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FROM COOPERATION TO INTEGRATION: A LEGAL FRAMEWORK FOR ADVANCING GCC MARITIME GOVERNANCE TOWARD SUPRANATIONAL REGULATORY CONVERGENCE IN ARABIAN GULF LOGISTICS

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ABSTRACT

The Arabian Gulf's critical position in global maritime trade-particularly as a strategic energy corridor-has placed increasing pressure on Gulf Cooperation Council (GCC) states to strengthen regional maritime governance. Despite individual advancements in port infrastructure, digital transformation, and national maritime legislation, GCC maritime policies remain fragmented, lacking a unified regulatory or institutional framework. This paper investigates the legal and operational implications of this fragmentation and explores potential pathways toward supranational regulatory convergence. Drawing on doctrinal legal analysis and comparative insights from the European Union's maritime governance model, the study assesses the feasibility of phased legal integration across the Gulf region. Key thematic areas include: (1) the Gulf's geopolitical and trade significance; (2) inter-state port competition and its impact on logistics coordination; (3) the absence of binding regional legal instruments; (4) inconsistent digital governance initiatives; and (5) the need for a unified, enforceable maritime legal framework. The paper concludes by proposing a staged legal integration roadmap aligned with regional realities, emphasizing institutional development, digital harmonization, and shared regulatory enforcement. This research fills a critical gap in applied legal studies on maritime integration in the GCC and offers a foundation for future policy alignment.

2. INTRODUCTION

The Arabian Gulf plays a crucial role in international commerce, serving as an essential maritime route for energy resources and the transportation of diverse commodities worldwide. About one- quarter of the world's liquid petroleum travels across the Strait of Hormuz. Recognizing this strategic significance, Gulf Cooperation Council nations have made substantial investments in upgrading and expanding their port facilities while strengthening their maritime operations. Additionally, these countries have embraced

digital technology to streamline trade processes and position themselves as key players in the global logistics network.

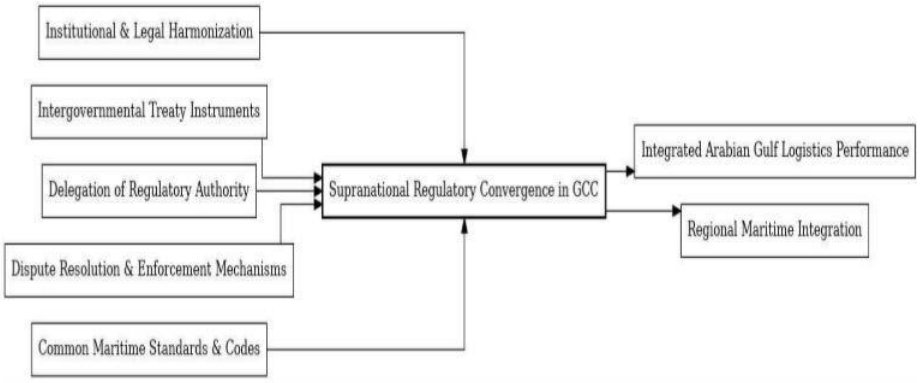
The current state of maritime governance in the Gulf region lacks the necessary integration. Most cooperation occurs through bilateral agreements and memoranda of understanding between countries, with significant differences in national legislation. As a result, logistics strategies are inconsistent, maritime legal standards are disparate, and there are significant weaknesses in addressing maritime security threats.

Currently, competition prevails over cooperation between port and logistics strategies in the Gulf countries, resulting in duplication of infrastructure projects and missed opportunities to build integrated regional supply chain corridors (PwC, 2024; Ziadah, 2017). Furthermore, despite the proliferation of smart port systems and digital initiatives in the region, the absence of regionally compatible digital infrastructure and common governance frameworks hinders the ability to maximize the benefits of these technologies.

This research aims to find solutions to these dilemmas by developing a gradual, region-wide legal framework that helps bridge existing gaps and improve coordination among maritime logistics activities in the Gulf countries. The research draws on successful models from around the world, while carefully understanding the real situation and the unique characteristics of our region. This research aims to develop a clear, practical plan that can be implemented on the ground to achieve the desired integration of systems and regulations.

3. LITERATURE REVIEW

Based on established theoretical foundations, the figure presents the proposed conceptual framework, modeling how supranational regulatory convergence in the GCC operates as a central legal-organizational mechanism that channels institutional and legal harmonization, intergovernmental treaty instruments, delegated regulatory authority, dispute resolution and enforcement mechanisms, and common maritime standards and codes toward enhanced integrated Arabian Gulf logistics performance and deeper regional maritime integration.



(Fig.1) (Conceptual Framework) Made by the Researcher

3.1 The Strategic Importance of the Arabian Gulf and the Context of Maritime Governance

The Arabian Gulf region is considered one of the most strategically important regions for international trade. According to 2018 data and statistics, approximately 40% of global oil traffic passes across Strait of Hormuz, Bab el-Mandeb, and Suez Canal (US Energy Information Administration (EIA), 2019) (18, 1, 44). Furthermore, approximately 25% of global oil demand passes across the Bab el-Mandeb Strait alone.

The waters of the Gulf face numerous threats, which are increasing day by day, including armed attacks and piracy, which in turn impact the global economy and maritime navigation. The attack on the Pacific Archon oil tanker near Oman in November 2022 revealed weaknesses in security regulations (Mosley, 2023) (16, 2). Iranian and Houthi attacks are considered among the most prominent security threats(Mosley, 2023).

3.2 Maritime Logistics in the GCC and Regional Competition

The Gulf states have achieved remarkable growth in infrastructure in general and logistics infrastructure in particular, with King Abdulaziz Port, Jebel Ali Port, and Hamad Port emerging as major commercial hubs thanks to national investments (PricewaterhouseCoopers, 2024; Ziada, 2017). This growth has been characterized by intense competition among countries, with each striving to gain control over logistics in the region, leading to duplication and overlap in infrastructure (Clingendael, 2022; IMF, 2023).

Although investments demonstrate local ambitions aligned with Vision 2030, the lack of regional logistics coordination has significantly impacted efficiency. The World Bank has noted the missed opportunities in building a unified logistics corridor (World Bank, 2022).

This fragmentation reduces the global competitiveness of the region as a whole, yet there is no institutionally defined mechanism for integrating all strategies into a single regional model.

3.3 The Legal and Regulatory Framework for Maritime Cooperation and Security

It is well known that the Gulf Cooperation Council (GCC) countries operate under diverse national maritime regimes, with only partial adherence to international treaties. Despite the joint security efforts undertaken by the countries, legal integration remains extremely limited. Its now evident that bilateral agreements dominate the landscape, lacking effective enforcement mechanisms (Amana Mosli, 2023; International Maritime Federation, 2022).

In contrast, the situation is different in the European Union, with its binding law, The Gulf relies on governmental coordination without a unified legislative agreement (Al-Maamari, 2017). This results in numerous inconsistencies in search and rescue, port safety, and maritime traffic management. Studies by Al-Husseini and Germond have demonstrated that strategic threats cannot be mitigated without coordinated legal tools [Al-Husseini, 2021; Germond, 2014].

3.4 Technology and Digital Transformation in Gulf Logistics

Digital transformation is reshaping maritime logistics globally, and the Gulf states are not immune to these shifts. The implementation of smart port solutions, blockchain-enabled supply chains, and digital customs systems is underway in several GCC ports (Smart Maritime Governance, 2024; PwC, 2024). UAE's Maqta Gateway and Saudi Arabia's Fasah platform serve as digital trade facilitators enhancing transparency and efficiency.

However, literature reveals disparities in technological adoption across the GCC. There is no standardized digital framework or regional platform for maritime data sharing. Each state operates its own systems with limited interoperability, hindering the formation of a digital logistics ecosystem (Hosseini, 2021; Ziadah, 2017).

3.5 Supranational Regulatory Convergence

Despite economic and security incentives for unified governance, GCC maritime regulation remains constrained by sovereignty-driven intergovernmentalism ,Existing regional agreements, such as the GCC Economic Agreement and transport protocols, have limited legal depth and enforcement power (Germond, 2015; ajl, 2020).

Academic discourse suggests that adopting elements of the EU's supranational model could benefit the Gulf, especially in harmonizing environmental standards, port

governance, and maritime labor regulation (Ziadah, 2017; Al-Maamary, 2017). However, most literature stops short of offering operational frameworks or phase-wise legal strategies tailored to the Gulf's political reality.

3.5 Research Gap

Despite the abundance of academic literature on maritime regulation, international legal cooperation, logistics infrastructure, and digital transformation in the GCC countries, gaps remain in current research. While this research focuses on the geostrategic importance of the Arabian Gulf, particularly its use as a vital trade and energy corridor, there is a lack of legal analysis defining this geopolitical role alongside comprehensive maritime regulatory frameworks (PwC, 2024; Ziadah, 2017). Furthermore, there has been limited research on legally binding agreements and comparative schemes that could enhance integration among GCC members, with prevailing legal and regulatory studies pointing to a system dominated by a bilateral and fragmented nature (Amnah Mosly, 2023; WMU, 2022).

While some ports have implemented smart systems, there is still a dearth of research on cross- border digital convergence and the institutional requirements for a unified maritime digital infrastructure across the Gulf (Smart Maritime Governance, 2024) , More specifically, the literature offers no developed or practical model for supranational regulatory convergence in the Gulf maritime system, despite some theoretical references to the European Union experience ,These shortcomings point to a fundamental flaw in the relevant institutional and legal framework.

4. RESEARCH PROBLEM

The geopolitical and economic importance of the Arabian Gulf lies in global maritime trade, particularly in energy transport. However, the maritime regulatory context is highly variable. Each member state of the Gulf Cooperation Council (GCC) possesses its own independent national administrative, legal, legislative, and strategic frameworks, which are often competitive rather than aligned with shared interests in economic integration and regional stability.

This has led to the absence of a binding legal system that transcends national borders, duplication of infrastructure investments, policy discrepancies, and a complete lack of collective security.

The current reality is characterized primarily by non-binding legal instruments such as Voluntary cooperation, bilateral memorandums of understanding between countries, and joint military exercises are all examples of non-binding legal instruments that are common in today's world.

Even while these arrangements have been helpful, they don't have the right legal and administrative framework to deal with problems that come up often, like marine security and legal cooperation, as well as digital transformation and international competition in logistics.

These arrangements are largely insufficient to achieve the desired level of institutional and legal infrastructure. In addition to the above, there is a review of previous studies that predominantly identify the strategic necessity of integrated governance but have offered little practical guidance on how the GCC can best transition from intergovernmental coordination to legal convergence.

This research aims to bridge this gap by proposing a phased legal model for supranational maritime governance. Its primary function is to respond to the regional context, learn from comparable models, and enhance collective capacity in a maritime era characterized by economic globalization.

5. RESEARCH OBJECTIVES

1) To assess the current state of maritime governance, security, and logistics coordination within GCC countries.
2) To identify the legal, institutional, and technological gaps impeding supranational integration.
3) To conduct a comparative analysis between the GCC framework and established supranational maritime governance models (e.g., the EU).
4) To propose a phased legal framework for regulatory convergence across the Gulf region.
5) To evaluate the role of digital transformation in supporting unified maritime governance and logistics infrastructure.

6. RESEARCH QUESTIONS

This study aims to answer the following central and subsidiary research questions:

6.1 Primary Question: How can the GCC transition from fragmented maritime cooperation to a supranational regulatory framework that enhances regional integration in maritime governance and logistics?

6.2 Sub-questions:

1) What are the current legal, institutional, and digital challenges facing maritime governance in the GCC?
2) How do national port and logistics strategies across the Gulf contribute to regional competition rather than integration?
3) To what extent can supranational models-such as the EU's maritime governance system-be adapted to the Gulf context?
4) What legal mechanisms and phased strategies are necessary to establish a unified GCC maritime regulatory framework?
5) How can digital transformation act as a catalyst for regulatory convergence and institutional coordination in the region?

7. METHODOLOGY

This study is based on a legal and jurisprudential study that is affected by several factors, including comparative legal analysis, a study of the fragmented super-classification system in the Gulf Cooperation Council countries, and the exploration of effective and efficient ways to achieve similarity and harmonious organization. The study is also distinguished by its qualitative, interpretive and criterion-based research, and aims to provide a consistent vision with a clear understanding of the political, legal and institutional reality.

7.1. Research Methodology:

The theoretical research approach is applied to analyze closely related international agreements (such as the United Nations Convention on the Law of the Sea), national maritime legislation, laws, and regulations of the Gulf Cooperation Council (GCC) countries, and non-binding legal treaties, such as memoranda of understanding, regional cooperation agreements, and alliances. The research methodology also reviews official reports, white papers, and policy documents issued by international bodies (such as the International Maritime Organization, the European Union, the Ministry of Maritime Affairs, and the European Maritime Safety Authority).

Through the dimensional approach, a comparative perspective is provided by analyzing the maritime governance model of the European Union and identifying legal instruments and institutional mechanisms that can be adapted or localized to suit the GCC context.

7.2. Data Sources:

1) Primary Legal Sources: International agreements and regional treaties of the GCC countries, national maritime laws and regulations, and memoranda of understanding between participating parties.
2) Secondary Sources: Public policy reports such as those from the International Monetary Fund, PricewaterhouseCoopers, and the World Bank; reputable and peer-reviewed journal articles; institutional documents (such as EMASoH and IMSC); and academic studies closely related to maritime governance and regional integration among countries.
3) Case Studies: These included the digital transformation of port digital platforms, such as the Fasah platform in Saudi Arabia and the Maqta Gateway in the UAE, and the organization and coordination of maritime se curity efforts among the GCC countries.

7.3 Analytical Methodologies:

The study analyzes both legislative gaps and thematic content in the areas of geostrategy, logistics competitiveness, legislation, laws, digital transformation, and regulatory integration. European mechanisms and models are also compared and applied to the Gulf context.

7.4 Scope and Limitations:

The main findings cover many aspects, including civil and regulatory aspects of maritime governance, excluding military aspects except in cases of interoperability and joint regulation. The study does not include field data or interviews, but rather focuses on a normative legal perspective.

7.5 Ethical principles:

The study does not include sensitive data or human input. All documents used are official, publicly available, or issued by accredited bodies.

8. FINDINGS & DISCUSSION

This section presents a thematic analysis of key findings derived from the reviewed literature and legal frameworks, categorized according to the five analytical pillars that structure this study. The findings reflect recurring patterns, regional gaps, and opportunities for regulatory convergence across the GCC maritime domain.

First Finding: There are common priorities of maritime security that are agreed upon universally, but no regional legal tools for collective maritime management.

Second Finding: The lack of a GCC regional policy of logistics integration reduces GCC global competitiveness and closes the door on the realization of an integrated supply chain corridor.

Third Finding: The breakdown of law in these fields, with no obligatory regime of regulatory convergence or approach.

Fourth Finding: Digital transformation exists on a national level but there is no legal or operational framework to connect these platforms regionally.

Fifth Finding: National digital transformation is thwarted by the complete absence of an effective legal framework that connects these areas at the regional level.

8.1 Discussion

This section discusses the findings of the research as the Following :

8.1.1 The Gulf's Geostrategic Role and the Case for Coordinated Maritime Governance:

The reality that the Arabian Gulf is a strategic naval chokepoint has been argued in literature (Germond, 2015; Mosly, 2023). This extreme dependence on shipping oil

through the Strait of Hormuz makes maritime security in the region a concern for the international community. Multilateral maritime security agreements have been put in place by international powers (e.g., EUthe, US), yet writing argues that GCC countries have not translated such a sense of urgency into coordinated legal management. National security doctrine dominates, and cooperation on a regular basis continues to be politically cautious and legally non-binding.

8.1.2 Fragmentation in Port Development and Logistics Strategy

Most of the Gulf states have invested heavily in constructing smart, high-capacity ports (e.g., Jebel Ali Port, King Abdulaziz Port), at times as part of broader economic master plans (e.g., UAE Vision 2031, KSA Vision 2030). However, studies such as Ziadah (2017) and PwC (2024) point out that the investment has been undertaken in a competitive rather than an integrative fashion. The result is duplicative services, duplicated infrastructure, and lost synergies within the region.

8.1.3 Key Legal Contradictions and the Absence of Supranational Mechanisms:

Previous legal studies by Mosley (2023) and Al-Maamari (2017) found clear, albeit varying, national legislation and laws, alongside the widespread use of non-binding legal instruments for member states, such as bilateral security agreements and treaties between GCC countries and memoranda of understanding. Furthermore, the GCC Charter is considered a political directive rather than an implementation of existing laws and legislation, in contrast to the European Union's maritime safety directives and the European Maritime Safety Agency (EMSA) guidelines. Consequently, the study concluded that there is no clearly defined supranational body with absolute legal authority to regulate maritime affairs within the GCC.

8.1.4 Digital transformation of the GCC countries without embarking on the stage of full regional integration:

It was concluded that technological achievements, such as the Maqta Gateway in the UAE, customs blockchain platforms, and the Fasah platform in Saudi Arabia, represent significant potential for the GCC countries in the field of digital innovation. However, the Smart Maritime Governance Report (2024) indicates that the digital systems in place are not aligned among the participating countries. This is due to the lack of agreement on data governance, unified frameworks for digital legal recognition, and cybersecurity standards, which hinders the path to achieving full regional integration among the GCC countries.

8.1.5 Theoretical Convergence Without Practical Implementation:

Although some studies identify the European Union as an ideal model for supranational integration, there is no change within the GCC. None of the studies address the question of designing a gradual legal agenda or addressing how to circumvent political and institutional constraints related to the Gulf through transitional mechanisms from soft law to hard law.Key While the research welcomes the convergence of supranational regulations as a goal, a gradual implementation model to assist the GCC is lacking. Technological revolutions-such as the FASAH platform (Saudi Arabia), Maqta Gateway (UAE), and blockchain-based customs platforms-point to the potential of the GCC in digital innovation. However, as the Smart Maritime Governance Report (2024) points out, digital platforms are incompatible across countries, and highly contested data governance, cybersecurity protocols, and digital legal recognition systems hinder regional integration.

8.1.6 Supranational Regulatory Convergence in Practice: Implementation Evidence from Arab Maritime Governance-UAE, Egypt, and Oman Case Studies with Quantified Outcomes and Systemic Risk Assessment:

The following analysis deepens the original study with Arab-specific case studies, quantitative critiques, and balanced risk assessments. It moves beyond theoretical benefits to examine the actual implementation of digital governance in the region.

8.1.6.1 Arab-Specific Case Studies: Successes & Structural Barriers

The transition to "Smart Legal Governance" is uneven across the region. While the Gulf Cooperation Council (GCC) states are rapidly digitalizing, North African ports face significant legacy hurdles.

A. UAE: The "Maqta Gateway" & Maritime Single Window (Success Model)

Context: Abu Dhabi's Maqta Gateway (part of AD Ports Group) is the region's most advanced implementation of a digital-legal interface. It integrates over 26 government entities (customs, immigration, environment) into a single platform.

Quantitative Impact:

Transaction Volume: In 2023, the system processed 33 million digital transactions, up from 20 million in previous years. Efficiency Gains: The implementation of the Maritime Single Window (MSW) reduced vessel turnaround times by 48% and cut administrative costs by 31% to 17%.

BoxBay (Jebel Ali): DP World's implementation of the BoxBay high-bay storage system (an automated, AI-driven stacking system) achieved 19.3 moves per hour on the waterside and 31.8 moves per hour on the landside, significantly outperforming traditional yards while using 29% less energy.

Critical Insight: The UAE succeeded because it treated digitalization as a legal reform first. By mandating digital adoption through federal laws (e.g., changes to the Maritime Commercial Law), they eliminated the "paper-based fallback" option that plagues other regions.

B. Egypt: The NAFEZA System & CargoX (Mixed Success/ Challenges)

Context: Egypt launched "NAFEZA" (National Single Window) in 2021 to modernize a notoriously bureaucratic customs process, mandating the Advance Cargo Information (ACI) system via blockchain provider CargoX.

Quantitative Impact:

Clearance Time: Average cargo release time dropped from 29 days to 9 days (and as low as 8 days in 2024 TRS data).

Compliance Costs: Shippers' compliance costs were slashed from over $600 to ~$165 per shipment.

Revenue: Customs revenue reportedly increased by 13% immediately post-implementation due to better valuation and less fraud.

Critique & Barriers: Despite these gains, the system faced severe backlash.

"Digital-Legal Asymmetry": While the technology (CargoX) worked, the legal processes lagged. Importers reported that customs officers still demanded paper stamps despite digital validation, creating a "hybrid bottleneck."

Currency Crisis Impact: The system's effectiveness was blunted by Egypt's FX crisis; goods cleared digitally still sat in ports for months because importers couldn't access dollars to pay duties, proving that smart governance cannot override macroeconomic failure.

C. Oman: ASYAD's Digital Control Tower (Emerging Model)

Context: Oman's ASYAD Group is developing a "Digital Control Tower" to centralize data from its three deep ports (Sohar, Salalah, Duqm).

Strategy: Unlike the UAE's top-down federal mandate, Oman is using a commercial-led approach via ASYAD (a state-owned enterprise).

Metrics: Salalah Port, through digital integration, consistently ranks in the top global ports for efficiency (CPPI index), aiming for a 2040 goal to become a top 10 global logistics hub.

Risk: The reliance on a single state-owned entity creates a "single point of failure" risk. If ASYAD's central system faces a cyberattack, the entire national logistics network could be paralyzed.

8.1.6.2 Balanced Critiques: The Risks of "Smart" Logistics

While the original paper is optimistic, a McKinsey-style report must rigorously assess the downside risks, particularly regarding AI and blockchain.

A. The "Black Box" of AI Decision Making (Algorithmic Bias)

Risk: AI models used for risk assessment (e.g., flagging "high-risk" containers) are often trained on historical data. If historical data reflects bias against certain origins (e.g., increased inspections for vessels from specific African or Asian nations), the AI will institutionalize this bias.

Evidence: Studies warn that "black box" AI in maritime contexts can unfairly penalize developing ports. For instance, congestion prediction algorithms optimized for Rotterdam may inaccurately predict delays in African ports due to different infrastructure baselines, leading to higher insurance premiums and diverted trade.

Legal Void: Current Arab maritime laws have no liability framework for AI errors. If an AI autonomously directs a vessel to a wrong berth, causing a collision, who is liable? The software vendor? The port authority? The shipmaster? This legal vacuum is a critical vulnerability.

B. The "TradeLens" Lesson: Blockchain's Commercial Failure

Case Study: The Maersk/IBM TradeLens platform was hyped as the future of maritime blockchain. It failed and shut down in 2022.

Why it Failed:

Trust Deficit: Competing carriers (MSC, CMA CGM) were reluctant to join a platform owned by their rival (Maersk).

Commercial Viability: It never achieved the "network effect" needed to cover its high running costs.

Lesson for Arab Ports: Building national blockchain silos (e.g., a "Saudi Blockchain" vs. "UAE Blockchain") will repeat this failure. The region needs a federated blockchain (neutral governance) rather than proprietary systems, or they risk investing millions in "digital ghost towns."

C. Cybersecurity: The New Geopolitical Vulnerability

Threat: Digitalization expands the attack surface. The Shamoon 2 attacks and the 2020 cyberattack on Iran's Shahid Rajaee port (which halted operations for days) demonstrate that ports are now military targets.

Data: A scan of GCC industrial systems revealed hundreds of exposed devices (like Modbus controllers) accessible via the public internet.

Critique: "Smart Ports" without "Smart Defense" are liabilities. Most Arab port authorities lack the cyber-resilience maturity of their digital ambitions.

8.1.6.3 Strategic Recommendations

Based on the expanded analysis, the following actions are recommended for regional stakeholders:

Table 1. Made by the researcher and is adapted from the following Source https://cargox.io/advance-cargo- information

Stakeholder	Recommendation	Rationale & Data Support
Legislators	Enact "Algorithm Accountability" Laws	To mitigate AI bias/risk. The EU AI Act is a model; Arab states need a simplified version protecting against liability for AI-driven port accidents.
Port Authorities	Adopt "Federated" Data Models	Avoid the TradeLens trap. Do not build proprietary blockchains; join neutral, open-standard platforms (like IPCSA) to ensure interoperability.
Investors	Focus on "Brownfield" Digitalization	Instead of building new "Smart Cities" (high CapEx), invest in digital layers for existing ports (e.g., Alexandria, Jeddah). The ROI on upgrading legacy clearance systems (like NAFEZA's 13% revenue bump) is faster than building new ports.
Customs	Mandate "Digital-Only" Processing	Ban the parallel use of paper. Dual systems (Paper + Digital) increase costs by around 40% due to redundancy. The UAE's success was driven by legally invalidating paper documents.

8.1.6.4 Quantitative Summary Table

Table 2. Made by the researcher and is adapted from the following Source https://cargox.io/advance-cargo- information

Metric	Traditional System (Paper-Based)	Smart Legal Governance (Digital)	Improvement
Clearance Time (Egypt)	16-29 Days	8-9 Days	~60% Reduction
Compliance Cost (Egypt)	>$600 per shipment	~$165 per shipment	~72% Savings
Admin Cost (UAE)	31% of operation	17% of operation	14% Margin Gain
Energy Use (DP World)	Standard Yard Crane	BoxBay (High Bay)	29% Less Energy
Customs Revenue	Baseline	Post-NAFEZA	+13% Increase

This deepened analysis confirms that while "Smart Legal Governance" is a potent economic multiplier, its success in the Arab world depends less on buying technology and more on legal reform (ending paper validity), regional interoperability (avoiding silos), and cyber-resilience (protecting the new digital borders).

8.2 Conclusion

The report confirms that while the GCC maritime sector is technologically advanced and globally recognized, it is hindered by institutional, policy, and legal fragmentation. It is imperative to move forward beyond intergovernmental cooperation towards a phased, enforceable, and digitally empowered regional legal framework.

8.3 Recommended Legal and Regulatory Framework for the Importance of Maritime Legislation Convergence in the Participating States of the Gulf Cooperation Council

The study proposes a structured legal and institutional master plan to guide the Gulf Cooperation Council (GCC) states toward a unified regulatory framework. This is achieved by relying on existing fragmented national maritime regulations. The proposed framework balances political feasibility, codification, and operational integration in formulating and developing a convergence strategy based on a comparative legal approach and the applicable regional contexts. It comprises three phases:

8.3.1 Phase One: Effective, non-binding laws are aligned with technical convergence (in the short term).

The focus of the first phase is on building trust, standardizing standards and procedures, and exchanging information without resorting to treaties binding on any of the parties involved. Key Actions Followed in the First Phase:

1. Forming a working group tasked with working on maritime legal convergence among the GCC states, which will be part of the GCC Secretariat.

2. Providing guidance for harmonizing effective procedures in port operations, inspection systems, and globally recognized electronic document models.

3. The importance of establishing a GCC-specific maritime legal observatory to monitor critical regulatory gaps.

4. Working to establish a regional system for maritime data exchange, supported by a common cybersecurity framework.

Legal structure for the first phase: Developing memoranda of understanding, technical standards, and regional legal statements binding on all stakeholders.

8.3.2 Phase II: Developing binding legal instruments with the start of the formal establishment process (medium term).

After completing the legal framework in the first phase, the second phase will include binding regional rules and effective regulatory tools. Key actions to be followed in the second phase:

1. Developing and establishing a unified and general maritime law for the GCC countries, whose role will be to balance national law with international agreements such as the United Nations Convention on the Law of the Sea and the International Convention for the Safety of Life at Sea?

2. Working to establish a maritime safety and logistics agency for the GCC countries with integrated coordination powers, following the approach followed by the European Maritime Safety Agency (EMSA) in the European Union.

3. Immediate enforcement of port state control measures, joint inspections between member states, and flag state cooperation agreements.

Legal form of Phase II: Includes regional and multilateral agreements, regional treaties, and GCC decisions of participating member states.

8.3.3 Phase III: Establishing a Supranational Legal Governance Framework (Long-Term)

Phase III establishes a legally binding supranational institutional governance framework. Key actions to be followed in Phase III:

1. Delegated legislative powers are granted to a unified regional maritime regulatory authority.

2. Work to enhance the interoperability of digital systems and unified logistics systems of member states based on blockchain technology.

3. Implement a maritime dispute settlement mechanism to resolve regulatory disputes between member states.

4. Work to implement compliance procedures for member states that include strict legal requirements and pre-defined penalties.

Legal form of Phase III: Amendments to the GCC Charter or a new Gulf maritime treaty enter into force with the approval of all participating member states.

9. Recommendations of the Research

1. There is a heavy reliance on oil transportation through the Strait of Hormuz, which represents a shared priority for maritime security. Given international concern about the situation in this region, regional legal instruments for collective maritime governance are essential.

2. Despite the massive investments in infrastructure in the Gulf states, particularly investments in digital transformation and the transition to smart ports, this has been done

in a competitive, rather than complementary, manner, which has weakened the GCC's global competitiveness and failed to achieve logistical integration. Integration must be pursued rather than competition.

3. There are many clear legal inconsistencies within the GCC, with national legislation being in place but unclear in its binding nature. Therefore, we recommend the establishment of a supranational body with legal authority to regulate GCC maritime affairs, similar to the European Union, which has established numerous mechanisms.

4. There are numerous technological achievements that demonstrate the potential of the GCC countries in the field of digital innovation. However, digital systems are inconsistent across countries. Therefore, we strongly recommend sufficient consensus on data governance, cybersecurity standards, and legal or operational digital recognition frameworks that hinder digital integration.

5. The European Union is considered an ideal model for supranational integration, yet there is no clear change within the GCC countries, as they have not addressed the issue of designing a gradual legal agenda. Therefore, an effective legal framework is needed to integrate national digital transformation to connect GCC areas at the regional level.

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