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IMPROVING THE EFFECTIVENESS OF STATE MANAGEMENT OF MARINE ECONOMIC DEVELOPMENT IN VIETNAM

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Abstract:
The marine economy plays a strategic role in Vietnam's socio-economic development, ensuring national security and asserting national sovereignty. This article aims to analyze the current state management of marine economic development in Vietnam in the context of international integration and climate change, thereby assessing the achievements, limitations, and causes of inadequacies in the management system. Based on the theoretical basis of public management and the approach to integrated coastal zone management, the article uses qualitative research methods combined with document analysis and statistical data to clarify the effectiveness of state management of the marine economy. The research results show that Vietnam has issued many policies and achieved outstanding achievements in the development of seaport infrastructure, logistics, fisheries, and marine tourism, but the management mechanism is still fragmented, lacking an overall coordination focal point; the application of digital technology is ineffective, and the marine human resources have not met the requirements. Drawing on international experience in South Korea, Norway, and the European Union, the article

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proposes solutions including improving institutions and marine spatial planning, reforming the management apparatus, promoting digital transformation, developing human resources, protecting the marine environment, and enhancing international cooperation. These recommendations aim to improve the effectiveness of state management and promote the development of a blue and sustainable marine economy, in line with Resolution 36-NQ/TW and the 2045 vision in Vietnam.

Keywords: state management, marine economy, sustainable development, blue marine economy, digital transformation

1. Introduction

Vietnam is a coastal country with more than 3,260 km of coastline, an exclusive economic zone and continental shelf of more than 1 million km², containing rich and diverse natural resources and having strategic significance for socio-economic development, national defense and security. In the context of integration and globalization, the marine economy is becoming one of the pillars of sustainable development, contributing increasingly to the national GDP, while opening up many opportunities for international cooperation. The marine economy and coastal economic sectors currently contribute about 20–22% of GDP, concentrated in areas such as fisheries exploitation, transportation and seaports, oil and gas, renewable energy, and marine tourism (Vietnam Administration of Seas and Islands, 2022).

Currently, state management of the marine economy faces many challenges and limitations. The legal system and policy mechanisms on the sea are not yet synchronized and overlap, and coordination between ministries, sectors, and localities in marine management is still ineffective (Van Tuan *et al.*, 2024). Marine resource exploitation activities are not closely linked to the goals of environmental protection and sustainable development; marine pollution, decline in aquatic resources, and the impacts of climate change and rising sea levels are increasingly serious. Human resources and infrastructure serving marine economic sectors, especially digital technology in marine monitoring and management, are still limited. Resolution No. 36-NQ/TW dated October 22, 2018 of the 12th Central Committee of the Communist Party of Vietnam on the Strategy for sustainable development of Vietnam's marine economy to 2030, with a vision to 2045, clearly identified the importance of improving the effectiveness of state management of the marine economy, aiming to build Vietnam into a strong maritime nation, rich from the sea (Central Executive Committee of the Party, 2018). The Resolution emphasizes the need to perfect institutions, innovate management models, apply science and technology, and enhance the capacity for comprehensive management of marine resources and environment in the direction of ecosystem, inter-sectoral, and inter-regional approaches. This requires research, assessment of the current situation, and proposal of solutions to improve the effectiveness of state management of marine economic development, to

ensure optimal exploitation of potential, while maintaining sovereignty and protecting the marine environment.

In the world, many countries with developed seas have built effective marine economic management models, based on modern science and technology and Integrated Coastal and Ocean Management (ICOM). South Korea has applied the "One Ocean Policy" strategy to comprehensively manage activities at sea; the European Union has implemented the "Blue Growth Strategy" with a focus on developing the blue marine economy associated with conserving the marine ecosystem. International experience shows that effective state management of the marine economy depends not only on a complete legal system, but also on a unified coordination mechanism, strong application of digital technology, and the participation of many stakeholders.

The objective of the article is to analyze the current state management of marine economic development in Vietnam, point out the achievements and shortcomings, limitations, and then propose solutions and policy directions to improve management efficiency in the coming period. The article focuses on answering three research questions: (i) What is the current state of management of marine economic development in Vietnam? (ii) What are the main limitations and challenges in this management work? (iii) What solutions should be prioritized to improve the effectiveness of state management, meeting the goal of sustainable marine economic development according to Resolution 36-NQ/TW?

2. Theoretical basis and research overview

Marine economy (or blue economy) is the sum of economic activities taking place at sea, along the coast and related areas, including exploitation and use of marine resources, maritime services, tourism, marine renewable energy, fishing and aquaculture, offshore oil and gas, maritime transport and supporting industries. The marine economy plays an important role in global economic growth, with the forecast value of global marine industry output reaching 3,000 billion USD by 2030.

In Vietnam, the marine economy is considered a strategic development pillar. In addition to the advantages of aquatic resources and oil and gas, Vietnam's sea area has great potential for renewable energy (offshore wind power, wave energy) and island tourism. The development of the marine economy is not only of economic significance but also contributes to ensuring national security, sovereignty and promoting international cooperation.

State management of the marine economy is the process by which the state performs legislative, executive, and judicial functions to regulate socio-economic activities taking place at sea and in coastal areas, ensuring the rational use of resources, environmental protection, and sustainable development (Phong *et al.*, 2019). The content of state management of the marine economy includes building and perfecting the legal system and policies related to the sea; Planning and organizing the implementation of marine spatial planning; Monitoring, inspecting, examining and handling violations in

the exploitation of marine resources; Investing in infrastructure, developing human resources and marine science and technology; International cooperation in the management and exploitation of the sea (Ho *et al.*, 2014). The effectiveness of state management of the marine economy is assessed through the level of synchronization and transparency of the policy system, implementation capacity, inter-sectoral coordination, and the level of application of modern technology. According to the New Public Management (NPM) perspective, state management of the marine economy needs to combine market mechanisms, community participation, and digital technology to optimize the use of marine resources.

The important theoretical basis for state management of the marine economy is the theory of integrated coastal zone management. Integrated Coastal Zone Management (ICZM) is a multi-sectoral approach linking economic development, environmental conservation, and social security in coastal and marine areas. ICZM emphasizes the participation of stakeholders (state, business, community) to harmoniously resolve the relationship between exploitation and conservation of marine resources (Khuu *et al.*, 2023).

Many developed countries have applied ICZM as a strategic management framework. The European Union has issued a framework directive on marine spatial planning to coordinate marine economic activities and protect marine ecosystems. Vietnam has initially approached ICZM through international cooperation programs and UNDP projects, but implementation is still not uniform and needs to be more strongly institutionalized.

South Korea has developed a "One Ocean Policy" strategy, merging marine management agencies into one focal point, while developing key industries such as shipbuilding, marine logistics, and offshore wind energy. Norway stands out with ecosystem-based fisheries management and the application of digital technology to monitor fisheries exploitation. Japan focuses on developing a "blue economy" with the goal of growth associated with resource conservation. These models show the importance of a transparent legal system, modern marine data, and an effective coordination mechanism.

From international experience, some important lessons can be drawn for Vietnam: (i) there should be an integrated, inter-sectoral management strategy with a strong central coordinating agency; (ii) promoting investment in digital technology in marine monitoring and management; (iii) building a public-private partnership (PPP) mechanism in marine infrastructure development.

In recent years, many domestic and foreign research projects have addressed the issue of marine economic management and sustainable development. Studies on fisheries exploitation and global ocean governance have provided an important theoretical basis for modern marine management (Hoi & Dang, 2015). In Vietnam, authors have focused on assessing the potential of the marine economy and proposing policies for blue ocean development.

Most studies only focus on individual fields such as fisheries exploitation and marine tourism. There have not been many comprehensive analyses of the effectiveness of state management of the marine economy in the new context, before the requirements of digital transformation, climate change, and deep international integration. This research gap is the basis for this article to provide a comprehensive view, integrating many aspects of state management of marine economic development in Vietnam.

The study contributes to supplementing and clarifying the concepts, principles, and models of state management of the marine economy, emphasizing the need for a comprehensive, interdisciplinary approach and linking public management with innovation. In practice, the research results help to identify the strengths and weaknesses in the current management mechanism, thereby proposing practical solutions to improve the effectiveness of state management, towards the goal of sustainable development of the marine economy as set out in Resolution 36-NQ/TW.

3. Research method

The paper is conducted in the direction of qualitative research combined with descriptive quantitative analysis, aiming to comprehensively assess the effectiveness of state management of marine economic development in Vietnam. The study uses an interdisciplinary approach, combining public management, marine economy, and sustainable development. The study is placed in the context of national strategies, Resolution 36-NQ/TW (2018) on sustainable development of Vietnam's marine economy to 2030, vision to 2045.

The paper analyzes policy documents and laws related to marine economic management (Vietnam Law of the Sea 2012, Fisheries Law 2017, Vietnam Marine Strategy, reports of the General Department of Sea and Islands, Ministry of Natural Resources and Environment). Statistical data from the General Statistics Office, Ministry of Planning and Investment, were used to assess the contribution of the marine economy to GDP, seafood export value, seaport infrastructure capacity, and key economic sectors. The study conducted semi-structured interviews with 15 experts, including state management officials on the sea, researchers from the Institute of Sea and Island Research, marine logistics enterprises, and marine economic experts. The interviews focused on content such as assessing the current state of state management, policy barriers, effectiveness of inter-sectoral coordination, and potential application of digital technology in marine management.

The three-step data analysis process includes Policy Analysis, reviewing legal documents and policies on marine economic development, and assessing the level of synchronization, effectiveness, and efficiency in the implementation process. SWOT analysis, based on secondary data and expert opinions, was conducted to build a SWOT matrix to identify strengths, weaknesses, opportunities, and challenges in state management of the marine economy. International comparison, contrasting Vietnam's marine economic management model with countries with advanced experience (Korea,

Norway, EU) to draw lessons and recommendations. To ensure reliability, secondary data is selected from official sources and updated to 2024. Expert interviews are conducted using the triangulation method to verify and compare information. Analysis results are discussed with experts to check the accuracy and practicality of recommendations.

4. Current status of state management of marine economic development in Vietnam

Over the past two decades, Vietnam has issued many important documents to guide and regulate activities related to the marine economy. The most prominent is Resolution No. 36-NQ/TW dated October 22, 2018, of the 12th Party Central Committee on the Strategy for sustainable development of Vietnam's marine economy to 2030, with a vision to 2045. The Resolution affirms the goal that by 2030, Vietnam will become a strong maritime country, with the marine economy contributing about 10% of GDP, developing key marine economic sectors such as oil and gas exploitation, maritime transport, tourism, renewable energy, and high-tech aquaculture.

In addition, relevant laws and policies such as the 2012 Law on the Sea of Vietnam, the 2017 Law on Fisheries, the 2020 Law on Environmental Protection, and the Master Plan for the Exploitation and Sustainable Use of Coastal Resources to 2030 have created a legal corridor for marine resource management, environmental protection, and sustainable marine economic development. The Government has also approved the National Marine Spatial Planning for 2021–2030, with a vision to 2045, focusing on the reasonable and harmonious allocation of marine space between exploitation, conservation, and ensuring national defense and security.

However, reality shows that the legal and policy framework still has some limitations. Many legal documents are not unified, and there are still overlaps in management authority between ministries and branches, such as the Ministry of Natural Resources and Environment, the Ministry of Agriculture and Rural Development, the Ministry of Transport, and the Ministry of Culture, Sports and Tourism. This leads to resource dispersion and difficulties in coordination. Some regulations on marine environmental management and exploitation of marine resources have not kept up with the requirements of the green economy, circular economy, and climate change adaptation.

State management of the sea and islands is currently carried out through a system from the central to local levels. The Ministry of Natural Resources and Environment is the focal point for comprehensive and unified management of marine resources and the environment. In addition, many other ministries and sectors also participate in the management of related fields, including the Ministry of Construction, which manages seaports, transportation, and logistics. The Ministry of Agriculture and Environment, which manages exploitation, aquaculture, and resource conservation. The Ministry of Culture, Sports and Tourism, which manages marine tourism and related cultural

activities. The Ministry of National Defense ensures security and sovereignty over the sea and islands.

Although there is a clear division of tasks, the inter-sectoral coordination mechanism is not effective, leading to a lack of synchronization in policy making and practical implementation. Coastal localities have not yet been fully decentralized in resource management and marine economic development, causing the exploitation of marine potential in some areas to be fragmented and lacking a long-term strategy.

During the period 2010-2023, Vietnam's marine economy has achieved results such as growth in contribution to national GDP. Marine and coastal economic sectors currently contribute about 20-22% of GDP, creating jobs for millions of workers (Ministry of Planning and Investment, 2023). The oil and gas, fisheries, maritime transport, and marine tourism sectors are the main driving forces. Developing seaport infrastructure and logistics, the national seaport system has been significantly upgraded, with 45 seaports and more than 300 wharves. Vietnam has become one of the important cargo transit centers in Southeast Asia. The output of exploited and farmed aquatic products reached more than 8.7 million tons in 2022, putting Vietnam in the group of leading seafood exporting countries in the world. Localities such as Khanh Hoa, Da Nang, Quang Ninh, Kien Giang have developed marine tourism into a spearhead industry, attracting tens of millions of visitors each year. Offshore wind power projects in Binh Thuan, Bac Lieu, and Ninh Thuan are opening up new potential for green energy development.

State management of the marine economy in Vietnam still has many limitations, including fragmented and overlapping management, and the lack of a unified comprehensive management agency like international models (Dang *et al.*, 2017). Investment decisions and planning for the marine sector still lack synchronization, causing a waste of resources. Overexploitation of aquatic resources, illegal fishing, and a decline in marine resources are common, affecting the marine ecosystem. Coastal industrial activities, discharge from industrial zones, tourism, and maritime transport put great pressure on the environment. A report by the General Department of Environment (2023) shows that more than 70% of coastal estuaries are polluted with plastic waste (Ministry of Natural Resources and Environment, 2023). The sea in the region is heavily affected by storms, rising sea levels, and coastal erosion, while the system of natural disaster risk management and sea dike protection is still ineffective. There is a shortage of highly qualified human resources in areas such as marine logistics, renewable energy, and integrated marine management. The application of digital technology (GIS, AI, Big Data) in marine monitoring is still at the experimental level and has not been widely deployed.

5. Discussion

The analysis results show that Vietnam has made progress in developing the marine economy, but the effectiveness of state management is not commensurate with its potential and strategic expectations. This is reflected in the level of dispersion in the

organizational system, the lack of unity in marine spatial planning, and policies that have not promoted the blue marine economic model. Overlapping management functions between ministries and sectors still exist; inter-sectoral coordination mechanisms are limited, leading to the implementation of marine projects lacking consistency and sustainability.

In the context of climate change, marine environmental pollution and increasing international competition pressure, Vietnam should shift its management model from "passive response" to "proactive integration". State management of the sea does not stop at regulating economic activities, but must also shape a sustainable development framework, integrating social, environmental, and technological factors, while ensuring security, defense, and international cooperation (General Department of Environment, 2023).

Some of the reasons for the limitations include the lack of a comprehensive management mechanism and a strong central coordinating agency, the division of marine management among many different ministries and sectors, each sector develops its planning and plans, leading to dispersion and overlap. The lack of a "super management" agency to comprehensively coordinate marine economic sectors, like the model of Korea or Norway, causes the overall efficiency to decline.

The legal framework is not yet synchronized and has not kept up with international trends. The Law of the Sea of Vietnam and other legal documents have been issued, but many regulations are not complete, such as marine spatial planning, deep offshore resource exploitation, digital resource management and high technology application. Vietnam has not yet developed a set of national standards on the blue ocean economy and circular ocean economy, while this is a global trend.

Lack of database and digital technology application in management, incomplete national marine data system, application of GIS, Big Data, and AI in monitoring fisheries exploitation and marine resources is still limited. This makes management and control of violations ineffective. Marine human resources are still lacking in quantity and quality. Highly qualified human resources in the fields of maritime, marine logistics, renewable energy, and marine management technology are still lacking, while this is a key factor to modernize state management.

Limited international cooperation and financial policies, mobilization of socialized resources for marine economic development (especially port infrastructure, offshore wind power, marine technology research) is not really effective. Vietnam has not yet fully utilized regional cooperation mechanisms on marine environmental management and sustainable development.

Developed maritime countries have applied more modern and effective management models, from which many lessons can be drawn for Vietnam. South Korea has implemented the “One Ocean Policy”. South Korea has consolidated marine management agencies into the Ministry of Oceans and Fisheries, helping to concentrate resources and develop unified policies. In addition, the country has increased investment in research and development of marine technology (especially monitoring, forecasting,

and offshore wind energy), thereby increasing the efficiency of exploitation and protection of the marine environment (Nguyen & Nguyen, 2018). Norway is a pioneer in ecosystem-based management. The Norwegian government establishes marine reserves, applies fishing quotas and strictly manages the seafood supply chain, while combining digital technology to monitor output and ensure transparency. The European Union (EU) has implemented the "Blue Growth" strategy to develop a blue ocean economy, integrating environmental conservation and innovation. The EU focuses on Maritime Spatial Planning (MSP) to reduce conflicts between economic activities such as tourism, transportation, oil and gas exploitation, and renewable energy.

Compared to these models, Vietnam lacks a unified coordinating agency, has not thoroughly applied ecosystem-based management, and is limited in developing long-term and scientific marine spatial planning.

Global trends show that marine economic management is shifting to blue ocean and circular economy models, emphasizing minimizing environmental impacts, maximizing resource value, and enhancing sustainability. At the same time, digital transformation is considered a new driving force in marine management, with technologies such as artificial intelligence (AI), big data, satellite-based vessel monitoring systems (VMS), and smart port management (Smart Port).

Some unanswered issues, such as the impact of digital transformation on marine economic management, smart governance models in the marine sector, or policy frameworks for the marine circular economy in Vietnam, should be studied in depth. Building indicators to evaluate the effectiveness of state management of the marine economy, Key Performance Indicators (KPIs) is a notable research direction to quantify results and optimize the management process.

6. Solutions to improve the effectiveness of state management of marine economic development in Vietnam

First, perfecting institutions, policies, and marine spatial planning.

Vietnam should continue to review, supplement, and perfect legal documents related to the sea, especially the 2012 Vietnam Sea Law, the 2017 Fisheries Law, and regulations on marine environmental protection. Policies need to be designed synchronously and transparently, creating favorable conditions for businesses and coastal communities to participate in marine economic development. In particular, the promulgation of the Marine Economic Law is necessary to integrate and unify scattered regulations in many fields (Ha *et al.*, 2024).

Marine spatial planning helps to rationally allocate economic activities (oil and gas exploitation, fisheries, tourism, transportation, and renewable energy) to reduce conflicts of interest, protect ecosystems, and optimize economic value. Vietnam should complete the National Marine Spatial Planning for the period 2021–2030, with a vision to 2045, integrated with the coastal development strategy and the marine environmental protection strategy.

Tax incentives, green credit, and investment support for marine renewable energy (offshore wind power, floating solar power), green logistics, and sustainable marine tourism are necessary. In addition, it is necessary to develop a set of indicators to assess the development of the blue marine economy, as a basis for monitoring the effectiveness of policies (Van Cong *et al*., 2020).

Second, reform the management apparatus and strengthen inter-sectoral coordination.

To reduce overlap between ministries and sectors, Vietnam should consider establishing a National Marine Economic Committee or the Ministry of Seas and Islands, which plays a role in coordinating and formulating overall policies. This agency can integrate the management functions of the General Department of Seas and Islands, the Maritime Administration, the Department of Fisheries Exploitation, and related agencies. Coastal localities should be given more authority in resource management, licensing of exploitation and monitoring of marine economic activities, along with a strict inspection and supervision mechanism from the central government. The "central-local" management model should operate flexibly, combining responsibility and autonomy. National Coordination Center for Marine Management should be established to connect ministries, localities, research institutes, and enterprises (van Zwieten *et al*., 2002).

Third, apply digital technology and digital transformation in marine management.

Build a national marine database, a database that includes information on resources, environment, marine economic activities, satellite data and GIS maps, helping authorities and businesses have accurate data to make decisions. Data needs to be shared among ministries and transparently disclosed to the community.

Apply artificial intelligence (AI), big data, and the Internet of Things (IoT) to monitor fishing vessels, track maritime transport activities, and warn of pollution and natural disasters. The Vessel Monitoring System (VMS) needs to be expanded and upgraded to control offshore fishing activities, meeting the requirements of combating IUU (Illegal, Unreported, Unregulated Fishing).

Developing smart seaports and digital logistics, major seaports such as Cai Mep - Thi Vai, Hai Phong, Da Nang need to invest in smart port technology, apply automatic management systems and data analysis to optimize transportation and reduce carbon emissions.

Fourth, develop high-quality marine human resources.

Specialized training programs on marine management, marine exploitation technology, renewable energy and maritime logistics should be established at leading universities. Vietnam can cooperate with Japan, Korea and Norway in human resource training and technology transfer.

Increase investment in marine research institutes and innovation centers. Research programs should focus on climate change forecasting, marine disaster risk management, and sustainable exploitation technology. Develop better incentive policies to attract domestic and foreign experts to participate in the management, research and

development of the marine economy. In addition, encourage private enterprises and FDI to invest in marine technology and human resources.

Fifth, strengthen environmental protection and adapt to climate change.

Build a modern marine environmental monitoring system, combining measures to prevent pollution from onshore sources and marine economic activities. Strengthen control of ocean plastic waste, while encouraging circular economic models in the fisheries and marine tourism industries (Nguyen & Hoang, 2024).

Adapt to climate change and rising sea levels, develop sea dyke systems, mangrove forests and structural and non-structural solutions to minimize disaster risks. At the same time, research and apply technology to forecast storms, high tides and coastal erosion. Participate in global and regional marine conservation programs, cooperate with ASEAN, UNEP, and FAO in pollution control, biodiversity conservation and coral reef protection.

Sixth, promote international cooperation and integration into the marine economy.

Vietnam should expand cooperation with strong maritime countries (Japan, Korea, EU) in the fields of scientific research, technology, logistics, offshore wind energy, and marine conservation. Refer to advanced management models such as One Ocean Policy (Korea), Blue Economy Strategy (EU), and ecosystem-based management (Norway) to adjust and perfect national policies. Encourage large corporations to invest in seaports, the shipbuilding industry, renewable energy, and marine environmental protection technology. It is necessary to establish a transparent legal mechanism and preferential policies to attract high-quality FDI.

The key factor for effective management of the marine economy is the participation and consensus of the community. The State should promote communication about the importance of the sea, encourage sustainable development models in coastal communities, and raise awareness of marine environmental protection (Tran *et al.*, 2021). Community education campaigns, combined with businesses and social organizations, will contribute to creating a combined strength for sustainable marine economic development. Solutions should be implemented synchronously, with a specific roadmap and effective monitoring mechanism. When harmoniously combining institutions - technology - human resources - international cooperation, state management of the marine economy in Vietnam will be highly effective, meeting the requirements of sustainable development in the context of integration and climate change (Le *et al.*, 2025).

7. Conclusion

The marine economy plays an important role in the sustainable development and strategic position of Vietnam in the context of globalization, international integration, and economic competition. With the advantage of geographical location, long coastline, and abundant resources, Vietnam can become a strong maritime country if it has an effective

and comprehensive state management strategy. Practice in recent years has shown that achievements have been made, such as increasing the GDP contribution of marine economic sectors, developing seaport systems, logistics, and marine tourism, but the effectiveness of state management is still not commensurate with the potential and requirements of long-term development. This study has shown that the main limitations in state management of the marine economy originate from the decentralized management mechanism, lack of a comprehensive coordination center, unsynchronized legal framework, limited application of digital technology, and high-quality marine human resources that have not met the demand. In addition, challenges from climate change, marine pollution, and unsustainable resource exploitation also increase pressure on the current management system.

To overcome these shortcomings, the article proposes a comprehensive system of solutions, including improving institutions and policies, promoting marine spatial planning, reforming the management apparatus, applying digital technology, developing marine human resources, protecting the environment and adapting to climate change, enhancing international cooperation, and raising public awareness. The establishment of a unified marine management agency, together with a blue ocean economy strategy and the integration of digital technology, will be the key to improving management efficiency and optimizing the value of marine resources.

Vietnam should flexibly apply these to build a state management system that is both effective and sustainable, meeting the requirements of international integration, ensuring national sovereignty, and developing a blue ocean economy. In the future, further studies can focus on developing a set of indicators to evaluate the effectiveness of marine economic management, researching smart governance models, and assessing the impact of digital transformation on state management of the sea. These studies will contribute to supplementing theoretical and practical bases, supporting policy making for the period of Vietnam's marine economic development to 2030 and the vision to 2045.

Authors' Contribution

All authors contributed equally to the conception and writing of the manuscript.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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