

Oil and Gas Production, Exports and Imports as Critical Business Internationalization Operations for companies in Globalization: An Analytical Approach

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Abstract

This paper analyzes and presents oil and gas production, exports and imports as critical business operations in globalization and internationalization in a shape of an analytical approach. The research methodology began with a literature review to the research topic then there was a focus on data analysis and description by creating a business model and framework that illustrates the connection and the trajectory between the oil and gas industry and business internationalization. The main research question is "Are oil and gas production, exports and imports critical business internationalization operations?" Some of the results showed that the business internationalization strategy needs to meet the criteria and regulations of the oil and gas business from the country of origin to the country of destination. In conclusion, oil and gas remain powerful energy sources compared to renewables due to the beneficial use. There is always a huge connection between the oil and gas industry and the oil and gas business internationalization operation since production, exports and imports are important driving factors in international trade, business internationalization and globalization.

Key words: globalization, business internationalization, oil and gas, operation, exports, imports, company, values

J.E.L. classification: A13, F20, F23, F60, M20, M21

1. Introduction

Investors that try to enter the oil and gas industry face from time to time a complex or unique metrics used throughout the sector. Oil is considered today the main source of energy that moves the world and pushes it to development. The oil and gas industry goes from time to time through an unprecedented situations marked by a shock in supply and a great impact on demand. The pandemic provoked by Covid-19 generated an unusual destruction of demand but geopolitical conflicts increase hydrocarbon prices when they break out. The world sometimes confronts a recession in times of globalization owing to the factor of inflation and other factors that are related to energy prices, the level of production and purchasing power. The periods of the pandemic caused by sudden spread of Covid-19 and the Russian-Ukrainian geopolitical conflict provoked many challenges to economies at the global level since they both appeared in an unanticipated way. Both risks could engender changes and challenges in the economic area of both advanced and developing economies. (Benabed and Grünbichler, 2023). Since the business cycle has got four principal successive phases and the economic fluctuation globally may be sent out between economies, globalization could push economies to go through different risks such as the risk of the pandemic and Russian-Ukrainian conflict that could have an impact on the global economic stability (Benabed and Grünbichler, 2023).

Basically, the increase of commodity prices may manipulate and impact the economic balance of importers and lead to inflation in good and services since commodities are the main engines of the global economy. (Benabed and Grünbichler, 2023). Oil has undergone various changes in prices since the outbreak of the pandemic in 2020 and the outbreak of the Russian-Ukrainian geopolitical

conflict 2022 that affected the economic and geopolitical infrastructure and stability. Oil witnessed high prices in the recent decade in 2022 when the world annual oil average closing prices in US dollar reached 94.53\$ per barrel to decline in 2023 to 76.93 \$ per barrel. (Benabed and Grünbichler, 2023). Commodities are very important for the economy, such fluctuation of their prices may be challenging from time to time to industrial economies since they are considered sources to many businesses and economies. (Benabed and Grünbichler, 2023). Back to some previous research, the global economy is fueled with fossil fuels, so, the widespread of the Covid 19 pandemic and the escalation of geopolitical tensions may be a significant factor towards an economic recession. (Benabed and Bulgaru, 2023).

2. Literature review

2.1. Globalization, industrialization, energy sources and the economy

Globalization has gradually turned the world into one market and for ages it has undoubtedly followed various waves of industrialization. It moved the world and human society from simple energy resources such coal and wood to fossil fuels for industry as sources of energy and to sustainable energy and business, step by step it globalized the energy market. In fact, every step is accompanied by energy consumption, so the intensive use of energy has become fundamental in economy. (Benabed and Boeru, 2023). Globalization has relieved the spread and propagation of technology and information, thereby engendering new opportunities for innovation and development, emphasizing that the 4th and 5th industrial revolutions are evidence of it. In addition, it has led to concerns regarding privacy and security, as well as the possibility of job displacement and inequality. (Benabed and Boeru, 2023).

The growing demand for downstream products, like hydrocarbon, petrochemicals and intermediates, offers extra business opportunities for oil and gas exporting economies. However, there is still a gash refining capacity globally (see: BP, 2020). Hence, according to Ruble (2019) the export markets for refined products are contested and refiners in industrialized countries, especially in the United States (US) are efficient. (Ruble, 2019).

2.2. Energy sources and transition, IRs and Globalization for the global economy

Energy requires economic stability since it is something very significant for economic growth and the opposite is right. Furthermore, energy is one the principal bases of economy. Globalization has led the world to consume and produce much energy to satisfy the needs of industries and populations. (Benabed and Boeru, 2023). Historically, energy has gone through different periods and centuries of industrial revolutions (IRs), from the first industrial revolution (mechanization and steam engines) to the beginning of Globalization in the fourth industrial revolution and by continuing to move toward the fifth industrial revolution where there should be a direct interaction between humans and machines together and for sure that will require huge amounts of energy to produce goods and services. (Benabed and Boeru, 2023). In the era of Globalization the more the economy produces the more energy is required. Consequently, the waste of energy has impacted many economies that is why energy transition and sustainability came up to sustain the amounts of used energy and store them for a sustainable use and profit and moving to renewable energies that require more attention since they are expensive to buy or set up. (Benabed and Boeru, 2023). Globalization has the world to a global economy that relies on energy markets, international trade, competitiveness, commodity markets and innovations. (Benabed and Boeru, 2023).

2.3. The Oil and Gas industry, commodity prices, production and economic growth

The oil and gas industry is one of the largest sectors in the world in terms of dollar value, generating an estimated \$5 trillion in global revenue back to 2022. Oil is critical and important to the global economic framework, affecting everything from transportation to electricity to heating to industrial production and manufacturing. (Mcclay, 2022).

Oil and gas production is a multi-stage entire process of discovering a resource, transporting it to a refinery, and turning it into a finished product ready for sale. Or, in industry terminology, upstream, midstream, and downstream segments. (Mcclay, 2022). As of 2022, the United States is the world's largest net producer of crude oil, followed by Saudi Arabia, Russia, Canada, and China. When it comes to natural gas production, the top five countries or producers include Russia, the United States, Canada, and Iran. (Mcclay, 2022).

Oil and natural gas are major industries in the energy market and both play an influential role in the global economy as the world's primary fuel sources. The processes and systems involved in producing and distributing oil and gas are highly complex, capital-intensive, and require state-of-the-art technology. (Mcclay, 2022).

The real exchange rate is a key economic variable that affords and allows to assess the price competitiveness of a country, and constitutes a critical stake in economies wherein turnovers are derived from exports' activity. While the real exchange rate is difficult to forecast because of its high volatility (Meese and Rogoff, 1983), it does not fluctuate erratically. Indeed, variables such as trade openness, productivity differentials, the net foreign asset position, public expenditure, etc. have been found to be key indicators of its dynamics (Lane and Milesi-Ferretti, 2002). The literature also identified the terms-of-trade, defined as the rate of the prices of a country's exports to the prices of its imports, as being a major indicator of real exchange rate movements (De Gregorio and Wolf, 1994).

In the early 2000s, fuel and non-fuel commodity prices experienced a surge which has sparked and gleamed interest on the link between terms-of trade of countries whose exports are mainly composed of commodities and the real exchange rate. (Chen and Rogoff, 2003), Moreover, "oil currencies" were observed (Habib and Kalamova, 2007), defined as currencies that appreciate when the price of oil increases. (Habib and Kalamova, 2007). The rapid information integration among different economic markets facilitates and eases international commodity transportation trade, oiling the wheels of globalization. Market frictions, amongst other factors, are responsible for the discrepancy in the reaction time to new market information, with markets subject to higher frictions reacting slower to new information, relative to lower-friction markets, generating information price between the markets (Mensi *et al.*, 2016).

Unlike financial assets like stocks and bonds, commodities require to be physically delivered, and hence, the transportation cost (freight rates) forms an integral or complete part of commodity prices (Zlatoper and Austrian, 1989).

3. Research methodology

The research methodology began with a relevant literature review to the research topic then there was a focus on data analysis and description by creating a business model and framework (See figure no.2) that illustrates the connection and the trajectory between the oil and gas industry and business internationalization.

The set research questions are

RQ1: Are oil and gas still considered important energy sources for business?

RQ2: Are oil and gas production, exports and imports critical business internationalization operations? RQ3: How may multinational or transnational companies connect both oil and gas industry and the commodities' business internationalization operations?

4. Analysis and results

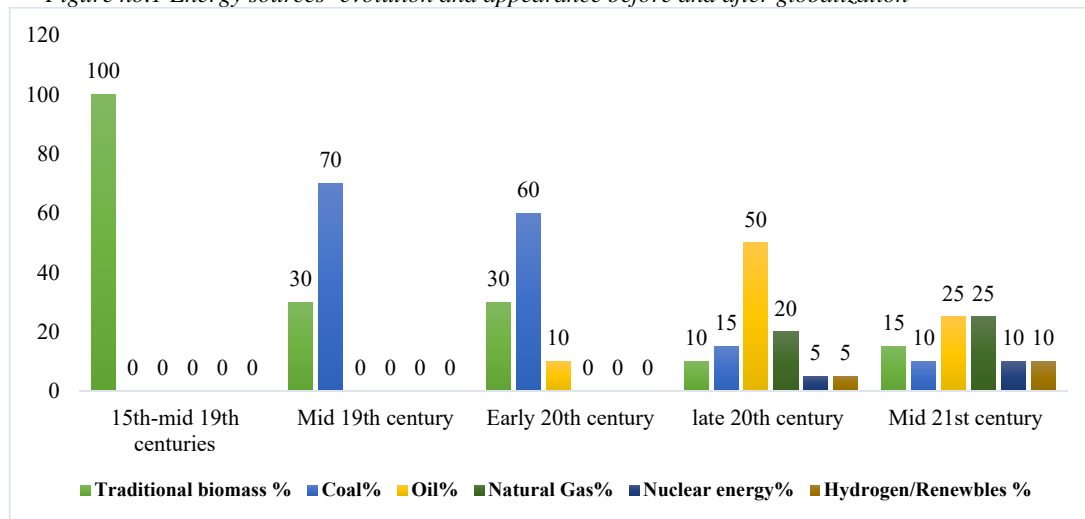
4.1. Energy sources' evolution and appearance before and after globalization

Historically, the energy sources have passed by different ages and centuries, starting from the mid-15th to the 19th centuries the main source of energy used to be the traditional biomass energy, in the mid-19 century coal appeared with 70% of importance and use to dominate biomass energy that decreased to 30%. Later, in the early 20th century oil appeared as a another new source of energy but with only 10% of use and availability compared to coal that remained in the lead with 60% of use and followed by traditional biomass energy 30% approximately. In the late 20th century other three

energy sources started to appear with various percentages taking natural gas as a second source of energy with 20% after oil that raised to 50% of importance and use, coal remained a source of energy with approximately 15% in the third position and then 5% for nuclear energy and 5% to hydrogen and renewable energies. (See figure no.1).

Whereas, starting from the mid-21st century until the present time both oil and natural gas equalized in importance, availability with 25% each from the total energy sources, followed by biomass energy, coal, nuclear energy and renewables. Hence, Oil and natural gas are still main energy sources and they are more important and cheaper compared to nuclear energy and renewable energies that required more expensive investments and installations. Furthermore, the large amount of refined products that comes out from crude oil and natural gas is very important in different energy and industrial sectors. (See figures no 1 and 2).

Figure no.1 Energy sources' evolution and appearance before and after globalization



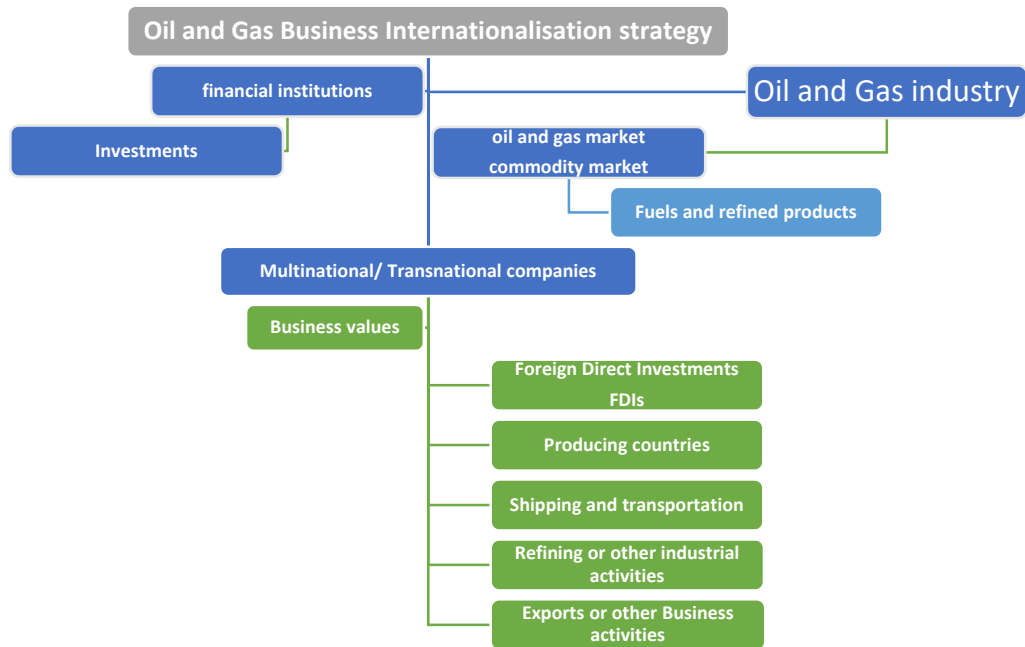
Source: Author's creation and research, 2023

4.2. Oil and Gas Business Internationalization Strategy and framework

A framework and model for business values has created and illustrated in figure no. 2 in this research and full paper to connect both business internationalization strategy and the oil and gas industry. In figure no 2 we observe that there are two main types of oil and gas business internationalization strategies one could be through multinational companies and another with transnational companies but both strategies and approximately very similar. (See figure no.2).

Both strategies may help generate more benefits and business values since multinational companies for example can take over foreign direct investments, exports of crude oil, natural gas or any of the refined products from crude oil, oil and gas operation and industry in the producing countries and shipping or transportation activities. (See figure no.2). The oil and gas business internationalization strategy required as well financial institutions and investments between the industry and market of both oil and gas or commodities. The strategy need to meet the criteria and regulations of the oil and gas business from the country of origin to the country of destination. (See Figure no. 2).

Figure no. 2 Business Internationalization Strategy and framework: The trajectory for Business values



Source: Author’s design and research, 2023

4.3. The exports and imports of Oil and Gas as business internationalization operations

Importing fuels is the action of buying or acquiring them from another country or another market other than local own. Imports are important for the economy because they allow a country to make up due to the inexistence of certain products, high costs, scarcity or the low quality of some products or services since with them it is possible to supply and diversify the markets as products from other countries.

While, exporting is the commercial activity that consists of selling products such as crude oil and natural gas or other services to another country or other countries. In other words, it is the action and effect of sending products, goods or services from one market to another or from a country to other countries following some negotiation and agreements in shape of contracts. Exports provide great economic benefits to the country of origin since they attract foreign currency or money from abroad contributing to the country's economy by expanding the market beyond the borders and developing the national industry and generating more employments among others.

Most of a country's oil has something to do with whether it was exported or imported and sent to other markets. Indeed, international trade is all transactions involving international imports and exports that are made between countries and between different industries, in other words, it is a global view of how clients or companies buy and sell them in the world with a way of seeing the market at a global level. International trade is a very important percentage of the economy. International trade allows countries to complement each other, so, if the country or company is not competitive and cannot produce, it can order these products by negotiating with other companies or other countries. In fact, thanks to imports or exports there are economic and business opportunities especially in the world of globalization. All countries can have the products they need through exports and imports, so international trade triggers other industries and thus the world develops, motivating production and sales between different units. In addition to this, as there are many products in many countries, international trade helps the consumer to choose thanks to the possibility of opening different markets to process the offers and demands of all the products that exist or may exist with reference to the prices and brands.

Companies can be more competitive with international trade and the possibility of open markets because closed markets lack competitiveness because they do not have competitors and when companies come from abroad they can create new franchises and without a doubt there are different franchises that can help the markets and business.

Franchises are as well a product of globalization, many companies have emerged that they are very competitive thanks to globalization. International trade can also allow for better production by producing and developing better products or products that do not exist in other parts of the world for export. Moreover, the industry can become of higher quality. Companies in the country are given the opportunity in other countries or markets thanks to internationalization with the possibility of selling and producing in other countries or exporting to other countries such as oil companies or other competitive companies. Reaching other markets around the world may be possible through international trade but taking into account that some risks may occur.

4.4. Exports and their benefits to the exporting economy

Exports are those that benefit the company or country no matter the products or services since by making a sale abroad it is attracting money from another economy to another by bringing in money from abroad through sales of what it has been offered. By exporting, the country is generating money from abroad for the country's economy. There are many economies that have got their economic growth based on exports including oil and gas exporting countries that are considered somehow some of the richest ones. Furthermore, the generation of employment can benefit by activating the economies since with money from abroad the country or companies are financing different services to achieve the shipment.

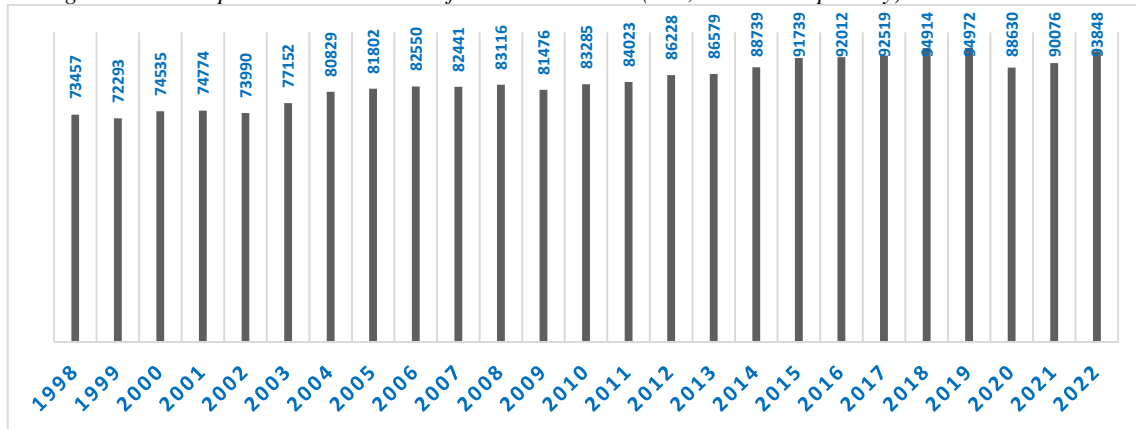
The money from products or services may greatly help the country's internal production so that it continues producing for a long time including the strategies that some economies follow for investments as a process of business internationalization as well.

Some restriction may occur during the processes of exports and one of the most important points that can interestingly be met are customs declarations or certifications so that the export is legal, otherwise the authorities can detain the product. As another type of restrictions, it can be caused by complications with the departure of goods from the country of origin.

4.5. Global oil production and the impact of the pandemic

Figure no 3 illustrates the how global oil production amounted to 93.9 million barrels per day in 2022. The highest level of oil production reached since 1998 was in 2019 at nearly 95 million barrels per day. However, the breakout and sudden widespread of coronavirus pandemic and its impact on transportation and shipping fuel demand led to a notable decline in the following year 2021. Moreover the production remains high all over the years, the thing that makes sure that crude oil is an important source of energy but in times of crisis such as the pandemic provoked by Coronavirus the decrease in oil demand could be a threat to countries that have got their economies based on oil exports and to companies that exercise various operations of oil and gas business internationalization or production. (Figure no. 3).

Figure no. 3. Oil production worldwide from 1998 to 2022 (in 1,000 barrels per day)



Source: Author's contribution, Statista data 2023

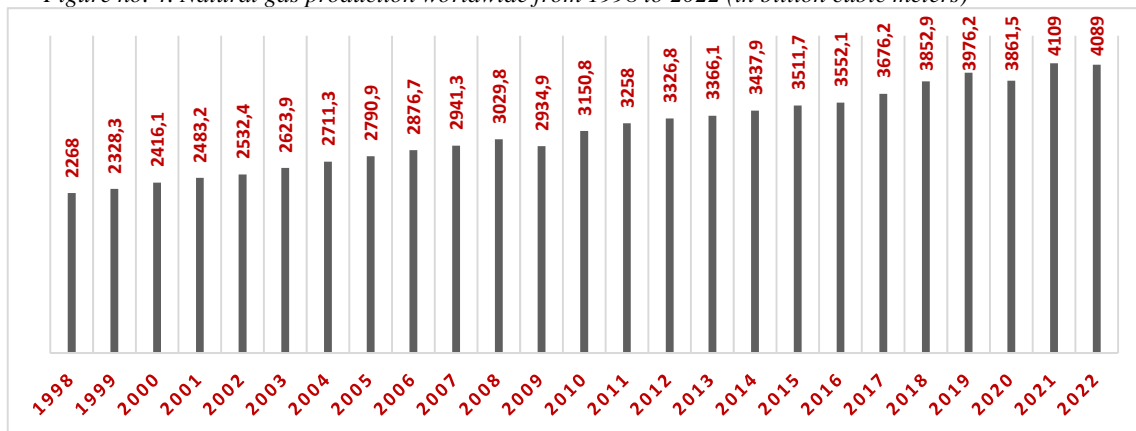
4.6. The oil market and the Organization Petroleum exporting countries (OPEC)

Oil has proved to be a very powerful commodity, oil producers are either part of the cartel OPEC or are outside as non OPEC producers. OPEC the organization of Petroleum Exporting Countries, was founded back in the 1960 to stabilize the supply of oil and to this day members broadly agree to supply oil to the international market at a specified rate of production. Saudi Arabia one of the founding OPEC members continue to dominate oil supply with OPEC. Most OPEC members produce 1 than million barrels of oil a day. OPEC used supply 80% of world oil but its influence over global oil supply has diminished to 40% with non-OPEC members dominating.

4.7. Global natural gas production from 1998 to 2022

In figure no. 1 that illustrates natural gas production in billion cubic meters we observe according provided available analyzed data by the of this research and paper publication that the Global natural gas production amounted to approximately 4089 billion cubic meters in 2022, with a slight decrease compared to 2021. The figure and data show that there has been a gradual growth and raise in production since 1998 where the total global amount of produced natural gas annually was approximately 2268 billion cubic meters. The thing that makes sure that natural gas is still considered an important energy source if the production increases from a year to another. (Figure no.4).

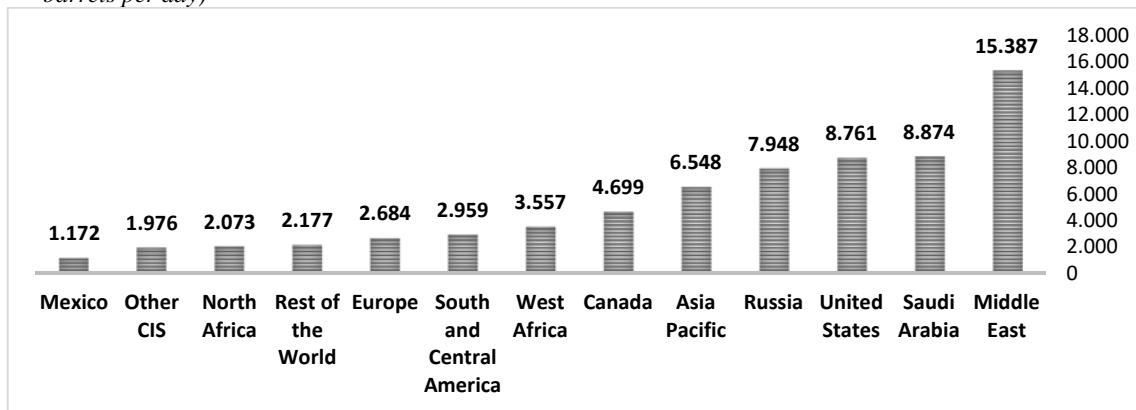
Figure no. 4. Natural gas production worldwide from 1998 to 2022 (in billion cubic meters)



Source: Author's contribution, Statista data 2023

Figure no.5 shows and illustrates the leading crude oil and oil products exporters globally in 2022 in 1000 barrels per day. According to the data provided by Statista at the time of finishing this research and paper the middle-east was in the lead with 1537 barrels per day. In fact Saudi Arabia was the leader oil and crude oil exporter globally with 8874 followed by the US with 8761 barrels a day then Russia with 7948 barrels a day. So, Saudi Arabia and the US and Russia have been for years the top three crude oil and oil products exporter globally. However, in the top 5 we observe the Asia pacific with 6548 billion barrels per day and Canada with 4699 barrels per day. Besides, from 3557 billion barrels per day to 1172 billion barrels a day we observe that West Africa followed but South and Central America then Europe, after than the rest of the world, North Africa with 2073 barrels per day then Mexico with 1172. (See figure no.5).

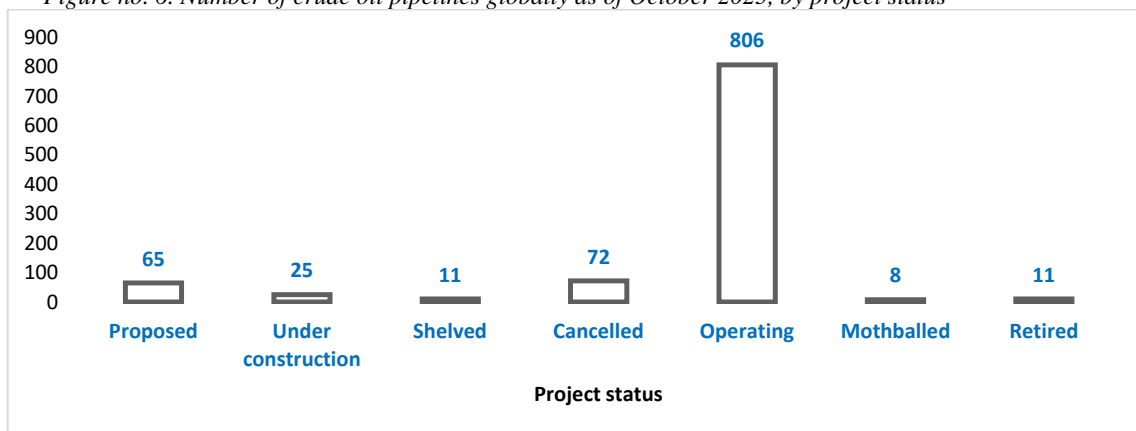
Figure no. 5. Leading crude oil and oil products exporters globally in 2022, by region or country (in 1,000 barrels per day)



Source: Author’s contribution, Statista data 2023

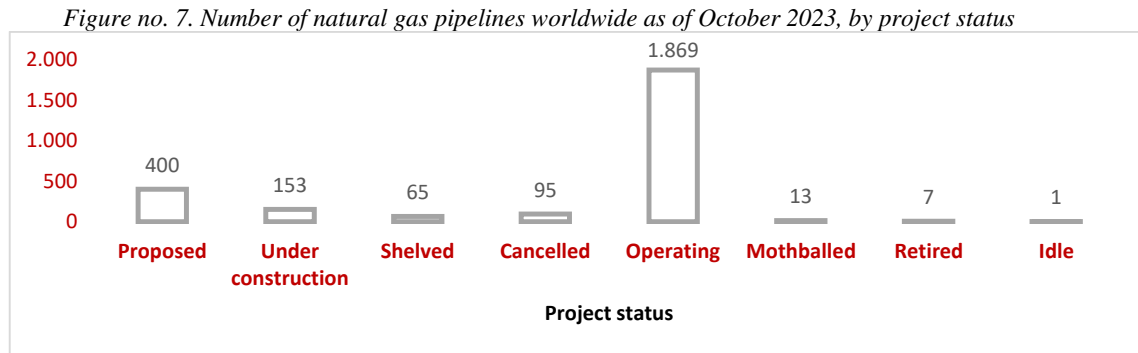
Figure no.6 illustrates and shows the number of crude oil pipelines divided in various project status globally. In 2023 there has been a total of 806 operational oil pipelines in the world as of October 2023. The number of oil pipelines under construction at so far and by the time of publishing this research has been 25. This is notably lower compared to the number of gas pipelines globally, on figure no.06 as well we observe that the number of cancelled pipelines is 72 according this data provided by Statista in the last quarter of 2023, while the proposed globally are 65 but the retired are 11. (Figure no. 6).

Figure no. 6. Number of crude oil pipelines globally as of October 2023, by project status



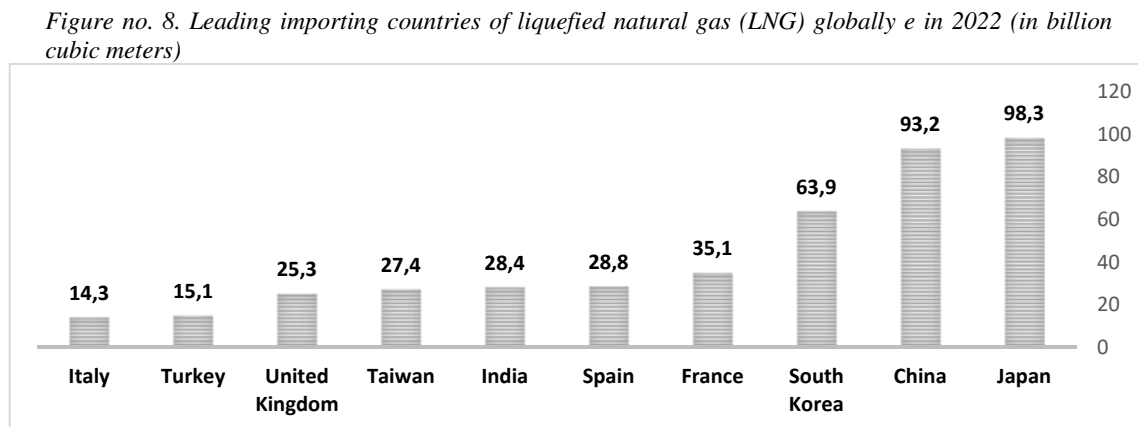
Source: Author’s contribution, Statista data 2023

Figure no.7 illustrates and shows that as of October 2023, there were 1,869 operating gas pipelines globally in the world. 153 are still under construction while 400 are proposed but 95 have been cancelled. (See figure no.7).



Source: Author's contribution, Statista data 2023

Figure no.8 shows the leading importing countries of LNG in 2022 and at the top we see Japan with 98.3 billion cubic meters followed by China with 93.8 billion cubic meters and then South Korea with 63.9 Cubic meters. The other amount in billion cubic meters from 35.1 to 14.3 is for countries such as France and Italy that rely more on natural gas exports but during the pandemic and after the Russian Ukrainian conflict they started to think about LNG import as reserve to their industries and production operations. (See figure no.8).



Source: Author's contribution, Statista data 2023

5. Conclusions

To sum up, the oil and gas business internationalization strategy required as well financial institutions and investments between the industry and market of both oil and gas or commodities. The strategy need to meet the criteria and regulations of the oil and gas business from the country of origin to the country of destination. The business revenue from products or services may greatly help the country's internal production so that it continues producing for a long time including the strategies that some economies follow for investments as a process of business internationalization as well.

Some restriction may occur during the processes of exports and one of the most important points that can interestingly be met are customs declarations or certifications so that the export is legal, otherwise the authorities can detain the product. As another type of restrictions, it can be caused by complications with the departure of goods from the country of origin. International trade allows countries to complement each other, so, if the country or company is not competitive and cannot produce, it can order these products by negotiating with other companies or other countries. In fact, thanks to imports or exports there are economic and business opportunities especially in the world

of globalization. Both oil and gas remain power energy sources but sources of geopolitical conflicts and conflicts of interest.

Therefore, companies that could multinational or transnational need to adapt their business internationalization strategies with the producing area and the areas of exports and imports, a resilience plan, sustainability measure are considered important steps in this kind of business for values and competitive advantage since energy and its sources are important business activities for the growth and stability of both global and local economies. Oil and gas production, exports and imports are important and at the same time critical business internationalization operations. Oil and gas are still sources of geopolitical conflicts and other types of geopolitical conflicts, a resilience plan and a focus on sustainability are important for companies that exercise the oil and gas business.

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