres, universities, etc., and they act as key actors in promoting sustainable investments in the blue economy.

CALLMEBLUE aims to strengthen existing cluster alliances in the Mediterranean area in order to accelerate north-south regional cooperation processes towards the emerging of strategic maritime clusters in the North African area (south-south cooperation). CALLMEBLUE will aim to create a strategic vision and transferable models of interregional cooperation.

In particular, CALLMEBLUE will aim to implement concrete actions at both local and regional levels in order to raise awareness of the relevance of Maritime clusters as key actors for sustainable blue economy policies. The project will indeed promote the exchange of best practices and knowledge transfer between the northern and southern areas, including piloting learning activities aimed at offering a transferable training “Toolkit”, addressed to future maritime clusters in the southern area in order to be prepared for the legal, structural, administrative and management aspects for a concrete creation of Future maritime clusters.

CALLMEBLUE ambition is to set up and strengthen maritime cluster alliances (North-South cooperation) – particularly targeting southern Mediterranean countries (South-South cooperation) but also allowing to enhance regional dialogue and more advanced services offered to the Cluster Mediterranean ecosystem. At this aim, CALLMEBLUE offers its role as an accelerator for the policy goals set by relevant regional initiatives, such as the UfM Ministerial Declaration for the sustainable blue economy and the WestMED Initiative.



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1. Executive Summary

The **Feasibility Study on embryonic Maritime Clusters in Morocco and Egypt** assesses the potential for developing structured maritime clusters in these two North African economies. This study builds upon previous research, including the “D2.1. Maritime clusters Blue Economy Reporting” (Tedesco & Martin, 2024), and integrates findings on sectoral opportunities, governance frameworks, and stakeholder dynamics. By analysing the current landscape and identifying strategic priorities, this study lays the groundwork for the upcoming *D3.4 Roadmap for Clustering Strategy Awareness: Guideline/Vademecum* (Chapman & Racuna, 2025) which will outline a strategic plan detailing the steps necessary to implement these clusters.

The blue economy has emerged as a crucial driver of sustainable economic development, particularly for coastal nations such as **Morocco** and **Egypt**. Maritime clusters play a key role in fostering innovation, competitiveness, and cross-sectoral cooperation within this economy. By enhancing sectoral synergies, clusters create an ecosystem where businesses, research institutions, and governmental bodies collaborate to improve efficiency and sustainability.

Both **Morocco** and **Egypt** are strategically positioned to capitalise on their maritime sectors. Morocco's economic framework includes national strategies such as the Halieutic Plan_(CINEA, 2010) prioritises fisheries and aquaculture, increasing investments in renewable marine energy. Egypt, with its vital access to both the Mediterranean and Red Sea, has been investing in port infrastructure, digital transformation, and sustainable aquaculture part of its Vision 2030.

A SWOT analysis is conducted for both Morocco and Egypt, highlighting internal strengths such as existing maritime infrastructure and sectoral expertise, as well as external opportunities like international collaboration and technological advancements. At the same time, it identifies key weaknesses, such as regulatory challenges and funding limitations, and potential threats, including geopolitical uncertainties and environmental risks.



This study provides a comprehensive evaluation of these strengths and challenges and puts forward the possible set-up of two strategic clusters (one in each country), serving as the groundwork for future strategic planning and operational support of the CallMeBlue project. The upcoming **D3.4 Roadmap for clustering strategy awareness: Guideline/Vademecum Study** (Chapman & Racuna, 2025) will expand upon these findings, detailing concrete steps for the structured implementation of maritime clusters in Morocco and Egypt.

2. Methodology

This feasibility study was designed in harmony with the **European Union's** strategy for promoting competitiveness and innovation through cluster development, a strategy that seeks to overcome market deficiencies by fostering robust networking among companies, facilitating knowledge flows, and achieving the critical mass necessary for innovative projects (Agencia Estatal Boletín Oficial del Estado, 2012). With this vision in mind, the research set out to thoroughly assess the potential for maritime cluster development in Morocco and Egypt, employing an approach that seamlessly integrated both qualitative and quantitative methods.

The study commenced with an extensive review of relevant literature and desk research, which provided a solid foundation for understanding the blue economy and its critical role in driving sustainable economic development. This phase involved scrutinising policy documents, academic publications, and key reports, most notably, the D2.1 *Maritime Clusters Blue Economy Reporting* (Tedesco & Martin, 2024)

Through this review, the legal frameworks, market conditions, and technological trends that underpin the formation of maritime clusters have been delineated, thereby establishing the necessary context for subsequent analyses.

In addition to these qualitative methods, a comparative analysis was undertaken to benchmark the current state of maritime clusters in Morocco and Egypt against successful models from Europe. This exercise enabled to extract best practices in areas such as governance, funding, and collaborative networking, which in turn highlighted the key success factors as well as the gaps that need to be addressed.



The SWOT analysis illuminated the internal strengths and weaknesses, as well as the external opportunities and threats that impact the viability of maritime clusters in both countries. These insights were systematically organised and presented through detailed figures, which not only clarified the strategic priorities but also laid the groundwork for defining the vision, mission, and values for potential clusters.

The various strands of research were woven together into a cohesive report, establishing a clear and actionable foundation for future strategic planning. This study's methodology not only provides a rigorous evaluation of the current landscape but also serves as crucial basis for the forthcoming D3.4 Roadmap for Clustering Strategy Awareness: Guideline/Vademecum (Chapman & Racuna, 2025). In that subsequent study, the insights and data gathered here will be translated into a detailed action plan for the implementation of maritime clusters in Morocco and Egypt, building upon the collective experiences of the clusters involved in the project, alongside the support of key governmental bodies.

3. Background for the clusters proposed

The development of maritime clusters in Egypt and Morocco is an integral component of their economic strategies, aimed at fostering a sustainable blue economy. This concept involves the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystems. Both nations are emphasizing initiatives that promote sustainable fishing practices, marine tourism, and renewable energy projects, such as offshore wind farms.

Morocco's blue economy strategy includes a complex interplay of different sectors, both established and emerging ones. These efforts align with the nation's goal to sustainably exploit marine resources and boost economic activity. For instance, Morocco's Tanger Med port complex is a major economic driver, attracting substantial foreign investment and generating numerous job opportunities. The country is also seeking to enhance sustainable fisheries, while developing innovative aquaculture, and expanding marine and coastal sustainable tourism. Similarly, Egypt is making significant investments in innovative areas, such as marine-related renewable energy projects within the Suez Canal Economic Zone, including solar and wind energy initiatives, to create a sustainable industrial base supporting maritime activities (SRM, Alexbank, 2023).



The economic impact of these maritime clusters is considerable. For this reason, Morocco is supporting the development of territories at sub-national level, by fostering regional leadership in promoting regional clusters¹. At least in two of such regions – i.e. Tangier-Tetouan-Al Hoceima and Souss-Massa –the coastal clusters will play a crucial role in stimulating innovation and local competitiveness, by piloting of activities that could support activities in the blue economy. Some national-wide blue economy clusters have also emerged, notably in the field of maritime transport², to support the country ambitious strategy, while other areas for nation-wide clusters might include innovative aquaculture and marine renewable energy.

Egypt's maritime sector is a major economic driver, contributing around 32% to the national GDP and employing 16% of the service-sector workforce (UNCTADstat). With a coastline stretching over 3,200 km along the Mediterranean and Red Seas, the country is well positioned to harness maritime resources for achieving sustainable development. In recent years, Egypt has invested approximately 2 billion pounds in protecting the shores of the Mediterranean Sea, with the aim of protecting coastal cities from sea water and the effects of climate change³.

The blue economy is increasingly coming into frame as a key pillar of the green transition. Egyptian blue economy has significant potential by virtue of Egypt's strategic location, with over 3k km of coastline, positions it to capitalize on 60-70% of global maritime trade. A number of valuable innovative experiences are available in the area of coastal tourism, renewable energy, local fisheries and aquaculture. So far, nevertheless, the overall blue economy potentials remain somewhat hindered by the absence of a national blue economy strategy and a resulting fragmented oversight across various blue economy sectors.⁴

For both countries, therefore, technological integration and overall strategic steer play a crucial role in the advancement of maritime sectors, in fact, sustainability and green technology adoption are central to the maritime strategies. Both Morocco and Egypt, for example, are adopting cutting-edge

¹La Vie Éco (2024): Clusters côtiers: Le Maroc en prospection au Portugal et en Espagne pour renforcer l'économie bleue (25 September 2024) [Available at: <https://www.lavieeco.com/affaires/secteurs/clusters-cotiers-le-maroc-en-prospection-au-portugal-et-en-espagne-pour-renforcer-leconomie-bleue/>]

²European Cluster Collaboration Platform (ECCP) (2023); Moroccan Maritime Industry Cluster [Available at: <https://profile.clustercollaboration.eu/profile/cluster-organisation/7871d250-c7c5-476d-8c25-52b34e4b74>]

³Arab Federation for Digital Economy; International Waterways and Arab Economic Sovereignty; Al-Wafd Newspaper [Available at: <https://arab-digital-economy.org/?p=21664>]

⁴Enterprise (2025); The lowdown on Egypt's blue economy (4th February 2025) [Available at: <https://enterprise.news/egypt/en/news/story/fcb7ede0-2c66-4427-9dfb-c81d9d88bb97/the-lowdown-on-egypt%25e2%2580%2599s-blue-economy>]

technologies to enhance the efficiency and competitiveness of their maritime operations. For instance, the Port of Alexandria in Egypt is integrating digital solutions to improve operational efficiency, while Tanger Med in Morocco is utilizing advanced logistics and tracking systems to optimize cargo handling. Smart port technologies, including automated systems and digital platforms, are being implemented to streamline operations and reduce turnaround times (SRM, Alexbank, 2023).

In this context, the active support of national cluster in strategic sector for the blue economy would further boost the current performance of the two countries and allow for innovative approaches to policy making in critical maritime sectors.

4. Strategic national clusters for the two countries

Any suggestions, emerging from the work promote by the CallMeBlue project so far, are now provided as a basis for further support by the project.

In **Morocco**, given the wide ongoing experiences at the national and regional level, a dedicated **Maritime Cluster on Innovative Aquaculture** might offer an opportunity to boost a relevant sector and experiment with innovative approaches for the overall blue economy in the country. The cluster could be led by the Ministry of Fisheries and Aquaculture and include the most relevant actors at national and regional level, while coordinating relevant activities foreseen by the pilot coastal clusters in this specific area.

In **Egypt**, the set-up of a national **Maritime Cluster for the Maritime Transport industry** will enable the various stakeholders of the sector to convene and discuss strategic directions, also by fostering possible synergies and cooperation with other relevant activities (e.g. Tourism; fisheries, aquacultures, renewable energies, etc.). It could be based on a mixed model of public-private partnership, led by the government, to achieve convergence at the level of the maritime community. The cluster would allow to create a direct communication between decision makers and marine activities stakeholders. As such, it could be directly promoted by the Egyptian Ministry of Transport and would involve all the relevant institutions and entities associated with the maritime transport industry in the Arab Republic of Egypt to improve the efficiency of the maritime system and the maritime transport industry.

Importantly, as part of their functions, both Marrocco and Egypt suggested that clusters should be able to **engage with maritime clusters in partner**

countries to foster regional collaboration with existing international maritime clusters with the aim to further develop the ability of the Egyptian maritime industry to innovate and become fully sustainable and competitive at the international level.

The latter is an area where the **CallMeBlue project and the WestMED Cluster Alliance could offer valuable support** for the development of national maritime clusters in Morocco and Egypt. Through different activities, such as the Learning Labs.

“D3.2. *Organise Learning Labs for Emerging Maritime Clusters*” (ForMARE & Strategis, 2025). This activity will represent a follow-up dedicated to tailor made learning labs, with the aim to providing a transferable “Toolkit”⁵ targeted at future maritime cluster stakeholders. The purpose is to be prepared them on legal, structural, administrative and management aspect for a concrete creation to future maritime clusters. It will also support the training of a group of professionals capable of leading the establishment and management of clusters in the region.

“D3.3. *Advanced Online Learning Labs on Business Activities for Advanced Maritime Cluster*” (ANIMA, 2025), online sessions in advanced training on business will be addressed to emerging Cluster leaders that are interesting in gaining experience on business activities.

CallMeBlue will provide targeted assistance by:

- Discussing the most suited organisational/structural schemes;
- Performing a comparative analysis (benchmark) of Maritime Clusters (mainly in the EU), by describing their main characteristics, objectives, membership, activities, organisation, etc;
- Offering good practice guidance to the stakeholders.
- Recommending valuable funding opportunities to foster the development of such clusters.

These Learning Labs are conceived as **co-creation spaces for capacity-building**, where key stakeholders can collectively define the foundations of functional and sustainable cluster ecosystems adapted to each national context.

⁵ A **toolkit** is a set of tools, resources or materials designed to assist in the execution of specific tasks, processes or projects. They can be physical, such as a set of manual tools, or virtual, such as a set of software or digital guides. In different fields, toolkits are used to standardise processes, facilitate learning or improve efficiency.

5. Conclusions and follow-up actions

The findings of this feasibility study confirm the strategic role maritime clusters can play in Morocco's and Egypt's economic diversification and regional leadership within the blue economy. The study highlights the key strengths in both nations but also underscores challenges that must be addressed for successful cluster implementation.

A major takeaway is the need for enhanced governance structures to ensure policy alignment and stakeholder coordination. Both countries have national blue economy strategies—**Morocco's Blue Economy Roadmap and Egypt's Sustainable Development Strategy**—but translating these policies into operational clusters requires structured governance mechanisms and clear implementation pathways.

Furthermore, financial sustainability is a critical factor. Maritime clusters must secure diversified funding, combining public investments, private sector contributions, and international financing tools. Strengthening financial support frameworks will attract investment in critical areas such as digitalisation, renewable energy, and sustainable transport.

Additionally, technology and innovation must be at the forefront of cluster development. Digital transformation in blue economy sectors needs to accelerate to meet global standards in competitiveness and sustainability, while investments in R&D for green hydrogen, desalination, and blue biotechnology will boost long-term sectoral resilience.

This feasibility study serves as a crucial foundation for the upcoming D3.4 Roadmap for Clustering Strategy Awareness: Guideline/Vademecum (Chapman & Racuna, 2025), which will outline a detailed strategic action plan with concrete steps for establishing and developing maritime clusters in **Morocco** and **Egypt**. Drawing on the insights from this assessment, both countries will be able to take decisive steps towards building sustainable, innovative, and internationally competitive maritime clusters.

In this regard, the study's recommendation to establish national clusters in key blue economy sectors — namely, **Innovative Aquaculture in Morocco** and **Maritime Transport in Egypt** — stands out as a particularly promising example of both feasibility and potential of such initiatives. **Further concrete support could be provided by the CallMeBlue project**, including the planned



Learning Labs⁶ and training activities for cluster managers. These elements will be discussed in detail with the respective Ministries in Morocco and Egypt as the project's immediate next steps.

6 Background & Annexes

6.1 Country background

6.1.1 Morocco

Morocco has strategically embraced the blue economy with projects designed to enhance fisheries, develop aquaculture, and expand marine tourism. The nation's extensive coastline—spanning over 3,500 kilometres—and its robust network of 36 ports (including 14 international ports) underscore its strategic position between the Atlantic Ocean and the Mediterranean Sea. This geographic advantage enables Morocco to serve as a critical gateway for trade between Europe, Africa, and the Middle East.

A notable example of Morocco's maritime strength is the Tanger Med port complex, which stands as one of the largest and most efficient ports in both Africa and the Mediterranean region. Tanger Med handles over 9 million TEUs annually, with connections to more than 180 ports in 70 countries and supports an industrial platform comprising over 1,100 companies across sectors such as automotive, aerospace, logistics, and textiles. This platform generates approximately 8 billion euros in export revenue each year (SRM, Alexbank, 2023).

Further underscoring its commitment to the blue economy, Morocco has made significant strides in formalising its maritime cluster ecosystem. On 29 February 2024, the Ministry of Economy and Finance (MEF) convened the inaugural meeting of the Technical Committee for the Development of the Blue Economy (EB), marking the official launch of the National Blue Economy Development Strategy (Hub, 2025). This initial meeting addressed the scope of

⁶ **Learning Labs** - These activities form part of the [CallMeBlue](#) project's work plan, particularly under Deliverables: D3.2 Organise Learning Labs For Emerging Maritime Cluster & D3.3 Advanced online Learning Labs on Business Activities for advanced Maritime Clusters. These include the design and implementation of Learning Labs as practical spaces for co-creation and intended to support the establishment and enhancement of maritime clusters in North Africa area, including Morocco and Egypt by providing legal, administrative, financial capacity building, benchmarking, and stakeholder engagement tools.

the EB's work, the importance of regional planning, and the need to establish a unified conceptual framework for the blue economy in Morocco.

Key participants included representatives from the Ministry of Economy and Finance (Budget Directorate and Financial Studies and Forecasting Directorate), the Ministry of Agriculture, Maritime Fisheries, Rural Development and Water and Forestry, the Ministry of Investment, Convergence and Public Policy Evaluation, the Ministry of Energy Transition and Sustainable Development, the Directorate of Regional Planning, the National Fisheries Research Institute (INRH), the National Agency for Aquaculture Development (ANDA), and the National Ports Agency (ANP).

Additionally, Morocco's international commitments, such as the United Nations Convention on the Law of the Sea (UNCLOS), the Nagoya Protocol, and the Paris Agreement, further demonstrate its dedication to sustainable maritime practices (Bourhim, 2023). Initiatives like the *Integrated Coastal Zone Management* (ICZM), (UNEP/MAP/PAP, 2008) under the Barcelona Protocol, launched in 2005, further illustrate Morocco's comprehensive approach to sustainable resource utilisation.

Moreover, as highlighted in a recent article (Rue 20, 2024), Morocco is taking a significant leap into the naval industry with the launch of its first maritime cluster. This initiative not only signals a strategic move to consolidate and expand Morocco's presence in the global naval sector but also underscores the country's commitment to fostering technological innovation, industrial collaboration, and competitiveness in maritime affairs.

6.1.2 Egypt

Launched during an event in Cairo, the Blue Economy Roadmap was developed in collaboration between the Ministry of Environment, the Centre for Environment and Development for the Arab Region and Europe (CEDARE, 2025), the United Nations Development Programme (UNDP, 2025), and the European Union (UE, 2025).

Developed through a participatory approach involving key stakeholders from government entities, academia, and civil society, the roadmap outlines four pathways for enhancing sustainable practices and promoting the blue economy:



- Aligning ecotourism with marine conservation and biodiversity protection.
- Diversifying ecotourism offerings and improving existing infrastructure.
- Utilizing ecotourism for climate resilience.
- Empowering communities and preserving heritage through ecotourism.

According to Entrust Development & Management Consultants (Entrust Development & Management Consultants, 2018) developing a strategic vision for Egypt's blue economy is a crucial first step towards building consensus and providing a clear sense of direction. The strategy aims to foster internationally competitive clusters that operate with collective efficiency, driven by dynamic, market-oriented partnerships between businesses, government, and academia.

The proposed strategy is structured into three interconnected levels, each playing a distinct yet complementary role:

Micro Level, the focus is on the actual implementation of the strategy at the ground level, directly supported by the Government of Egypt⁷ (GOE). This level prioritises practical actions and project delivery, ensuring that strategic goals translate into tangible outcomes.

Meso Level, the emphasis shifts to mobilising and coordinating technical and material resources nationwide. This coordination operates through three key economic pillars:

- Research, Innovation, and Technology Transfer
- Specialised Skills Development
- Access to Finance

The Meso Level ensures that the Micro Level initiatives are adequately supported by facilitating the flow of expertise, funding, and technological solutions essential for success.

Macro Level, the strategy addresses overarching policy development, resource mobilisation, and strategic alignment. This level is responsible for formulating supportive policy frameworks, attracting additional resources, and

⁷ The Arab Republic of Egypt [Available at: <https://www.presidency.eg/EN>]

ensuring that all components of the strategy work together cohesively, remain adaptable to emerging opportunities and challenges.

Together, these three levels create a comprehensive approach that balances practical implementation with strategic oversight, ensuring Egypt's maritime clusters can thrive as engines of sustainable growth and regional competitiveness.

The National Strategy for Sustainable Development: Egypt Vision 2030 (Ministry of Planning & Economic Development, 2025) can be divided:

Economic Pillars:

- Research, Innovation and Technology Transfer
- Specialised Skills Development
- Access to Finance

Cross-Cutting Themes

- Governance
- Gender Equity
- Legal and Regulatory Reform

[Egypt's Vision 2030](#) outlines six strategic goals:

The **first goal**, "Improve Egyptians' Quality of Life and Raise their Living Standards," focuses on eradicating poverty, providing food security, ensuring access to quality health services and education, adequate housing, and enriching cultural and sports life.

The **second goal**, "Social Justice and Equality," aims to reduce the gender gap, offer social protection, achieve inclusion and equal opportunities, and bridge developmental disparities among social groups and regions, particularly for the vulnerable.

The **third goal**, "Integrated and Sustainable Environmental System," emphasize preserving and managing natural resources, reducing pollution, and promoting green economic models to decouple growth from resource consumption.

The **fourth goal**, "Diversified, Knowledge-based, and Competitive Economy," seek to generate revenue, create jobs across various sectors, and enhance competitiveness through private sector involvement and improved business climate.

The **fifth goal**, "Well-Developed Infrastructure," highlights the need for reliable services like energy, transportation, and communication systems to support investment and economic competitiveness.

The **sixth goal**, "Governance and Partnerships," aim for institutional development under the rule of law, enhancing transparency, combating corruption, and fostering partnerships at national and international levels. Monitoring and evaluation mechanisms are established to track progress towards these goals by 2025 and 2030.



6.2 Swot analysis of the blue economy sectors

6.2.1 Morocco

For the SWOT Analysis in Morocco, 7 different SWOT figures have been developed.

The first one will be a general overview of the maritime sector, while the rest will focus on the strengths, weaknesses, opportunities and threats of the 5 most promising maritime sectors in Egypt that have been identified in the privies desktop analysis “D2.1. Maritime clusters Blue Economy Reporting” (Tedesco & Martin, 2024).

It is essential to consider this previous desktop analysis on maritime clusters and BuE since most of the SWOT factors will come as a reflection of the most promising BuE sectors identified. The SWOT factors identified from other papers and studies will be detailed in each of the SWOT analysis by sector.

General Overview



Figure 1 - General SWOT of the maritime sector in Morocco. Graphics elaborated by the author of the report. .

Fisheries & Aquaculture Overview



Figure 2 - SWOT of the Fisheries and Aquaculture sector in Morocco. Graphics elaborated by the author of the report.

The fisheries and aquaculture sector in Morocco has significant potential to become a cornerstone of its maritime economy and a driver for regional integration. Morocco currently exports 85% of its fish production, making it a key player in the international seafood market (Tedesco & Martin, 2024). The country is a primary exporter of octopus and has seen a rapid increase in fishmeal exports, particularly to Spain and the rest of the EU, benefiting from its privileged geographical location near these major markets. The sector employs over 700,000 people, demonstrating its socio-economic importance, while institutions like ANDA (National Agency for the Development of Aquaculture) play a critical role in fostering aquaculture development (Hanine, Dinar, & Meftah, 2023). Furthermore, Morocco's extensive Mediterranean and

Atlantic coastlines, spanning over 3,500 kilometres, provide a strategic advantage for artisanal and commercial fishing activities.

Despite these strengths, the sector faces several challenges that limit its potential. Low safety standards for seafood products, insufficient fish landing infrastructure, and a lack of advanced storage and processing facilities hinder the ability to maintain high-quality exports. Overfishing and bycatch, compounded by inadequate enforcement of sustainable practices, pose serious risks to marine biodiversity. Additionally, aquaculture is heavily reliant on imported supplies such as fish feed and specialised equipment, which increases operational costs and dependency on external markets (Nejjari & Elyousfi, 2023). Marine biotechnology remains underdeveloped, contributing less than 2% to the biotech market, and domestic seafood consumption in Morocco remains low, which limits local demand for sector growth.

Opportunities for Morocco's fisheries and aquaculture sector are abundant and align with the country's broader blue economy strategies. Initiatives like the Halieutis Strategy and the Blue Belt program are focused on sustainability and innovation, aiming to improve fish stock management and promote sustainable aquaculture (Nejjari & Elyousfi, 2023). Planned developments, such as the creation of 14 new aquaculture farms, shrimp farming clusters, and expanded seaweed cultivation, present significant growth prospects. The adoption of advanced technologies like Big Data and AI in fish farming offers pathways to boost productivity, improve fish quality, and enhance sustainability. Additionally, algae and microalgae cultivation for biofuels and bioenergy can open doors to new markets and economic diversification (Tedesco & Martin, 2024). Notably, empowering women in fishing activities enhances inclusivity and resilience within the sector, creating opportunities for socio-economic development (TAFRAOUTI, 2024)

However, the sector must also navigate substantial threats. Depending on fishing agreements with external entities, particularly the EU, makes Morocco vulnerable to restrictive quotas or financial obligations. Global competition from nations with more advanced fleets and production capacities poses challenges to maintaining international market share (Nejjari & Elyousfi, 2023) Furthermore, environmental risks, such as biotoxins in regions like M'diq, threaten both human health and marine ecosystems. Limited consumer acceptance of new aquaculture products adds an additional layer of complexity to market expansion (Hanine, Dinar, & Meftah, 2023)

Developing a maritime cluster in Morocco could address these challenges while amplifying the sector's strengths. A cluster would act as an intermediary between businesses, universities, research institutions, and public agencies, fostering collaboration and knowledge exchange. It could facilitate the adoption of advanced aquaculture technologies, improve infrastructure, and promote sustainable practices. By aligning local actors with EU standards and regulations, the cluster could enhance Morocco's export competitiveness while strengthening trade relationships with Mediterranean and European markets.

Additionally, a maritime cluster could catalyse regional and local cooperation, enabling the creation of innovative policies and strategies that address shared challenges. Enhanced collaboration with North Mediterranean partners could support technology transfer, while partnerships within the MENA region would strengthen regional integration. These synergies would not only step up Morocco's position in the global blue economy but also contribute to food security, job creation, and foreign investment, positioning the country as a leading actor in sustainable fisheries and aquaculture.



Digitalisation



Figure 3 - SWOT of Ports Digitalisation sector in Morocco.
Graphics elaborated by the author of the report.

The digitalisation sector in Morocco represents a transformative opportunity to enhance economic development, public services, and integration into the global knowledge economy. With government initiatives and private sector involvement driving progress, the sector is poised to play a crucial role in the formation of a maritime cluster while fostering regional and international cooperation.

Morocco's strengths in digitalisation reflect its proactive approach to building a robust digital ecosystem. As a government priority, significant efforts are being made to ensure digital literacy among citizens, supported by the establishment of new training facilities focused on programming and computer science. The private sector complements these efforts, with telecom companies providing vocational training for installing and maintaining fibre networks. A solid legal framework for cybersecurity, data sovereignty, and protection underpins these initiatives, ensuring a secure environment for technological growth (Digital Cooperation Organization, 2022). Platforms like Portnet exemplify Morocco's digital leadership, facilitating trade operations

and interconnecting stakeholders to reduce costs and processing times. Furthermore, Morocco has positioned itself as a pioneer in Africa by partnering with Oracle to establish a Research and Development (R&D) facility, bolstering innovation and international collaboration. Programs such as *Digital Morocco 2030* provide a strategic roadmap for the sector's growth (Patel, Trade Finance Global, 2024)

Nevertheless, certain weaknesses hinder Morocco's digitalisation trajectory. Limited availability of digital data and a general hesitation among organisations and the population to adopt new technologies due to unfamiliarity or fear of change act as barriers to widespread digital transformation. Additionally, the absence of governmental financial incentives for digital initiatives discourages innovation and private sector participation. A lack of suitable insurance mechanisms for technological implementations further complicates the adoption of advanced digital solutions (Karim & Mohamed, 2024)

Opportunities for Morocco's digitalisation sector is abundant, with programs aiming to train 100,000 digital talents annually by 2030, fostering a skilled workforce capable of supporting a digital economy. Partnerships between the public and private sectors can accelerate the development of integrated digital solutions, while attracting international incubators and venture capitalists offer mentorship and funding opportunities for local startups. The hybrid cloud model, combining sovereign cloud services for sensitive data with public cloud solutions for broader applications, exemplifies a forward-thinking approach to managing data. Maintaining an adaptive legal framework aligned with technological advancements can bolster user trust, while educational initiatives aimed at enhancing digital skills can address the hesitation to adopt new technologies (Digwatch, 2024)

Threats remain significant, with advanced digital systems requiring substantial investments that create barriers for small and medium enterprises (SMEs). Cybersecurity challenges are particularly concerning, as Morocco ranks 15th globally for online infection risk, highlighting vulnerabilities in protecting digital assets and user confidence (SAMENA Telecommunications Council, 2024)

A maritime cluster in Morocco, supported by digitalisation, can play a pivotal role in addressing these challenges while leveraging the sector's strengths. By acting as a hub for collaboration between businesses, academic institutions,

and public agencies, the cluster can streamline the adoption of digital technologies across maritime activities, from logistics to fisheries and sustainable tourism. Platforms like Portnet demonstrate how digital solutions can improve efficiency and reduce costs, and such innovations could be scaled to enhance maritime operations further.

Furthermore, regional cooperation within the Mediterranean can enable technology transfer and capacity-building initiatives, fostering shared solutions to common digitalisation challenges. Enhanced collaboration with Northern Mediterranean countries, particularly in cybersecurity and advanced infrastructure, could strengthen Morocco's digital ecosystem. Locally, public-private partnerships can drive investment in digital projects, creating a supportive environment for SMEs and start-ups. These synergies would not only enhance Morocco's competitiveness in the global digital economy but also solidify its position as a leader in regional digital integration, aligning with its broader blue economy aspirations.



Blue Skills



Figure 4 - SWOT of Blue Skills in Morocco.
Graphics elaborated by the author of the report.

The blue skills sector in Morocco is pivotal to advancing the nation's maritime economy and ensuring the sustainability of its marine and coastal resources. By developing a skilled workforce tailored to the needs of the blue economy, Morocco can strengthen its position in the global maritime landscape while fostering local and regional collaboration.

Morocco's blue skills ecosystem is reinforced by a robust foundation of specialised maritime education and training. The Ministry of Vocational Training oversees 14 dedicated maritime training establishments, while six universities offer 15 master's programs aligned with blue economy priorities, such as marine environment, aquaculture, fisheries, engineering, and climate change adaptation (Hanine, Dinar, & Meftah, 2023). Initiatives like the Early Career Ocean Professionals (ECOP) Programme further enrich this ecosystem by engaging emerging talent in ocean science and fostering global partnerships under the UN Decade of Ocean Science. Institutions like the Higher Institute of Maritime Studies (ISEM) in Casablanca, which has trained over 4,000 maritime officers, underscore Morocco's commitment to

cultivating highly skilled professionals (Early Career Ocean Professionals, 2024) These strengths highlight the nation's ability to produce a workforce adept at leveraging technologies such as GPS tracking, data analytics, and remote sensing to enhance marine resource management and operational efficiency (Nejjari & Elyousfi, 2023)

Despite these achievements, the blue skills sector faces several challenges that must be addressed to unlock its full potential. Training costs for advanced technologies and software remain prohibitively high, limiting accessibility for many (Karim & Mohamed, 2024). The diversity of actors involved in the maritime sector often leads to fragmented and decentralised knowledge, reducing the visibility and efficacy of education and research programmes (Le Conseil Economique Social et Environnemental, 2018). The budget for research and development is notably low at 0.8% of GDP, further constraining innovation and progress (Hanine, Dinar, & Meftah, 2023). Additionally, a lack of state-of-the-art training facilities, both at lab and pilot scales, hinders practical learning opportunities, while remote areas struggle to access existing centres (Le Conseil Economique Social et Environnemental, 2018)

Opportunities abound in Morocco to expand its blue skills sector and align it with the emerging demands. Increasing educational capacity through universities, training centres, and innovative formats like coding schools and retraining programs can help bridge gaps in workforce readiness. The restructuring of existing sectors and the creation of new ones, such as renewable energy and aquaculture, require a well-trained workforce, presenting opportunities for targeted training initiatives (Le Conseil Economique Social et Environnemental, 2018). Partnerships like the recent agreement between DFDS and ISEM, which promotes diversity through initiatives like the *Waves of Talent* female cadet program, highlight how inclusivity can be integrated into sector development (Ghajour, 2024). Expanding these efforts and fostering stronger collaboration between the public and private sectors can accelerate workforce development while meeting industry-specific needs.

However, the sector is not without threats. A lack of private initiatives to train a qualified maritime workforce, coupled with talent migration seeking better opportunities abroad, risks depleting the local talent pool (Le Conseil Economique Social et Environnemental, 2018). Accessibility issues in rural and remote areas further worsen inequalities in workforce development, limiting the inclusivity of training programs (Nejjari & Elyousfi, 2023)

The establishment of a maritime cluster in Morocco could serve as a catalyst for addressing these challenges while amplifying existing strengths. By centralising education, research, and industry collaboration, a cluster would provide a unified platform for skill development and knowledge sharing. It could facilitate partnerships with international institutions to attract advanced training programs and technology transfer, while also creating incentives for private sector involvement in education and workforce development.

A cluster could foster regional and local cooperation, linking Morocco with Mediterranean neighbours for joint capacity-building initiatives and cross-border knowledge exchange. Programs like ECOP, in alignment with cluster activities, could enhance Morocco's standing in the global blue economy while ensuring a steady pipeline of talent to meet evolving sector demands. Locally, collaboration between maritime industries and training institutions could align educational offerings with market needs, reducing skill mismatches and strengthening Morocco's maritime workforce. Through these measures, Morocco's blue skills sector would not only support the broader goals of its blue economy but also contribute to sustainable development and regional leadership in maritime expertise.



Marine Renewables – Desalination & Green Hydrogen



Figure 5 - SWOT of Renewable Energies in the Desalination sector in Morocco. Graphics elaborated by the author of the report.

Morocco's marine renewable energies and desalination sector presents significant potential to address the nation's energy and water needs while positioning it as a regional leader in sustainable innovation. The sector's strategic location and ambitious national targets, coupled with its growing expertise in green hydrogen and renewable energy technologies, offer vast development opportunities.

Morocco boasts substantial strengths in renewable energy capacity and governance. With 13.48% of electricity produced from wind power in 2022 and plans to increase the share of renewables to 52% by 2030, Morocco demonstrates its commitment to a greener energy future. The nation's [Green Hydrogen Roadmap and Low Carbon Development Strategy to 2050](#) align with EU demand for green energy imports, providing an avenue for economic growth and international collaboration. Its unique geographical advantages, consistent trade winds and high solar insolation rates make it an ideal location for investments in renewables (Tedesco & Martin, 2024). Furthermore, the

establishment of a multi-sectoral governance body and the Green Hydrogen Cluster in 2021 underscores Morocco's readiness to support research, development, and industrial integration in this field (Lyazidi, 2023)

Despite these advantages, the sector faces challenges and weaknesses that require attention. Morocco's energy mix remains heavily reliant on imported fossil fuels, accounting for 80% of electricity generation. Desalination plants, which are critical for addressing water scarcity, require significant energy inputs, leading to high operational costs. The lack of a comprehensive regulatory framework for hydrogen production and export, coupled with limited financing options, hinders sector growth. Additionally, there is a risk of conflicts over resource allocation between green hydrogen production and other critical uses, such as the drinking water supply (Bayssi, y otros, 2024)

Opportunities for growth in the sector are abundant. Investments in hydro and offshore technologies, such as pumped storage hydropower, can diversify the energy mix and reduce dependency on imports. Morocco's plans to construct 30 desalination plants by 2030 can alleviate water scarcity while leveraging renewable energy to power these facilities sustainably. International partnerships provide pathways for funding and expertise, enabling Morocco to reduce greenhouse gas emissions by up to 45.5% with global support to renewables (Tedesco & Martin, 2024). The growing global demand for green energy (Lyazidi, 2023), opens the door for Morocco to become a major exporter of green hydrogen and ammonia, particularly as the costs of production decrease and environmental regulations tighten between 2030 and 2040 (Bayssi, y otros, 2024)

However, the sector must navigate certain threats to realise these opportunities. Climate change worsens water scarcity and threatens renewable energy infrastructure, while the high costs of the latest technologies and electrolytic generation present financial hurdles. Balancing domestic needs with export ambitions will be crucial to avoid resource conflicts, and addressing gaps in regulation and infrastructure is critical to ensure Morocco's competitiveness in the global market (Lyazidi, 2023)

The development of a maritime cluster could play a transformative role in overcoming these challenges and capitalising on opportunities. By fostering collaboration between government, industry, and academia, the cluster can drive innovation and efficiency in the sector. It can also centralise resources for research and development, streamline knowledge sharing, and provide a

platform for securing international investments. Furthermore, the cluster could establish regulatory frameworks and facilitate the adoption of cutting-edge technologies, ensuring Morocco remains at the forefront of renewable energy and desalination advancements.

Through these efforts, Morocco can enhance its energy security, improve water access, and solidify its role as a key player in the Mediterranean and global blue economies. A maritime cluster would not only strengthen domestic resilience but also position Morocco as a sustainable energy and water solutions provider, fostering regional collaboration and addressing shared challenges in North Africa and beyond.

Sustainable Tourism



Figure 6 - SWOT of the Sustainable Tourism sector in Morocco. Graphics elaborated by the author of the report.

Morocco's sustainable tourism sector is a vital pillar of the national economy, contributing 7% to GDP and providing over 300,000 jobs in coastal areas. Its strategic geographic location, with extensive Atlantic and Mediterranean coastlines, positions it as an attractive destination for both European and MENA region tourists (Nezha, y otros, 2021). Coastal cities rich in history and

maritime cultural heritage, such as the Roman amphorae discovered off Cap Cantin, provide unique opportunities for cultural and recreational tourism (Trakadas & Karra, 2023). Morocco has demonstrated its commitment to eco-sustainable tourism through projects like the Taghazout Bay complex, which aligns with the growing global demand for greener travel options” (Tedesco & Martin, 2024). Additionally, its well-developed coastal infrastructure, primarily managed by private operators, enhances accessibility and visitor satisfaction, further solidifying Morocco’s position as a key destination (Le Conseil Economique Social et Environnemental, 2018)

However, the sector faces challenges that hinder its full potential. Seasonality in coastal tourism limits year-round profitability, while a lack of recreational boating infrastructure restricts leisure tourism (Le Conseil Economique Social et Environnemental, 2018). Illegal fishing practices, along with unregulated construction of ports, oil platforms, and aquaculture facilities, cause damage to underwater cultural heritage and disrupt marine ecosystems. The absence of preliminary archaeological studies for development projects further exacerbates this (Trakadas & Karra, 2023). Moreover, limited public awareness of recreational and cultural tourism, coupled with inefficiencies in public administration and differences in business practices, creates barriers for both domestic and foreign entrepreneurs (Kapera & Kapera, 2023). These weaknesses highlight the need for strategic planning and improved governance to ensure sustainable growth.

The sector is also vulnerable to external threats, including climate change, which manifests through sea level rise, coastal erosion, and habitat destruction (Trakadas & Karra, 2023). Overpopulation and unsustainable consumption of natural resources in coastal areas intensify these challenges, threatening biodiversity and local communities. Pollution from households, industry, and tourism infrastructure adds to the environmental strain. Additionally, Morocco’s sustainability standards often fall short of international expectations, potentially deterring eco-conscious travellers (Kapera & Kapera, 2023). Addressing these threats requires a concerted effort to balance tourism development with environmental preservation and resilience.

Despite these challenges, Morocco has significant opportunities to expand its tourism sector sustainably. The country’s rich cultural and natural assets make it an ideal candidate for developing eco-tourism, cultural tourism, and rural tourism to attract niche markets (Kapera & Kapera, 2023). Investments in leisure and pleasure boating infrastructure can enhance recreational tourism,

create jobs and increase local engagement with maritime heritage (Le Conseil Economique Social et Environnemental, 2018). Promoting domestic tourism among Moroccan citizens and fostering women’s entrepreneurship in small and medium enterprises can stimulate inclusive growth (Tedesco & Martin, 2024). Green building practices for tourism-related infrastructure, combined with public-private partnerships, can ensure the sector’s long-term sustainability (Kapera & Kapera, 2023)

Additionally, targeted international marketing campaigns, collaboration with influencers, and the development of new attractions and accommodations can increase Morocco’s visibility on the global stage (Tedesco & Martin, 2024). Reducing cultural and regulatory barriers for foreign entrepreneurs and improving public transportation and health accessibility will further enhance Morocco’s appeal as a tourist destination (Kapera & Kapera, 2023). By adapting to greener practices and aligning with global sustainability trends, Morocco can strengthen its tourism sector while preserving its coastal and maritime heritage. These efforts, when integrated into a comprehensive maritime cluster strategy, can ensure sustainable and resilient tourism development in the future.

The creation of a maritime cluster focused on sustainable tourism could unlock these opportunities while addressing existing challenges. Such a cluster would facilitate collaboration among government bodies, private operators, and academic institutions, streamlining knowledge sharing and resource allocation. It could also foster innovation in sustainable tourism practices and improve regulatory frameworks to support environmental preservation. By promoting Morocco’s cultural and maritime heritage, the cluster could position the nation as a leader in eco-tourism and cultural tourism, attracting international visitors and investment.

Furthermore, a maritime cluster would strengthen Morocco’s ties with Mediterranean and MENA countries, promoting knowledge exchange and joint ventures in sustainable tourism. This regional cooperation could enhance Morocco’s role in addressing shared challenges, such as climate change and biodiversity loss, while positioning it as a hub for sustainable development in the region. By leveraging its geographical and cultural advantages through a maritime cluster, Morocco can ensure its tourism sector remains resilient, inclusive, and aligned with global sustainability goals.

Sustainable Maritime Transport – Shipbuilding & Port Activities



Figure 7 - SWOT of Sustainable Transport sector in Morocco. Graphics elaborated by the author of the report.

Morocco's sustainable maritime transport sector holds immense potential for driving economic growth and enhancing its strategic positioning within global trade networks. With 37 ports handling 87 million tons of goods annually (Tedesco & Martin, 2024), and the Port of Tanger Med as the largest and most advanced in the Mediterranean and Africa (Port Technology International, 2020), the sector is a cornerstone of Morocco's blue economy. Its strategic geographical location, connecting the Atlantic Ocean, the Mediterranean Sea, and the Strait of Gibraltar, provides unparalleled access to major maritime routes and global trade hubs (Tedesco & Martin, 2024).

Morocco's commitment to sustainable maritime transport is evident in its robust policy framework, including the "Port Strategy 2030," which emphasises efficiency, sustainability, and the development of maritime clusters (Bouazza,

Benmamoun, & Hachimi, 2023). The establishment of the Cluster Industrie Navale du Maroc (CINM) in 2023 highlights the nation's focus on fostering innovation, collaboration, and green transitions within the sector (Maritime News L'info Maritime du Maroc, 2024). Tax incentives, income tax reductions in designated regions, and the presence of Africa's first industrial trade zone at Tanger Med further underscore Morocco's readiness to attract global investors and operators (Tedesco & Martin, 2024).

However, the sector faces several challenges. While port demand has grown at a rate of over 6% annually, insufficient port capacity and operational inefficiencies hinder the sector's ability to meet its full potential (Tedesco & Martin, 2024). Disruptions such as long waiting times and service uncertainties increase emissions from idling vessels, undermining sustainability efforts (Sienra, 2024). Moreover, reliance on global operators due to limited local shipping fleets restricts Morocco's autonomy in maritime logistics (Bouazza, Benmamoun, & Hachimi, 2023). High costs associated with the green transition, combined with rising regulatory pressures on emissions, pose additional financial and operational hurdles.

Despite these challenges, the opportunities for sustainable maritime transport in Morocco are vast. Investments in shipyards across Casablanca, Agadir, Nador, and Dakhla can support the renewal of large fishing vessels and naval fleets while fostering local expertise in shipbuilding. Automation of port processes through smart transport systems can reduce emissions, optimise operations, and improve spatial efficiency (Tedesco & Martin, 2024). By leveraging technologies like machine learning for operational planning, Morocco can enhance the reliability and sustainability of its port management systems (Mekkaoui, Benabbou, & Berrado, 2020). Strengthening partnerships with countries like Spain and fostering collaboration among public and private stakeholders within maritime and industrial ecosystems can further bolster Morocco's maritime influence (Agence De Presse Africaine (APAnews), 2021)

The establishment of a maritime cluster focused on sustainable transport would amplify these strengths and address critical weaknesses. It could act as a catalyst for innovation, uniting government, industry, and academia to drive advancements in green shipping practices, infrastructure optimisation, and technological integration. By encouraging the development of a "Made in Morocco" naval industry, the cluster could reduce dependency on foreign operators while creating high-value jobs and stimulating local economies.

Such a cluster would also strengthen Morocco's role as a central hub for Africa-Europe-Asia trade, enhancing connectivity and fostering regional cooperation. By collaborating with Mediterranean and MENA countries, Morocco can address shared challenges, such as decarbonising maritime transport and improving energy resilience. This cooperation not only aligns with global sustainability goals but also reinforces Morocco's leadership in promoting innovative, eco-conscious practices in maritime transport. Through these efforts, Morocco can secure its position as a key player in the Mediterranean and global maritime economies, driving sustainable growth while fostering regional and international collaboration.

6.2.2 Egypt

For the SWOT Analysis in Egypt, 7 different SWOT figures have been developed. The first one will be a general overview of the maritime sector, while the rest will focus on the strengths, weaknesses, opportunities and threats of the 6 most promising maritime sectors in Egypt that have been identified in the previous desktop analysis “D2.1. Maritime clusters Blue Economy Reporting” (Tedesco & Martin, 2024)

It is essential to take into consideration this previous desktop analysis on maritime clusters and blue economy, since most of the SWOT factors will come as a reflection of the most promising blue economy sectors identified. The SWOT factors identified from other papers and studies will be detailed in each of the SWOT analyses by sector.

General Overview



Figure 8 - General SWOT of the maritime sector in Egypt.
Graphics elaborated by the author of the report.

Aquaculture Overview



Figure 9 - SWOT of the Aquaculture sector in Egypt.
Graphics elaborated by the author of the report.

The aquaculture sector in Egypt shows great potential to become a strategic pillar within the MENA region. Currently, Egypt is the largest producer of tilapia in Africa, with 964,196 tonnes produced in 2022 (FAO, 2024). Furthermore, it exports 1,647.33 tonnes to its neighbouring countries (ITC Trade Map, 2024), meaning only 0,17% of the production is being exported and that most of it is for domestic consumption. Tilapia is not the only fish being highly produced, according to an article about aquaculture in Egypt in the Marine Policy (Abdel-Hady, Barrania, Abdel-Khalek, & Haggag, 2024), Egypt is the world's largest producer of meagre, even though its share has reduced in the past year, having in 2021 a 64% market share.

The **implementation of new aquaculture systems**, such as the **In-Pond Raceway**, is a great opportunity for Egypt to boost productivity by the optimisation of the resources used and the sustainability practices improvement. Not only could it foster the production of Tilapia and Meagre in

Egypt, but also the **establishment of areas for aquaculture activities along the Suez Canal**, which has only 1 space in this location.

However, the development of a maritime cluster would help overcome the technological limitations that are being faced by the sector, such as the lack of advanced infrastructure and sustainable technologies to optimise production, not only that, it would be an intermediary between businesses, universities, research centres and public institutions; Resulting in a more efficient actor for knowledge transfer and adoption of innovative technologies, enhancing Egypt's competitiveness in the international market.

Not only that, in terms of exports, an Egyptian maritime cluster would foster Egypt's trade relations with the EU by helping local aquaculture actors to **adapt to and meet EU standards and regulations** through more sustainable and advanced aquaculture practices.

On the other hand, a maritime cluster could also help in the exchange of needs and solutions between the aquaculture actors by fostering the creation of new economic and political solutions. These new strategies and policies would enhance Egypt's aquaculture production and exports, food security, job creation, foreign investment and research. This would lead to strengthening Egypt's international relations and consolidate its role in the global BuE, with the benefit of better positioning itself in the European and African markets.



Digitalisation Overview



Figure 10 - SWOT of the Ports Digitalisation sector in Egypt. Graphics elaborated by the author of the report.

The digitalisation of the different sectors of the BuE is an opportunity to improve Egyptian ports and infrastructures. Nevertheless, progress is slow and almost stuck due to the lack of a qualified workforce, both in terms of graduates and employees trained in the latest technologies. Digital tools and software are being introduced gradually, slowing down the modernisation process.

The Suez Canal is one of the most heavily transited points in global shipping and daily receives queries and complaints from ship owners that are dealing with long, time-consuming inspections and poor traffic management. To maintain competitiveness and solve the long waits, the Suez Canal urgently requires a full reform in terms of modernisation. A maritime cluster could

intervene between the actors from ports and the shipping sector, to accelerate the digitalisation and implementation of smart technologies.

Moreover, in compliance with a case study on the Damietta Port (Keshta & Salah, 2021), there is a lot of questioning in the development of Damietta's port in terms of digitalisation since it was supposed to be built as a smart port. This delay in building the promising smart port could result in high costs for the implementation of advanced technologies suitable for the port and its infrastructure.

The establishment of a maritime cluster would help overcome these weaknesses by fostering training programs and accelerating the integration of the latest technologies. Furthermore, it would help lead the transformation to smart ports of the Suez Canal, the Damietta's Port and the Alexandria Port, which are ports with geographical strategic location and have the need to adapt to the requests of the ships transiting and using Egyptian Ports, which would strengthen the political and trade relations with North and South Mediterranean countries. Moreover, maritime clusters can play a key role in gaining access to the EU market and drive public and private investment in smart infrastructures.

Different approaches to defeat the lack of knowledge and implementation of the latest technologies could be to **hire new graduates** which are more updated in terms of digitalisation, this would not only be convenient to accelerate the process and transition of smart ports, but would also foster youth employment; To **establish interconnections between Port Authorities and Terminals** by improving internal communication to make traffic management and decision-making more efficient, and reduce waiting times for shipowners; to **provide 5G internet**; To **install cloud computing, blockchain, IoT and big data**; to **implement Geographic Information Systems (GIS) and performance measurement systems** to improve the port's capacity to handle large volumes of traffic and to increase transparency and sustainability.

Marine Renewables / Desalination Overview



Figure 11 - SWOT of Marine Renewable Energies in the Desalination sector in Egypt. Graphics elaborated by the author of the report.

The marine renewable energy sector is one of the most promising sectors within the BuE in Egypt. Given Egypt's heavy reliance on the Nile River, due to the increasing concerns about the sustainability of this resource and the rapid population growth, the country is facing a critical shortage of their drinking water resources that has become an urgent priority. An article from the Marine Science and Engineering Journal (Amin, et al., 2020) A conceptual design of a novel floating desalination plant powered by marine renewables sheds light on the future plans for Egypt's drinking water supply. The implementation of these desalination plants would significantly reduce the impact on the Nile River, resulting in the diversification of drinking water resources. Furthermore, a maritime cluster could drive the development of sustainable desalination technologies and water management to help reduce this challenge.

Egypt's access to abundant solar and wind resources gives it a significant competitive advantage in the use of marine renewable energy, thanks to its plentiful sunlight and strong coastal winds. A maritime cluster could encourage actors to collaborate and integrate projects on the field of renewables, driving clean energy production in all maritime sectors and export to neighbouring countries from the MENA region. These projects would also help to mitigate the effects of climate change by reducing its fossil fuel consumption.

Nevertheless, the inadequate infrastructure available to implement the latest technologies on a large scale makes it difficult to actually run and achieve these projects. The need for reform to develop enough capacity to integrate renewable energy sources has become a priority for the country. With the assistance of a maritime cluster, Egypt could drive the investments efficiently and improve the collaboration between the public and private sectors.

It is crucial for Egypt to **boost R&D on the exploitation of solar and wind energy** in the desalination process, as seen in the Suez Canal Corridor Project. Alongside the Suez Canal, there are several wind farms, yet there is a high priority for Egypt to **expand and implement more of these farms** to provide clean energy for the desalination plants and other structures.

The EU is keen in investing in Egypt's renewable energy resources to **export clean energy to Greece through underwater cables** (GREGY INTERCONNECTION EGYPT-GREECE, 2022), which is a great chance to develop and implement these infrastructures. With all these combined projects on the implementation of desalination plants and renewable energy sources, Egypt could take a step forward and become a key player in the global clean energy market.

Blue Skills

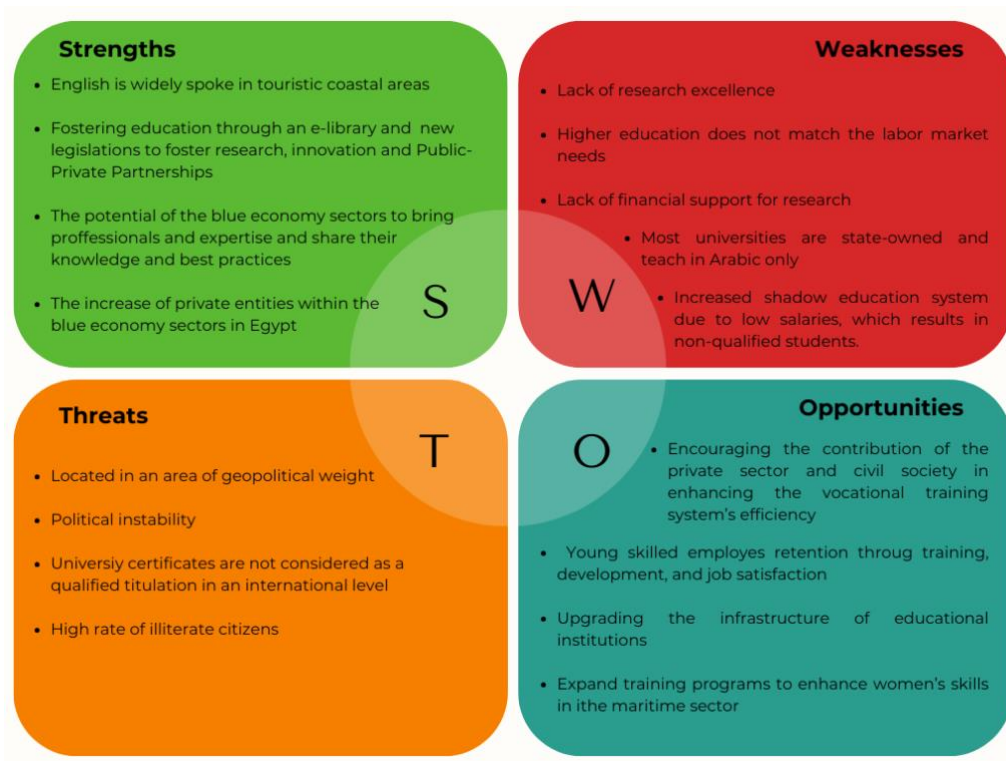


Figure 12 - SWOT of Blue Skills in Egypt.
Graphics elaborated by the author of the report.

Blue skills development is a key element for Egypt, and it was shared by the country through Egypt's Vision 2030 report (Ministry of Planning and Economic Development, 2025), in which the importance of improving education and human capital development became significant with clear goals to enhance vocational training, improve the educational infrastructure and increase women's involvement in Industrial sectors. However, Egypt still faces relevant challenges such as low educational standards that do not fit with international ones, relying on private tutoring due to teachers' low salaries and a lack of public-private funding for R&D.

Indeed, a maritime cluster could promote collaboration between educational institutions, businesses and public administration, to foster the creation of specialised training programmes in the different areas of the BuE sectors. It is crucial, not only to improve the skills of the employees, but to attract, maintain and retain talent in the country. Empirical research on the impact of training

on employee retention in Egypt (Elsafty & Oraby, 2022), reinforces the idea that training and development, alongside job satisfaction, are essential for retaining skilled employees, which sustains innovation and the use of new technologies in the BuE. Retaining young, skilled talent rather than losing it due to migration or lack of local opportunities would enable Egypt to boost its capacity for growth in the BuE

By **integrating the private sector** in the country, Egypt would have a wide range of training programmes, services that would make possible to match the current demands of the labour market and would open-up opportunities for women to support their participation in the BuE and contribute to gender equality which aligns with Egypt's Vision 2030 goals.

Improving blue skills would strengthen Egypt's international relationships by **adopting training and certification standards aligned with other continents**, such as Europe, through the exchange of skilled labour and technological knowledge. Furthermore, this would position Egypt as a pioneer in the MENA region, fostering this knowledge transfer and collaboration among the neighbouring countries.

Due to poor investment management and a lack of funding, Egypt has poor educational institutions which are barely operational. Upgrading these infrastructures would allow Egypt to **offer high-quality education** and to enhance its ability to **compete in the international market**.

Addressing the lack of funding for research and development is essential, and this is where a maritime cluster can intervene to provide a solution to organise public-private investment dedicated to higher education and specialised training programmes focused on the latest software and technologies for the different BuE sectors, such as shipping. This approach would facilitate job creation, open up opportunities for youth and women, and contribute to retaining and fostering local talent.

Sustainable Tourism Overview



Figure 13 - SWOT of Tourism sector in Egypt.
Graphics elaborated by the author of the report.

Climate change is one of the main challenges that are being faced globally, and every day that goes by, sustainability is crucial to adapt to new international policies and restrictions in terms of pollution and waste. This is why sustainable tourism is a key sector within Egypt's economy, particularly in the Red Sea, which constitutes around 31% of the international tourism, and its coastal tourism contributes about 83% of the Gross Value Added (GVA) (Kabil, AbdAlmoity, Csobán, & Dávid, 2022). The economic impact that this sector drives makes the focus on more sustainable practices that will lead to the protection of marine and coastal ecosystems, which are essential for attracting tourists. A maritime cluster would ensure minimal environmental impact through the engagement of public entities to establish new policies that align with these values and through the sharing of best practices from North Mediterranean countries.

Even when traditional diving activities are popular, there is a need to diversify the range of activities offered by diving centres in Egypt, such as diving with sharks, although it is a high-risk activity in terms of ensuring tourists' safety (Abdelrahman, Hizah, & Salem, 2018). To maximise the activities' impact, a maritime cluster would contribute by **conducting market research into the most innovative activities** that could be introduced in the services catalogues from the diving centres. It would also enable stakeholders to collaborate in establishing higher maritime safety standards, resulting in **specialised training for tour guides** and the implementation of **safer infrastructures to mitigate the risks** induced by these touristic activities. Not only that, but it would also promote collaboration between them, for example, **affiliating diving centres with insurance companies** to offer travel insurance that covers scuba diving and snorkelling activities, which would increase safety and customer experience. In addition to that, **diving centres could also collaborate with coastal accommodations** to provide a shuttle bus to maximise the tourist convenience, resulting in a better integration and management of tourist services.

To avoid repetitive and traditional activities, **showcasing in museums antiquities recovered from the underwater cities** where visibility is not clear in museums would attract cultural tourism interested in Egypt's rich history and underwater archaeology. This initiative would provide a continuous revenue to the country due to the preservation of these antiquities linked to sustainable tourism practices.

The **construction of marinas** is an excellent opportunity to attract high-income tourists, particularly those engaging in nautical activities and travelling by private yachts or boats. These marinas would provide a strategic entry point for international visitors and strengthen Egypt's tourism connections with European and MENA regions. Moreover, these infrastructures could be integrated with other tourism services, such as coastal resorts and diving centres, creating a broader and more sustainable tourism ecosystem.

Sustainable Maritime Transport Overview



Figure 14 - SWOT of Maritime Transport sector in Egypt.
Graphics elaborated by the author of the report.

Given Egypt's strategic location, thanks to the Suez Canal, it is one of the World's most trafficked routes (Othman, El Gazzar, & Knez, 2022). Nevertheless, the global priority due to current environmental challenges is forcing Egypt to accelerate the adoption of green and smart ports and improve port infrastructures.

The Suez Canal and Alexandria Port are among Egypt's greatest strengths, with Alexandria Port handling over 55% of the country's international trade and ranking 52nd globally in container handling. Nevertheless, the current limitations in port infrastructure, logistics IT systems, and internet connectivity reduce the efficiency and competitiveness of these ports. The automation of port processes, such as container handling, would not only improve the country's competitiveness but also foster cooperation with other ports, facilitating smoother and greener trade routes.

Maritime clusters play a crucial role in coordinating such efforts between the government, private sector and international stakeholders, with the aim of implementing digitalisation in port management and logistics, ultimately improving operational efficiency, and transferring knowledge and best practices. This kind of approach could enable Egypt to position itself as a leader in the sector within Africa, fostering its competitive advantage in global trade.

In particular, the use of the Nile River for inland transport is a promising opportunity for **reducing** road traffic and **CO2 emissions**. The river provides a natural transport corridor that, if properly maintained, could significantly alleviate the environmental burden of overland transport. However, the Nile River has suffered from a severe decrease in water, which makes ships transiting in the river cautious and acknowledge this issue due to the possibility of damage or risky ship traffic. However, this issue can be solved through the maintenance of the river to provide a suitable depth that ensures smooth river navigation (Saber, Ahmed, & Ibrahim, 2024). A maritime cluster could help coordinate the necessary investments and initiatives to ensure that the Nile River remains a viable and environmentally friendly transportation route, contributing to Egypt's broader environmental and economic goals.

The increase in the volume of imports and exports at key ports, such as Alexandria, presents another great opportunity. This growth would contribute to the development of the economic hinterland, creating jobs and improving trade infrastructure. However, as highlighted in a study on Alexandria Port performance (Awad, 2021), the port's capacity to meet this demand is limited due to its proximity to the city. Therefore, expanding Alexandria Port, along with implementing automation technologies, could attract private investment and improve Egypt's trade relations with Europe and other international partners.

In the context of regional cooperation, improving Egypt's ports and adopting smart technologies would strengthen its ties with both Europe and the MENA region. The modernisation of Egypt's ports, particularly Alexandria, could help increase trade volumes and support hinterland economic growth. In turn, this would open the door to deeper economic integration with Mediterranean countries like Greece and Italy, as well as fostering cooperation with other MENA nations that share similar maritime ambitions.

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