

Blue Finance and Blue Sustainable Economy, what role and aspirations?

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Abstract: *The way out of the difficulty towards having a sustainable blue economy is certainly the blue finance; a financial system that can direct investments to ocean-related projects. This procedure has the opportunity to bridge the financing gap and encourage a sustainable blue economy. We aim to draw attention on the role that blue finance plays in financing low-carbon solutions to supporting compliance with the Paris Agreement, promoting the sustainable blue economy and economic development and protect marine ecosystems on Earth.*

Keywords: Blue Finance, Blue Economy, Sustainable Blue Economy, Blue Bonds.

JEL Classification : Q01, Q2, Q5.

ملخص : إن الحل الأمثل للتغلب على صعوبة بناء اقتصاد أزرق مستدام يكمن في التمويل الأزرق؛ وهو نظام مالي يُوجّه الاستثمارات إلى المشاريع المتعلقة بالمحيطات. يتيح هذا الإجراء سد فجوة التمويل وتشجيع اقتصاد أزرق مستدام. تهدف إلى تسليط الضوء على دور التمويل الأزرق في تمويل الحلول منخفضة الكربون، بما يدعم الامتثال لاتفاقية باريس، ويعزز الاقتصاد الأزرق المستدام والتنمية الاقتصادية، ويحمي النظم البيئية البحرية على الأرض.

الكلمات المفتاحية : التمويل الأزرق، الاقتصاد الأزرق، الاقتصاد الأزرق المستدام، السندات الزرقاء.

1.Introduction

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Depending on the OECD*,(GBAC, IFC) the ocean has become an important issue in discussions about sustainability, both about ways to conserve it and how to exploit it. As is the case in recent discussions that have received particular media attention in the wake of the massive global mobilization related to climate change (I. Ertör and M. Hadjimichael, 2019, p1).

The OECD report describes the oceans as the new economic frontier, the former holds the promise of tremendous resource wealth and has the potential to support economic growth. on the one side, it acknowledges that the oceans are under pressure due to pollution, overexploitation, and the decrease of biodiversity. On the other hand, it emphasizes the role of oceans in the global challenges facing the planet, starting with global food security and climate change. (Rayner R, Jolly C and Gouldman C, 2019, p2).

The ocean economy is expected to double from 2010 to 2030 to nearly \$3 trillion and employ 40 million people. Moreover, innovative financing solutions are important for encouraging ocean and coastal conservation and rising clean water resources, and Blue finance can help achieve these goals. It has become an emerging field in improving marine ecosystems, offering major potential in aiding to address climate challenges, climate finance and assisting economic growth. With increasing interest from issuers, investors and financial institutions around the world. (IFC, 2022, p3).

Hence we pose the following **problematic**:

What role can blue finance play in achieving a sustainable blue economy?

To answer this problematic, we can put forward the next **hypothesis**:

Blue finance contributes to achieve the SBE through investments in activities, policies, and actions that reduce ocean risks and maximize social justice and environmental sustainability.

Through this paper, we aim to achieve the following **Objectives**:

- Learn about Sustainable Blue Economy.
- Identifying Blue Finance and its tools and instruments.
- Explain the role of Blue Finance in building the Sustainable Blue Economy.

* OECD = Organization for Economic Co-operation and Development.

In this study, we relied on the **descriptive approach** by collecting information and literature on Blue Economy and Blue Finance from several references and articles in addition to reports and websites.

2.The Sustainable Blue Economy:

2.1. The Blue Economy:

The concept of the "blue economy" emerged in 2012 at the United Nations Conference on Sustainable Development held in Rio de Janeiro. The term has been used without clear definitions, in various ways and with similar terms such as "marine economy" or "ocean economy." The World Bank defines it as "the sustainable use of ocean resources to achieve economic growth, improve livelihoods, and create jobs, while preserving the health of the ocean ecosystem." This definition includes multiple aspects of the blue economy. (Ki-Hoon Lee et al., 2020, p1).

According to the World Bank, the blue economy concerns the sustainable use of ocean resources to improve the health of ocean ecosystems, life and jobs, and achieve economic growth. Because its activities focus on the oceans, some studies have used the terms "ocean economy" or "marine economy." In the PRC** specifically, media reports and government documents have used the term “maritime economy” more frequently (Zhihai Xie, 2022, p 94-95).

The concept of the “Blue Economy” is a result of the ineffectiveness of state actions in realizing its goals in the conservation of marine biodiversity, especially through the cooperation between the public and private sectors, building of marine protected areas and support for the sustainable use of marine biodiversity. (P. RICARD, 2020, p86).

The term Blue Economy, as an innovation, technology and entrepreneurship approach to greening the ocean economy, was introduced in a book published by the Club of Rome. The blue economy agenda goal-oriented to increasing the sustainability and the health of the oceans. (LS Evans, et al., 2023, p 02).

The blue, marine, or ocean economy is defined as “a low-pollution, resource-efficient economy that adopts sustainable consumption and production practices that maximize

** PRC = People's Republic of China

social equity, generate economic value and employment, and reduce environmental risks.” (J P Giraud et al., 2018). It includes two interconnected aspects: ocean-based industries (shipping, fishing, marine biotechnology, offshore wind) and the natural assets and ecosystem services provided by the oceans. This is what made the OECD report address many aspects of ecosystem services and ecosystem-based management, along with focusing on the dimension related to the ocean industry (Rayner R, Jolly C and Gouldman C, 2019, p 2).

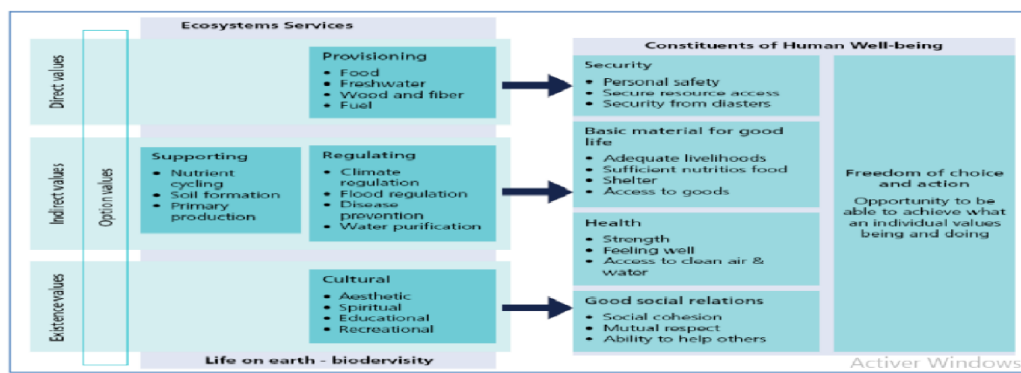
The blue economy means achieving sustainable economic development by using sea resources. It also means improving the profits that can be obtained from marine resources and decoupling social, economic and development activities from environmental breakdown. (Abdullah el Bari, 2017, p 5).

2.2. For a Sustainable Blue Economy:

The new attitude to the sustainable blue economy needs conversion the blue economy for a sustainable future that invites to combine environmental protection with economic goals. It also covers spacious sectors including aquaculture, shipping, fisheries, offshore renewable energy. To achieve this conversion, the Blue Deal called for by EU Communications involves:

- transforming value chains to play role in climate neutrality, biodiversity conservation, zero pollution, investment in nature, coastal resilience, climate adaptation and a sustainable food production system,
- Reducing economic activities in coastal areas and at sea from their whole impacts on the marine environment. (Troya MDC *et al.*, 2023, p3)

Ecosystem services.

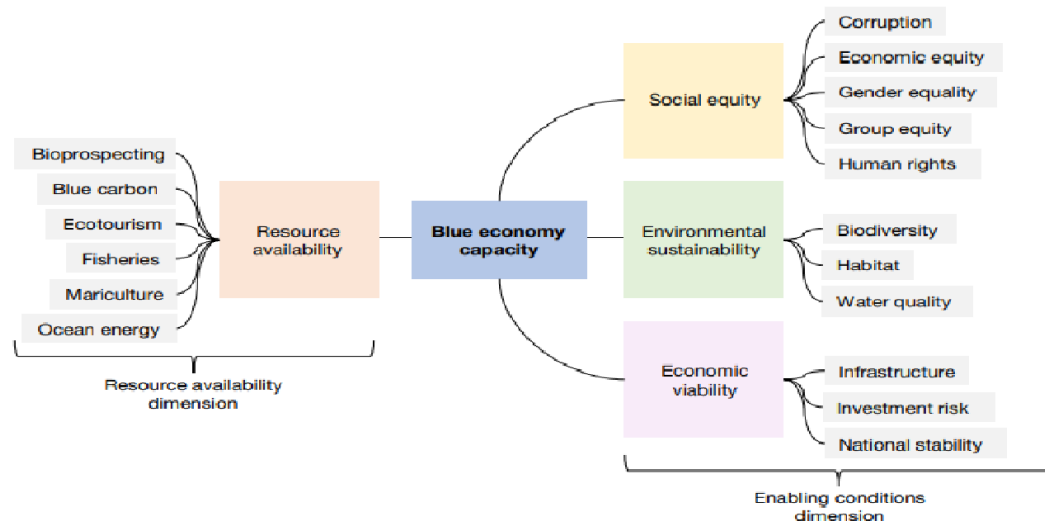


Source: Ebarvia, Maria Corazon M. 2016, p 18.

Ecosystem services (Ebarvia, Maria Corazon M., 2016, p 18-19):

- ✓ Provisioning services: These are direct use values generated by ecosystems and are included in the assessment of ocean economic activities.
- ✓ Regulating services: These are indirect use values. They represent the profits generated by regulating ecosystem processes.
- ✓ Cultural services: Usually only “measured” ocean economic activities are included in this category and are intangible benefits to ecosystems.
- ✓ Supporting services: These are also indirect use values of ecosystems and represent the profits an ecosystem generates to produce all its other services. Their impacts extend over a very long period. Therefore, they are not typically included in ocean economic assessments.

Criteria and dimensions used to evaluate the capacity to establish an equitable, sustainable and viable blue economy



Source : Andrés M. Cisneros-Montemayor *et al.* 2021, p 397.

2.3. Risks to the Ocean Economy (Sumaila, U.R., et al, 2020, p 25):

These following environmental and social impacts could threaten the sustainability of the ocean economy.

a- Environmental Impacts:

CLIMATE CHANGE :

Ocean warming and acidification, melting ice caps, sea level rise, hypoxia and dead zones;

FISH FARMING:

Escapees, excessive use of fishmeal and oil, and overuse of antibiotics;

CAPTURE OF MARINE LIFE AND FISHING:

Overfishing, whaling and shark finning, habitat destruction from fishing gear and practices;

MARINE MINING, OFFSHORE OIL AND GAS:

Biodiversity and habitat loss; oil spills

MARINE POLLUTION:

Plastics, garbage, mercury and other heavy metals, land-based pollution, including nutrients and agri-chemicals, directly harm marine organisms and ecosystems;

COASTAL DEVELOPMENT AND MARINE TOURISM:

Habitat destruction and damage from the construction and operation of coastal and tourism infrastructure, wastewater and garbage pollution from coastal populations and tourists, impact of coastal cities and tours on habitat and biodiversity;

PORTS AND SHIPPING:

Habitat damage, oily waste, ship groundings, anchor damage, invasive species from ballast water, the dumping of rubbish;

b- Social Impacts:

OCEAN GRABBING/BLEEDING-BLUE:

Factors such as ocean demarcation, which marginalizes certain groups, leads to loss of livelihoods and threatens food security, hasty planning, and limited resources, may affect integrated ocean management.

GLOBAL MARKETS:

Seeking to serve global markets can jeopardize food security, livelihoods, and local people's access to ocean resources, and gains from distant markets rarely reach local producers.

PERVERSE ECONOMIC INCENTIVES:

Subsidies to fisheries and other sectors that harm marine ecosystems and threaten food security.

3. The Blue Finance:

3.1. Defining Blue Finance:

Blue finance is defined as investments, including financial activities, directed towards the blue economy, in supporting and developing projects aimed at reducing carbon

emissions and reducing pollution, increasing energy efficiency, and guiding policies for the sustainable use of marine resources and ensuring the protection of marine and coastal ecosystems (M. G. Pereira and J. M. Nogueira, 2021, p 577).

Summary of the key opportunities for coastal communities offered by a sustainable blue economy, and the risks posed by business-as-usual.

	Opportunities	Risks
Indirect	- Jobs and new financial opportunities - Rents, investment, subsidies - Innovation, infrastructure, new technology - Co-location and co-benefits - Enhanced protection and restoration of ecosystem services - National sovereignty and security - Leverage COVID-19 recovery plans and funds	- Economy prioritised over sustainability and equity - Acceleration of unsustainable resource use - Sectoral trade-offs and increased ocean conflict - Elite capture and inequality - Marginalised communities
Direct	- Livelihoods and new markets - Food and nutritional security - Payments for ecosystem services - Capacity development and education - Improved governance, equity, rights	- Dispossession and displacement - High dependence on vulnerable livelihoods - Risks to food security - Rights violations - Inequitable distribution of costs and benefits

Source: Evans LS *et al.*, 2023, p 04.

There is a growing body of reports and research highlighting the potential for financing sustainable activities in the oceans and evaluating marine conservation financing efforts, regionally and globally. Other research discusses financing challenges with a focus on fisheries, coastal infrastructure, and marine conservation. Blue finance encompasses various types of financing strategies that support and encourage the transition to a blue economy. (M. G. Pereira and J. M. Nogueira, 2021, p 577).

For the blue economy to be sustainable, blue finance must be adequate and directed towards the sustainable use and management of oceans and their resources, through capital creation, investment, alignment and accountability. This includes local, national and international financial instruments that are provided and accessed by individuals, public and private companies, governments and other international governmental and non-governmental institutions (U. Rashid Sumaila *et al.*, 2021, p 2).

3.2. Explore New Financing Mechanisms and Tools:

In the Caribbean, programs have been developed that protect small-scale fishers from extreme weather risks with micro-insurance policies, on the one hand, and provide governments with policies to help fisheries recover after an event exceeding an agreed-upon threshold of severity, on the other. These tools and processes can facilitate effective management and governance and enhance ocean security. In Madagascar, local people have been able to generate income and reduce the exploitation of wild stocks. Thanks to a

partnership between a local research institute and a seafood exporter, they are producing small sea cucumbers for locally managed aquaculture farms. These schemes are expected to indirectly contribute to the conservation and management of fisheries. (Sumaila, U.R., et al., 2020, p 15-16)

Innovations and investments in the industries listed below are expected to grow and contribute to the development of a more SBE: (Ebarvia, Maria Corazon M. 2016, p 17)

- ✓ Sustainable fisheries
- ✓ Sustainable aquaculture
- ✓ Eco-ports and eco-ships
- ✓ Ocean energy
- ✓ Ecotourism
- ✓ Marine biotechnology
- ✓ Climate change resiliency infrastructure
- ✓ Pollution reduction, remediation, waste recycling
- ✓ Ecological engineering, habitat restoration and marine protected

areas

3.3. Blue Bonds:

Blue bonds are debt securities issued to raise sufficient capital to finance ocean-related SDGs, as well as moving towards the blue economy to leverage "blue" natural capital, Blue Bonds can become a financing tool for the blue economy in both developed and developing countries due to their strong potential., thanks to their alignment with the principles of sustainable financing of blue economy.

In 2018, the first sovereign bond issue, the Seychelles Blue Bond, was issued, valued at US\$15 million and maturing in 10 years. The program was structured with co-financing from the World Bank and the Global Environment Facility. which acted as guarantors and partial backers of the bond proceeds. The funds were used through the participation of the Blue Grants Fund and the Blue Investment Fund for Capital Funds.

NIB*** issued a USD 200 million, five-year Nordic-Baltic Blue Bond in 2019 to finance projects to protect and restore the Baltic Sea. The investor portfolio consists of pension funds, insurance companies, asset managers, and banks. To date, it has financed eight projects in Norway, Sweden, and Finland aimed at improving wastewater treatment. (M. G. Pereira and J. M. Nogueira , 2021, p588)

*** NIB = Nordic Investment Bank

Blue bonds can smoothen the cost of sovereign borrowing in the euro area by creating assets that meet demand for ultra-safe, liquid investment opportunities, similar to Asian central banks and other large investors (Delpla, Jaques; von Weizsäcker, Jakob, 2011, p 2).

Debt financing can be a mechanism for the sustainable use of natural resources and the generation of resources needed to maintain coastal and marine ecosystems. One such mechanism is "debt-for-nature swaps," a financial transaction in which a state commits to investing in nature conservation in exchange for the exchange or forgiveness of the state's foreign debt. (M. G. Pereira and J. M. Nogueira , 2021, p590)

3.4. BLUE DEBT: BASIC CONSTRUCTION AND KEY FEATURES (Delpla and von Weizsäcker, 2011, p 03)

Super Security: The blue bond is the senior tranche of sovereign debt of eurozone countries (which is repaid before any other public debt—except for the IMF, which enjoys super-priority). It is a fraction of any sovereign debt in the euro area, as it is only issued at a rate of up to 60 percent of GDP, and has an ultra-safe AAA status.

Entry: Full participation in a blue bond scheme should not be considered an entitlement, but rather something gained by enhancing financial credibility, via low debt levels or reliable institutional guarantees.

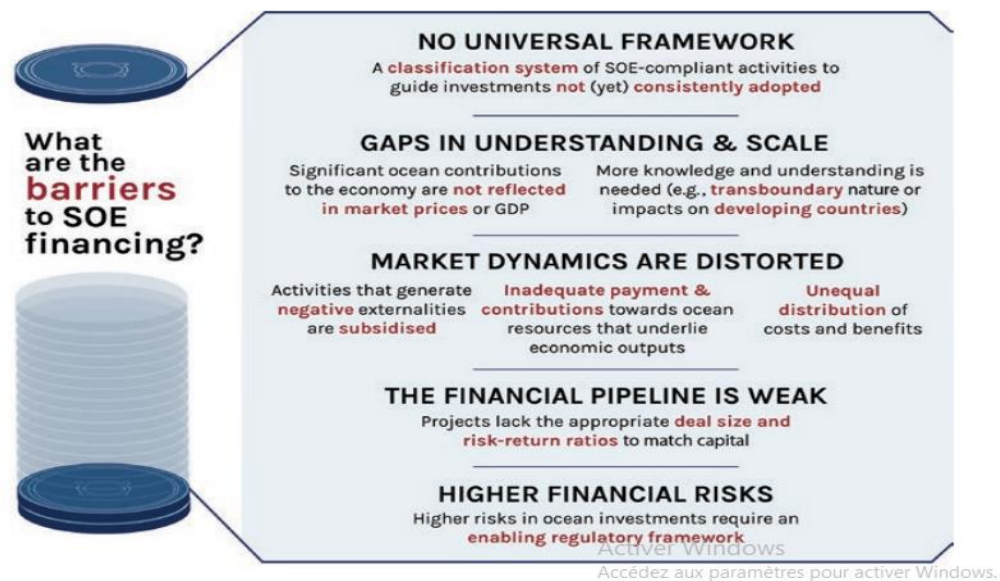
Blue debt agency: The need to establish a common debt agency to which tax revenues would be transferred directly to avoid the usual holding deduction for multilateral debt. This is because blue bonds should be viewed as the operational equivalent of national sovereign debt.

4. The role and aspirations of blue finance in building and supporting a sustainable blue economy

4.1. The sustainable blue economy finance principles (Sumaila, U.R, et al., 2020, p 6):

The European Commission, WWF, the European Investment Bank and the Prince of Wales' International Sustainability Unit have developed the 14 Principles for Sustainable Blue Economy Financing. These principles aim to bridge the gaps associated with the sustainable blue economy and could help bring about positive change in the way ocean ecosystems are used and managed.

Barriers to marshalling adequate funding for a SOE. GDP gross domestic product, SOE sustainable ocean economy.



Source: J. Lubchenco and P. M. Haugan, 2023, p 312.

4.2. Insufficient capacity:

A financing policy without financial support and without sufficient technical capacity will be ineffective in making the blue economy successful (UA-BIRA, 2019, p 30) The absence or inability to access financial resources by potential entrepreneurs in fisheries or aquaculture is a common feature of the sector in all countries. As this sector is characterized by high risks, financial institutions are reluctant to lend to it because domestic support for the sector is insufficient, and reliable information is scarce about the potential productivity of capture fisheries and aquaculture. (UA-BIRA, 2019, p 15)

Blue finance has a vital and effective role in supporting the sustainable blue economy. It allows investments to be transferred to activities, policies and procedures that reduce ocean risks and generate competitive market returns. For these investments to be able to attract private financing, joint or blended financing will be needed. (U. R. Sumaila *et al.*, 2021, p 2)

Capital Types and Their Use Depending on Expected Returns

CAPITAL TYPE	DESCRIPTION	EXPECTED RETURN (MARKET OR BELOW MARKET, INCLUDING <0 RETURN)
Impact only - Corporate social responsibility investment - Public grants - Philanthropic grants - Public financing - Official development assistance	This is usually long term but small-scale in comparison to larger types of commercial finance.	Below-market return
Debt - Loans - Bonds	This is a low-risk, low-reward type of capital. Debt providers do not have the same level of influence over an investment as equity investors.	Market return
Equity - Public equity - Equity investment	Equity is based on taking an ownership stake in an investment; some types of equity (e.g., venture capital) are high risk, high reward.	Greater-than-market return
Blended finance	This combines official development assistance with other private or public resources in order to 'leverage' additional funds from other actors.	Below-market return

Activer Win

Source : Sumaila, U.R. et al., 2020, p 24

4.3. Emerging tools and approaches (Darian McBain, 2023)

Since Seychelles launched the world's first blue sovereign bond in 2018 to support sustainable marine ecosystems. The Nature Conservancy supported the launch of two more sovereign blue bonds, in Belize and Barbados, using innovative financing mechanisms to swap debt for nature and drive investment towards nature-based solutions. In 2022, a new blue finance program called Blue Halo was launched aiming to use blended finance to achieve positive outcomes for ocean conservation and sustainable fisheries in line with the UN SDGs. And innovative financial instruments for coastal mangrove protection and sustainability-linked financing with ocean-specific outcomes such as insurance underwriting have also emerged.

Blue carbon markets have also emerged, which include ecosystem and biodiversity or conservation credits. The International Blue Carbon Initiative publishes a guide on how to measure and evaluate blue carbon stored in ecosystems and work is underway to sequester blue carbon in other marine ecosystems around the world. It is estimated that every dollar invested in the ocean generates \$5 as a return for the blue economy.

4.4. Investment in the blue economy:

Large investments must be made to build infrastructure, cleaner ships, and environmentally friendly facilities, to accelerate the development of the blue economy.

Traditional and innovative financial instruments and mechanisms provided by multilateral development banks, private sectors, and financial institutions globally must have an environmental orientation in order to promote environmental Sustainable economic activities. (J P Giraud *et al.*, 2018)

Perspectives of the fisheries and aquaculture sectors.

	Année	2018	2030	2063
Production (en millions de tonnes):	Pêche de capture	10.0	10.36	10.56
	Aquaculture	1.98	3.1	5.3
Valeur ajoutée (en milliards USD)	Pêche de capture	21.2	27.45	28
	Aquaculture	2.77	5.1	8.62
Emplois (en millions)	Pêche de capture	13.0	14.7	15
	Aquaculture	1.2	1.6	2.7

Source: UA-BIRA, 2019, p 07.

Conclusion:

The United Nations Ocean Science Convention for Sustainable Development (2021-2030) signals a new level of interest in the oceans, providing a critical opportunity to advance a more just and sustainable blue economy for marine ecosystems (LS Evans *et al.*, 2023, p 2). Therefore, we need an economic and financial system capable of directing investments to ocean-related activities. It's blue finance. US\$175 billion in blue finance is needed to achieve Sustainable Development Goal 14 by 2030, according to World Economic Forum estimates (Darian McBain, 2023).

Blue finance includes the financial flows necessary for the transition to a sustainable ocean economy, and in order to prevent these investments from having negative impacts, In order to ensure sustainability, investors must follow the principles set by the institutions. (M G Pereira and J M Nogueira, 2021, p 593) of the blue project, blue bond issuances, blue lending, build investor confidence and stimulate investments, as Support from the financial and private sectors can build a healthy, sustainable and growing blue economy (UN environment programme, finance initiative, 2022).

Climate change, overfishing, unsustainable tourism and pollution have contributed to the emergence of the need for financing to restore, maintain and protect marine areas, which resulted in the birth of blue financing, which aims to achieve the sixth goal of Sustainable

Development Goals by investing in projects such as the sustainable shipping sector and port logistics, marine ecosystem restoration and marine renewable energy production.

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