INSTITUTO
UNIVERSITÁRIO
DE LISBOA

Sino-Russian Relations in the Arctic through the World-Systems Theory Lens: A closer look at shipping

Tiago Tecelão Martins

Master in International Studies

Supervisor:
PhD Cátia Miriam Costa, Invited Assistant Professor
ISCTE - University Institute of Lisbon

September, 2023

SOCIOLOGIA
E POLÍTICAS PÚBLICAS

Department of History

Sino-Russian Relations in the Arctic through the World-Systems Theory Lens: A closer look at shipping

Candidate: Tiago Tecelão Martins

Master in International Studies

Supervisor:
PhD Cátia Miriam Costa, Invited Assistant Professor
ISCTE - University Institute of Lisbon

September, 2023

Acknowledgments

I would like to express my heartfelt gratitude to the most important people in my life who have been my pillars of support throughout this journey. First and foremost, I am forever indebted to my Mother and Grandmother. Their unlimited patience, boundless love, and constant encouragement have been the driving force behind my academic achievements.

I am also thankful to my Father, whose intellectual guidance and passion for learning have been a tremendous source of inspiration for me. His wisdom and guidance have shaped my love for exploring new ideas and concepts.

To Sara, words cannot adequately express my appreciation for her support and understanding. During my darkest days, she stood with me as a rock, providing both emotional and academic support. Her presence has been a constant source of strength, and her ability to reason with me through my self-doubts has been invaluable. I am truly blessed to have her by my side in all areas of life.

Thank you for being my pillars of strength and for always being there for me, no matter the circumstances. I am forever grateful for your presence in my life.

Resumo

Esta dissertação oferece uma análise abrangente das relações sino-russas no Ártico, utilizando uma perspetiva da Teoria dos Sistemas Mundiais (TSM). Explora o Ártico como parte integrante do sistema global, examinando a interligação dos países através de redes económicas, políticas e sociais. Ao aplicar a TMS, a investigam-se as relações entre o centro e a periferia no Ártico russo, centrando-se nos papéis da China e da Rússia na hierarquia global. Além disso, a tese investiga a emergência da semiperiferia no Ártico, os ciclos históricos de expansão material e o seu impacto na paisagem socioeconómica da região. As conclusões sublinham a importância da TSM para a compreensão das dinâmicas complexas do Ártico e contribuem com conhecimentos valiosos para a geopolítica do Ártico e as relações internacionais.

Palavras-Chave:

Navegação, China, Rússia, Ártico, Hegemonia, Centro e Periferia

Abstract

This Master's dissertation offers a comprehensive analysis of Sino-Russian relations in the Arctic using a World-Systems Theory (WST) perspective. It explores the Arctic as an integral part of the global system, examining the interconnectedness of countries through economic, political, and social networks. By applying WST, the research investigates the Core-Periphery relations within the Russian Arctic, focusing on China and Russia's roles in the global hierarchy. Additionally, the thesis delves into the emergence of the semiperiphery in the Arctic, the historical cycles of material expansion, and their impact on the region's socio-economic landscape. The findings highlight the importance of WST for understanding the complex dynamics in the Arctic and contribute valuable insights to Arctic geopolitics and international relations.

Key-Words:

Shipping, China, Russia, Arctic, Hegemony, Center-periphery

Index

1. Introduction

The Arctic as a geopolitical space is increasingly relevant, not only for the countries in the region, but also for countries like China that see this area as essential for the import of goods and for the development of their mega projects within the framework of the Belt and Road Initiative. China calls some of its projects in the region as the "Polar Silk Road" (Lim, 2018), indicating its economic importance, emphasising connectivity, and establishing an expression of patriotic symbolism consistent with a glorious vision of its own past as a superpower, in the times of the Silk Road.

As far as Russia is concerned, its interests in the Arctic have deep historical roots that were accentuated with the "discovery of oil and gas in Siberia—below and above the Arctic Circle—in the twentieth century" (Rumer, Sokolsky and Stronski, 2021). The extraction of minerals, the delineation of new transport routes by land and sea, and human (with the construction of new cities, for example) and military development in the region are of paramount importance to the Kremlin.

This academic work aims to analyze three key features of the World-Systems Theory in relation to the Russian Arctic and Sino-Russian shipping in the region. These features include:

1. **Core-periphery relations and cycles of incorporation:** Examining the Arctic's position in the global hierarchy and how its integration into the world-system can be influenced by Sino-Russian relations. The focus will be on the shipping industry in the region, developed by both Russia and China.
2. **Hegemonic struggles:** Exploring the ongoing rivalry between China (and Russia) and the US (along with some Western countries). The analysis will consider how these struggles manifest in growth and expansion attempts by challenging nations, as well as in maintaining the current power structures by the challenged nations. The Arctic region, particularly Sino-Russian shipping, natural gas, and digitalization projects, will be analyzed within this context.
3. **Rise of the semiperiphery**: Investigating the cycles of capital accumulation and the challenge posed by the semiperiphery to hegemonic powers. The focus will be on the Arctic region, which exhibits rapid industrialization, shipping investment, economic diversification, and abundant unexploited natural resources. These factors contribute to the expression of cycles of material expansion by rising nations.

The primary focus of this work will be on the shipping industry, with exploration of other industries like mining, Industry 4.0, and the digitalization of the Arctic. I will also consider the broader economic context of the High North region's diversification. The increased navigation of old maritime routes in the Arctic due to climatic changes, resource exploitation potential, and the resurgence of geopolitics will be examined as a form of competition in the shipping industry.

According to OECD estimates, "around 90% of traded goods are carried over the waves" (OECD, 2022). The Russian Arctic is a developing region with potential in natural resources and maritime navigation. It is becoming a focal point for control of routes and commerce, with interests from Russia, China, and the USA (Moe, Fjærtoft & Øverland, 2011: 2 and Isachenkov, 2015). In my analysis, I will explore the Arctic's role in the world economy and World-System, focusing on the Northern Sea Route, Yamal LNG projects, and the digitalization of the shipping industry. I will examine Sino-Russian projects and strategies to overcome the challenges of the region's harsh climate and remote location. Despite its perceived inhospitable nature, the Arctic is expected to gain significance academically and in daily news. In fact, when one writes "Arctic Geopolitics" in Google Scholar, in the period 2001-2011, only 4,120 results appear, while the same search for the time intervals between 2012-2022, leads to a much larger number of 15,200 results, which highlights the growing importance of the Arctic from a geopolitical point of view in the literature.

This study aims to examine whether large-scale Sino-Russian shipping trade projects in the Arctic are contributing to the upward mobility of the region in the world-system's core-periphery hierarchy, and it seeks to explore how the Arctic's rapid integration into the world-system is shaping these trade projects and the broader economic development of the region. In this sense, the unit of analysis will be the Arctic region and its geopolitical struggles, with a deeper focus on the role of shipping and maritime trade routes in this dispute for power over the region.

The strategic location of the Arctic between Europe, Asia and America, gives it a geopolitical position of great importance. The Arctic land grab race, also related to the huge amount of resources yet to be explored such as the "reserves of crude oil, natural gas, as well as coal and coking coal, deposits of precious, rare earth and non-ferrous metals— gold, nickel, copper, tungsten, uranium, platinum, palladium, molybdenum, and others" (Didenko, Skripnuk, Kikkas and Kaźmierczyk, 2022: 25-26), lead to the conclusion that the Arctic will assume greater relevance. Some scientists even calculate that 13% of unexplored oil reserves in the world are in the Arctic (Didenko, Skripnuk, Kikkas and Kaźmierczyk, 2022: 26).

Bearing in mind that climate change, together with nuclear ice breaker ships, is greatly reducing the Arctic ice sheets (NASA, 2022), all these listed mineral resources are now likely to be transported more easily. As far as international trade is concerned, mastering the exploration, distribution and even consumption of these resources would then represent an enormous advantage for countries that were successful in doing so. The melting of Arctic ice, combined with advances in technology such as icebreakers, has made it possible to explore and exploit the region's resources, while also facilitating their exportation through previously unpredictable routes. However, it is important to note that the primary driver behind the significant Sino-Russian investment in the Arctic is not climate change itself,

which occurs gradually, but rather the shifting political landscape and the larger patterns that have been identified and studied within the world-systems theory framework throughout this work.

I will examine more closely the Northern Sea Route. This shipping route is defined by Russia as extending from east of Novaya Zemlya and running along the Russian Arctic coast from the Kara Sea, along Siberia, to the Bering Strait. It has significantly increased its volume of travel and trade and will be an essential focus of this work.

Secondly, this work will attempt, on the background, to intertwine 3 relevant topics for the study of hegemonic struggles in the world:

- Sino-Russian relations, which become more and more relevant every day, with the escalation of the competition with the US and most western countries, from an economic standpoint.
- The Arctic: an underexplored area from the point of view of resources, which already attracts the attention of many institutions, countries and companies. The resource and power struggles of the future will pass through the Arctic, which is transformed from a zone of exceptional peace to an area of increasing geopolitical tension.
- The importance of shipping and maritime power for the economic growth of each nation in the context of the world economy, and the way in which the exploration of new routes can contribute to the intensification of conflicts between major world and regional powers.

The importance of the High North is then reflected in the trade made by land, but especially by sea. As I have already mentioned, the water carries around 90 percent of all world trade. Here lies its relevance and the foundations of my work. I will then go into greater detail on what will be done in each chapter and sub-chapter, and on the general organization of this work. Also, I will present the hypothesis that I will try to test.

Chapter 3 will provide a detailed account of the case study and focus on defining the Arctic. The first sub-chapter will clarify the specific scope of the Arctic, particularly emphasizing the Russian portion that will be the primary focus of the study. A brief overview of Sino-Russian relations will follow, setting the context for the subsequent literature review on Sino-Russian relations in the Arctic. This review will encompass the historical background of geopolitics and Arctic explorations, emphasizing the significance of maritime trade relations, including the importance of shipping routes like the Northern Sea Route. Furthermore, I will explore three theories of international relations, namely Realism, Liberalism, and World-Systems Theory (WST), explaining why the latter is the most suitable framework for my analysis and why Realism and Liberalism are not. The World-Systems Theory (WST) provides a robust framework for analyzing power relations in the Arctic, specifically within the shipping industry. WST's core-periphery relations, the interplay between hegemonic struggles and sea power, and

the concept of cycles of incorporation offer valuable perspectives. These concepts help elucidate China and Russia's goals in the Arctic, the Arctic's position in the global hierarchy, and its potential as an economically untapped region. As new cycles of expansion and hegemonic struggles arise, the Arctic becomes an enticing area for exploration and dominance by global actors.

Chapter 4 will cover the methodology and sources used in this study. The methodology section will explain the research approach, data collection, analysis methods, and any limitations. A combination of qualitative and quantitative methods will be employed, including literature review, case studies, and data analysis. Primary and secondary sources, such as official documents and academic research, will be utilized to provide a comprehensive analysis of Sino-Russian relations in the Arctic.

Moving on, the 5th chapter will focus on the analysis of the growing relevance of the shipping trade in the Arctic from Russian routes (and the relevance of China in them). This analysis will not be merely quantitative, nor will it be restricted to shipping alone. In fact, the bulk of the analysis will be a qualitative analysis of improving conditions and Sino-Russian ongoing projects regarding shipping and resource exploitation in the Arctic. Clarifying this chapter, I will basically look at the: 1) Northern Sea Route as a potential leading route on world trade, especially influencing Asian Economy, 2) the transportation and exportation of Yamal LNG via shipping and its importance for the development of the Arctic, and finally 3) the growing importance of the digitalization for shipping in the NSR and the Russian Arctic in general.

In order to understand this, I will also examine the official speeches of Russian and Chinese leading figures regarding their visions for Arctic shipping and the role that these routes play for each of them in general, as well as declarations from western or American leaders or documents, that could show the impact of hegemonic struggles. While I won't be introducing any new data, I plan to take a fresh approach to analyzing existing data. Specifically, I want to connect World-Systems Theory with the Arctic, a connection that has not been explored much in academic circles. Moreover, I intend to take this analysis a step further and use macro-analysis techniques to better understand the Arctic, an area where such an approach has been lacking.

After the assessment, I will then proceed to the discussion (chapter 6) of the analysis results. Drawing parallels between these results and the World-Systems theory, I will then try to make a contribution to World-Systems Theory concerning such an important region as the Arctic, and its connection with core-periphery relations, hegemonic struggles, the rise of the semiperiphery and the cycles of rise and fall and material expansion. Given the lack of WSA literature on the topic, I will also encourage scholars to dare to analyze the region from this theoretical perspective, as they will certainly have plenty of analysis content to do. I will end with the Conclusion (chapter 7) of this work, in which

I will briefly reflect all the work, thus composing a final analysis of the topic, discussing the results and the subsequent discussion.

In sum, my 2 hyphotesis are:

- The Russian Arctic is currently a periphery on its way to rapidly become a semiperiphery as a result of its rapid incorporation in the world-system;
- The Sino-Russian Arctic shipping industry and associated projects are integral to the ongoing hegemonic struggles within an increasingly multipolar world. The rise of former semiperipheral countries, such as China, coupled with cycles of material expansion, has propelled the development of the region in this context.

The main goal of this work is to analyze and understand the evolving status of the Russian Arctic within the world-system, examining its transition from a periphery to a semiperiphery. Therefore, my research question is: How does Sino-Russian relations on the Russian Arctic contribute to its transition from a periphery to a semiperiphery in the context of the World-Systems Theory?

2. Literature Review

As one might expect, before jumping directly into the literature review regarding Sino-Russian relations in the Arctic, it is first important to define what the Arctic means throughout this work. In fact, I will deal concretely with the portion of the Arctic region that is part of Russian jurisdiction, whether on land or sea (or on ice)[1].

Within the political realm, the Russian Arctic is subdivided into administrative units comprising federal subjects, specifically regions and autonomous districts. Among the prominent regions in the Russian Arctic are Murmansk Oblast, Arkhangelsk Oblast, Nenets Autonomous Okrug, Yamalo-Nenets Autonomous Okrug, and the Republic of Karelia (NAD Administration, 2016). While these regions possess local administrations, they ultimately operate within the jurisdiction of the Russian government.

The concept of the Arctic has undergone changes, but in the late 20th century, it was defined as "the northern polar region of the Earth, including the margins of North America and Eurasia and almost the entire Arctic Ocean with islands (...), as well as the adjacentparts of the Pacific and Atlantic Oceans" (Federov et al, 2019: 2). At the territorial level, although there are well-solid international agreements and treaties that underpin the international law of the Arctic, such as the Continental Shelf Convention (1958) and the United Nations Convention on the Law of the Sea (1982), each nation state is able to achieve a considerable degree of autonomy when it comes to the management of their national Arctic waters or territories.

According to the Arctic Institute (2022), the Russian Arctic consists of a land area of 17,098 million km2, which extends along the northern Russian territory through the Arctic Ocean and "waters above the Arctic Circle from the Barents Sea in the west at the border to Norway to the Bering Sea and the Sea of Okhotsk in the far east" (Arctic Institute, 2022). As can be seen from Map 1. the terrestrial Russian Arctic covers all the regions painted in colour and with the names of the cities written on them. The remaining territories, obviously, are not part of the Far North. In map 2 (index), taken from The

[1] Thus, I inform the reader that whenever the word "Arctic" is written, it will strictly mean that portion of the Arctic referring to Russian dominance, since it would be very complicated and even repetitive to write "Russian Arctic" in every sentence encountered throughout this work. Whenever I mention the Arctic in general, I will take the time and space to refer to it as general. Also, whenever I mention the Arctic referring to another non-Russian region, I will also reference it. For example: Canadian Arctic. A few other names will appear throughout this paper to name the Arctic, including: Extreme North, Far North, High North. The first two will be used more in cases referring to the Russian land Arctic regions. For example, when referring to cities in the Russian Arctic in general, the word Far North or Extreme North will probably appear on a few occasions. I turn then to the definition of the Arctic per se: currently the Arctic, in territorial terms, refers only and exclusively to 8 countries - USA, Canada, Norway, Sweden, Finland, Denmark, Iceland, Russia, and occupies in its entirety about 40 million square km (Federov et al, 2019: 1).

Economist, it is possible to see in greater detail the Arctic Ocean Exclusive Economic Zone belonging to Russia. As can be seen, the entire Northern Sea Route is in Russian jurisdiction, and much of the North-east passage runs along the Russian coast. This is what will be understood as the Russian Arctic throughout this dissertation.

2.2 Sino-Russian Relations in Hegemonic Struggles Perspective

To understand the hegemonic shifts in the world system and their relevance to the Arctic, it is important to view them as longer processes rather than isolated events. This literature review begins by providing a concise outline of the recent history and current state of Sino-Russian relations within the context of hegemonic struggles. Although there is always room for a more comprehensive context, in this sub-chapter, I will limit my analysis to the post-Cold War period, as it is the period of greater re-engagement between both countries, after the Sino-Soviet conflict of 1969. Bilateral relations between China and Russia were initially strained after the fall of the Soviet Union, as their priorities diverged. Throughout the 1990s, political and trade relations between the two nations remained historically low. China dropped from being Russia's second-largest trading partner to tenth between 1993 and 1994, and this trend continued until the turn of the century (Gabuev, 2015: 2).

However, in 2001, a significant turning point occurred with the signing of the Treaty of Good-Neighbourliness and Friendly Cooperation Between the People's Republic of China and the Russian Federation. This treaty, signed by Vladimir Putin and Jiang Zemin, played a crucial role in improving bilateral relations between the two neighbouring countries. It included provisions expressing Russia's full support for China's territorial integrity, particularly regarding Taiwan, and established a "no first use" agreement regarding nuclear attacks (Treaty of Good-Neighbourliness and Friendly Cooperation Between the People's Republic of China and the Russian Federation, 2001: Article 2). This landmark agreement not only fostered increased military cooperation but also facilitated the development of economic relations, marking the beginning of a gradual process of reducing dependence on the American economy. The treaty had a positive and lasting impact on the stability and cooperation between Russia and China.

From 2002 to 2018, the trade volume between China and Russia witnessed significant growth. It increased from 8 billion dollars in 2002 to a record high of 109 billion dollars in 2018 (Larin, 2020: 14-15), and despite supply chain disruptions caused by COVID-19, the trade volume only decreased by 5 billion dollars in 2022, reaching a new record of 190 billion dollars (Statista, 2022). Stronski and Ng (2018: 32) noted that the West considered Sino-Russian efforts to "adjust the international system to their advantage" as an existential issue.

Following the Crimea crisis in 2014, the US recognized Russia's economic vulnerability due to its dependence on the Western market for oil and gas exports. This realization, coupled with increased

sanctions, drove Russia closer to China in terms of trade and economic partnership. In 2014, a significant gas deal worth US$400 billion was signed between Gazprom and China National Petroleum Corporation, boosting crude oil imports from Russia to China (Mazneva & Kravchenko, 2014), and in 2016, the expansion of crude oil imports from Russia to China, surpassed the mark of 1 million barrels per day, outstanding Saudi Arabia's oil imports to China (Aizhu & Meng, 2017). The two economies have a highly complementary relationship, with Russia supplying "energy and raw materials, while China exports technology, industrial goods, and consumer goods" (Perović & Zogg, 2019: 1).

The Sino-Russian rapprochement has been a widely debated topic in academia and among specialists. The significance of this relationship is evident: two powerful countries that previously had discreet relations became prominent cooperative players, particularly after Putin's election and the 2014 invasion of Ukraine. Both countries advocate for a multipolar global order and the coexistence of multiple value systems as an alternative to the perceived emphasis on a liberal order by the US (Russian Federation and the People's Republic of China, 2022). The Sino-Russian affirmation of a multipolar global order has sparked new forms of conflict and cooperation, with the Arctic serving as a significant arena for these tensions and geopolitical trends. Unlike previous hegemonic struggles, this current shift is unique as it marks the first time since the 16th century that a rising power challenging global hegemony emerges from the East.

The ongoing struggle for hegemony in the international arena revolves around the preservation of the existing world order led by the United States, contrasted with the emergence of a multipolar or bipolar world where China and its allies could become new centers or even new hegemonies. In this shifting landscape, Russia stands as a significant contender for partnership with China, particularly evident in their collaborative efforts in the High North.

2.3 Geopolitics returns: Sino-Russian relations and strategy in the Arctic since Putin

While Boris Yeltstin's government relegated the Arctic to the back burner as a consequence of economic hardship and political instability, it was only with Vladimir Putin that both the Russian Arctic and the Siberian region itself gained relevance in the Russian national development strategy. Vladimir Putin declared in 2013 that Siberia was Russia's big bet for the future, declaring it a "priority for the 21st century" (Stewart, 2013). With the largest landmass in the Arctic region, Russia has been trying to return a certain population and industrial expansion to the Arctic, leading to the construction of various infrastructures, such as icebreakers, opening of oil and gas pipelines and even trying to bring tourism to the region (Kubny, 2020).

Russia is today the only country that builds and operates nuclear-powered icebreakers (Henderson, 2019), having built a number of such vessels to aid shipping along the Northern Sea Route.

In this sense, the need for production in the Arctic has become a national objective, which can never be disconnected from the need for easy access to the Atlantic Ocean via the Barents Sea and Norwegian waters. The need for the construction of these nuclear icebreakers also arises from Russia's limited access to warm-water naval bases. In this regard, it can even be argued that Russia's emphasis on Ukrainian territory, such as Crimea, stems from the necessity of exclusive and unhindered access to warm seas (Chauhan, 2020). This ensures that Russia is not constrained by vast ice masses, which highlight the need for the development of larger and more advanced icebreakers. China's interest in the Arctic, particularly its maritime routes, is driven by the need to diversify shipping routes and reduce dependence on areas with low nautical security, such as the Strait of Malacca (Akram and Fareed, 2020). By investing in Russian projects in the region, China is gaining influence in the fate of the Arctic Circle. This pursuit aligns with China's strategy of "Mackinderization," aiming to dominate the maritime domain and gain an advantage over other states with maritime geopolitical ambitions (Lukin, 2015).

The year of 1999 marked China's first Arctic expedition, while in 2004 they established their first Arctic research station in Svalbard, Norway (Zou, Zhou, Jian & Wang, 2001; Kopra, 2020). However, it was in 2010 that Sino-Russian interests in the region became more significant. The Northern Sea Route gained importance for China's trade with Europe as an alternative to the congested and piracy-prone Strait of Malacca (Hsiung, 2020; Storey, 2006). Russia's Sovcomflot and CNPC signed a long-term oil shipment agreement through the Northern Sea Route (Hsiung, 2020), and in 2013, China obtained a permanent observer seat at the Arctic Council and started constructing icebreakers, despite initial Russian opposition to their inclusion, due to their “reluctance to admit members with purely economic aims” (Wishnick, 2017: 42). However, the Western sanctions on Russia in 2014 prompted a shift in approach, leading Russia to seek cooperation with China in Arctic projects (Hsiung, 2020), and their assurances of respecting Arctic littoral states' rights and the commitment to allow Arctic states to develop future rules for the region played also a major role in this turnaround (Lanteigne, 2018).

This increasing Sino-Russian cooperation in the region even led the US Office of the Under Secretary of Defense for Policy to write a report in 2016, which identified the economic exploitation of the Arctic routes by both countries as strategically detrimental for American power. The document advocated that the American strategy should include “limiting the ability of China and Russia to leverage the region” (US Department of Defence, 2016), pointing to the Northern Sea Route as an essential part of this threat that should be addressed. The geopolitical tensions in the region between the USA (and some Western countries) and Russia (along with China) are then verified in the control of maritime routes and the development of shipping in the zone of influence of each of the countries in the region.

Nonetheless, Beijing released a famous white paper called “China's Arctic Policy” in 2018 (The State Council Information Office of the People's Republic of China, 2018), known for being the first paper with a well-outlined strategy for the development of the Arctic by a State not belonging to the

Arctic. The paper precisely mentioned the growing importance of passages such as the Northeast Passage for the future of international trade, and as an alternative to the current maritime routes between Asia and Europe (The State Council Information Office of the People's Republic of China, 2018). The Chinese White Paper described China as a state near the Arctic, which meant that the economy and events in the Arctic would always end up directly or indirectly affecting China, and that, therefore, they should have a say in the fate of the region. However, the US has rejected China's claim as a near-Arctic state. "There are only Arctic states and non-Arctic states," Secretary of State Mike Pompeo said in May 2019 before a meeting of the Arctic Council. "No third category exists, and claiming otherwise entitles China to exactly nothing" (Pompeo, 2019).

The 2018 document emphasizes that "China hopes to work with all parties to build a "Polar Silk Road" through developing the Arctic shipping routes" (The State Council Information Office of the People's Republic of China, 2018) and also mentions their respect for maritime jurisdictions, referred by treaties such as the 1982 UN Convention on the Law of the Sea, leading to a greater emphasis on international law. China's emphasis on international treaties and respect for maritime jurisdictions may have alleviated Russian concerns regarding their Arctic intentions. This proximity was reflected in a 2019 press release by the Russian government, stating their plans to build the "Silk Road on Ice" in partnership with China as part of the One Belt One Road initiative (Tass, 2019).

However, James Stravridis (former Supreme Allied Commander of NATO), declared that the Polar Silk Road was an "aggressive program of building influence," and that its influence would "create significant challenges for the NATO nations with Arctic territory" (Stavridis, 2019). This column by Stavridis echoes the views of Mike Pompeo, who declared that the Arctic was "the 21st century Panama and Suez Canals" and that Chinese influence in the Arctic would be putting the region at risk of "transforming into a South China Sea" (Pompeo, 2019), with extreme militarization. Mike Pompeo even declared that the Arctic had, in the past, the privilege of being one of the few regions on the globe in which scientific and cultural collaboration prevailed over any kind of major conflict. However, he claims that this collaboration and peace is something of the past, in a region increasingly becoming "an arena for power and for competition" (Pompeo, 2019).

The NSR is a key focus for these powers, offering a vital shipping lane that can shape the balance of power in the region and beyond. China and Russia have been closely collaborating in the development and exploitation of the NSR, reflecting the broader trend of hegemonic struggles between the United States and China. The United States views China's increasing relevance in the Arctic as a significant threat to international security and the existing order, fueling a competition for control in the region as global powers strive for position and dominance, with expectations of further intensification in the coming years.

2.4. Theoretical Analysis

Before heading to the theoretical framework and methodology that I will use, it is necessary to make a brief overview of the main theories of IR, reporting their strengths and limitations regarding the analysis of Arctic Geopolitics and the importance of this on a global scale, when we use the Sino-Russian cooperation in the region as an example. Realist and liberal theories are two of the most frequently cited analytical frameworks in the field of International Relations. They are popular not only because of their ability to structure global actors according to their intentions regarding international political power, but also because they are used as ideological justifications for geopolitical actions. Thus, I proceed, in the first instance, to the analysis of both theories (realism and liberalism), and then to the description of the importance of the World-Systems Theory as a superior method of geopolitical analysis, and in particular of the geopolitical processes arising in the Arctic.

2.5 Realism

Understanding realism is of paramount importance in comprehending the dynamics of the Arctic region today. Realism provides a valuable lens through which to analyze the geopolitical competition, power struggles, and security concerns among states in the Arctic. One key advantage of applying a realist framework is that it highlights the rational pursuit of power and self-interest, shedding light on the motivations and behaviors of Arctic states such as China, Russia, and the United States, especially when looking at Hegemonic Struggles. However, it is important to acknowledge potential disadvantages of relying solely on realism in understanding the Arctic. Realism tends to prioritize state-centric perspectives, potentially overlooking the interests and roles of non-state actors, the world-economy and its interdependence.

Realism perceives geopolitics as a constant struggle between states seeking to maximize power or maintain a balance of power, depending on the realist branch. Realism considers the international system as anarchic, with the state as the primary actor driven by a rational desire for sovereignty and survival. Neorealism, associated with Kenneth Waltz and Robert Gilpin, posits that a balance of power can limit the expansionist tendencies of powerful states through alliances. Both realism and neorealism emphasize the need for a single powerful state to preserve peace and establish norms and institutions mutually beneficial to major states (Kegley and Raymond, 2007).

The contemporary division within realism lies between offensive realism, as proposed by Mearsheimer, and defensive realism, advocated by Waltz. Mearsheimer (2001) argues that great powers will always seek to maximize their power and regional or global hegemony, leading to potential wars and heightened security measures. In contrast, Waltz (1979: 117) sees the international arena as a balance of power, where states form alliances to counter stronger states, preventing the achievement of total hegemony. Mearsheimer emphasizes power maximization for survival, while Waltz highlights the pursuit of defensive capabilities for territorial protection.

2.5.2 Realism: A brief theoretical critique

Realism is often praised for its pragmatic approach to geopolitics, offering a rational and objective analysis of the international scene. Its focus on individual states and their interests makes it easy to understand and apply to specific situations. However, realism's narrow perspective may lead to a lack of appreciation for the broader context of international relations, especially the interdependence of nations in a global system. Realists view states as independent units in history, each pursuing their own interests and security in a competitive environment. While this perspective is not entirely wrong, it does not account for the complexity of international relations, where states may act in the interest of the international community or constrained by perceived hierarchical structures, rather than solely their own interests. For a realist, what defines the international order is not the "principle of exploitation and asymmetrical exchange among agents within the hierarchical structure, but instead it is the principle of self-help by each state under the structure of anarchy" (Pribadi, 2013: 30).

One of my criticisms of realism as a theory stems from its limited ability to comprehend nation-states within the complex framework of economic interdependence found in the world-systems approach. Realism perceives states as unitary entities striving to maximize power in an anarchic world, while the world-systems theory views the international system from a perspective of dependency and hierarchy. In this framework, countries are categorized into core, semi-periphery, and periphery based on their economic roles. Realism predominantly focuses on military power as the primary factor shaping a nation's influence, sometimes overlooking other critical elements that influence geopolitical dynamics. One such vital aspect is the role of economic forces within the global system and how resources are distributed among regions and nations.

Realism, despite its strengths in analyzing international relations, has limitations that hinder its ability to incorporate historical context and macro-historical patterns. It fails to consider the historical patterns that shape the behavior of states in specific periods, such as declining hegemonic powers during multipolar eras. State actions in the WST framework are viewed as a product of the complex interplay within the world-system, which integrates the global economy and follows cycles of hegemony. For instance, while Realists may view Sino-Russian cooperation with cynicism, perceiving it as a temporary alliance waiting for the opportunity to betray each other, the WST recognizes it as part of a macro-historical process involving the rise of former semiperipheries and the cyclical nature of hegemonies.

Sino-Russian relations cannot be simplified by cynicism alone. Historical patterns and structures play a significant role. Constraints and geopolitics incentivize China and Russia to strengthen their partnership to navigate the changing global landscape. Realism sees dependence as a vulnerability, but geopolitical cooperative relationships bring about a contradiction for realists. They acknowledge the pursuit of power and autonomy as central to state behavior, yet recognize that independence is

unattainable in an interconnected world (Little, 2007). Realism is valuable for understanding hegemonic struggles in the Arctic, but it has limitations in comprehending the current cooperation between Russia and China, as it ignores historical patterns and cycles that may be relevant.

For realists, China's growing interest in the region could be a source of greater tensions and conflicts, not only because of increased interdependence (and possible conflicts with Russia), but also because of a hegemonic rivalry with American power (Boylan, 2021: 12). Boylan (2021: 13) even states that "most maritime traffic will be the outcome of states pursuing strategic interests like natural resource extraction and commercial shipping". In a neo-realist perspective of the Arctic, Borgerson (2008) elucidates about the new competition for Arctic resources, which he calls the "scramble for resources" (Borgerson, 2008). According to Lawson Brigham, we will experience an authentic "Arctic race" for economic power over Arctic resources (Dittmer, Moisio, Ingram and Dodds, 2011: 205).

It is in this sense that, despite the differences, I promote the idea that realism and the WST are not very far in terms of analyzing the geopolitical reality. However, some more complex layers had to be added to the realist theory for it to match the historical analysis of globalization as the WST does. To talk about cycles of globalization and interests in the region from hierarchical perspectives such as core-periphery relations, I could not use the realist theory, although surprisingly enough, world-system theorists fail to use the Arctic as a perfect example of their point of view. In fact, I was very surprised to know that WST theorists almost completely neglect such a rich area in which this theory could thrive. I will attempt to demonstrate that incorporating the Arctic into the framework of world-system theory is essential to fully understanding the region's dynamics.

2.6 Liberalism

One of liberalism's greatest dogmas is the assumption that "democracies do not attack themselves" (Schwartz and Skinner, 2002), as proclaimed by Bill Clinton in 1994. This world view reveals how liberals in IR see the world today: divided between liberal democracies vs authoritarian or illiberal states (Zakaria, 2007). Thus, authoritarian states conspire among themselves to protect their values from the democratic enlightenment coming from the liberal countries. The end of the Cold War and the spread of liberal democracy further encouraged the spread of this argument. Ikenberry (2009: 216) even argues that "the democratic peace was to liberal theory what the balance of power was to realism". This "Democratic Peace Theory", led to a linear and ascending vision (in the sense of progress), from which, the great conflicts would then be mitigated or eliminated, in the case of a world liberal democracy (Riccardi, 1998; Doyle, 1986 and Albright & Jomaa, 2017).

Liberals believe in the linear progression of human societies and view the world as divided into different stages of development. In this view, any country that has not yet reached its most advanced

stage of liberal democracy is seen as struggling to reach the level of more developed countries. According to this narrative, developing countries require political institutions and pressures from developed countries to accelerate the process of becoming liberal democracies. This plot is reflected in the Wolfowitz Doctrine, a hybrid of military realism and democratic liberalism. The doctrine, a Defense Planning Guidance published by US Under Secretary of Defense for Policy Paul Wolfowitz and leaked by the New York Times in 1992 (Tyler, 1992), was perceived as hostile by potential hegemonic powers such as China and Russia. The doctrine advocated for a policy of military unilateralism, in which the US would take preventive military and institutional action to prevent the emergence of dangerous dictatorships and maintain stability within the so-called "Rules-Based Order".

This doctrine, although controversial, appears to have been part of a large portion of american international strategy, especially during the presidency of Bush and Obama (Gaddis, 2002). Let's read Paul Wolfowitz's own words (2009): "And in Latin America, the answer to the danger of populist dictatorships is not a return to right-wing autocrats but rather support for the institutions of liberal democracy. Today we even see the seeds of democracy in Iraq (…)" - (Wolfowitz, 2009). The exportation of democracy and the free market is therefore one of the premises for justifying liberalism and this developed theory of modernization.

2.6.2 War, Cooperation and Soft Power

In light of the observation that democracies do not usually wage war against each other, the tensions between democratic and illiberal countries cannot be ignored. While globalization and free markets have brought about interdependence among states, their behavior towards one another remains a key factor in the avoidance of war between Great Powers, which remains the least desirable path for states and governments. This is where NGOs and international governmental organizations play a crucial role in promoting cooperation between states and fostering the acceptance of liberal democracy around the world, according to the liberalist thesis.

Liberals see International Relations, unlike realists, as a "rule-based system where states interact with each other for mutual gains" (Parry, 2021: 1). Thus, in the liberal view, states have a lot of space for cooperation within the framework of international norms, namely regarding human rights, democracy and international law. These international norms, according to the theorists of liberalism, lead to a generalized and more or less constant peace, since "actions contrary to these norms, (…) are subject to various types of costs" (Meiser, 2018) that no country wishes to pay. Liberalism offers a more comprehensive understanding of the role of NGOs and large institutions in preserving the liberal order compared to realism. While realism focuses primarily on the state, liberalism takes a broader perspective. It recognizes that institutions can play a significant role in promoting peace and harmony among nations, which realism tends to overlook. However, it's important to acknowledge that even these

institutions can be influenced by a core power connected to specific economic ideologies. William Robinson's concept of the "Transnational Capitalist Class" describes a global elite that emerged with the internationalization of capital. This elite, through its control of large corporations, is said to have significant influence over the processes of globalization. Robinson's critique of the liberal view on institutions challenges the belief that they are inherently benign and solely focused on peacekeeping. According to some World-Systems Theory authors, transnational corporations have become key drivers of globalization and finance extensive networks of NGOs, potentially corrupting or influencing international institutions (Frankman, 1997: 347; Robinson, 2017).

2.6.3 Liberalism and the Arctic

While there was once a belief in "Arctic exceptionalism" that aligned with liberalism, recent competition in the High North has challenged this notion. Even Mike Pompeo acknowledged the end of this exceptionalism. Current references to liberalism as the prevailing thesis in the Arctic often rely on examples that no longer hold true in the broader global context. For instance, the cooperation between Finland and Sweden regarding the Arctic is often cited (Dittmer, Moisio, Ingram and Dodds, 2011: 206-207), but their recent political and military activities suggest a closer relationship on a global context (Euractiv, 2022). Consequently, cooperation in the Arctic would be expected as well.

Thus, there is some lack of coherence in the arguments used in favor of cooperation, as they would be more credible if they used examples of countries in potential conflict such as the US-China-Russia triangle and applied it to the Arctic. In these cases, realism is superior in its analysis. The strongest argument supporting the liberal thesis in the Arctic is the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean, which entered into force in 2021 (Arctic Council, 2020 and European Commission, 2021). This agreement effectively limits commercial fishing in the high seas portion of the central Arctic Ocean for all signatory countries, including Russia and China. The document aligns with liberal theory as it addresses the urgent concern of potential overexploitation of fish stocks in this region. By establishing regulations and promoting multilateral cooperation, the agreement demonstrates a commitment to sustainable fishing practices and the principles of international governance.

When examined from a realist perspective, the limitations of the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean become evident, particularly in relation to resource extraction and the utilization of the Northern Sea Route (NSR). Although the agreement addresses the issue of unregulated fishing, it does not directly tackle broader concerns such as resource extraction. Powerful states like Russia and China perceive the Arctic as a region rich in resources and a strategic trade route. These states are likely to continue pursuing their national interests in resource

extraction, regardless of cooperative agreements. Graph 2 in the Appendix illustrates the limited relevance of fishing for the Russian Arctic economy, further emphasizing the agreement's shortcomings.

Additionally, the agreement does not intersect with the governance and utilization of the NSR, as indicated by Map 4 in the Appendix. Its scope is solely focused on fishing in the central part of the Arctic Ocean, excluding the NSR from consideration. In summary, while the Agreement to Prevent Unregulated High Seas Fisheries aligns with the liberal thesis by promoting international cooperation, it fails to address realist concerns regarding resource extraction and the utilization of the NSR.

Analyzing the role of shipping in Sino-Russian relations in the Arctic from a liberal perspective is problematic as liberalism's post-Cold War worldview emphasizes impartial cooperation and peace through large institutions. However, this view is criticized for overlooking historical conflicts and wars that have shaped international relations. WST and even realism, in contrast, acknowledges this reality and contextualizes international relations within a history of conflict. Recent events such as the War in Ukraine and tensions between the USA and China concerning Taiwan and the Arctic challenge liberalism's belief in institutions preventing conflicts.

2.7 World-Systems Theory

After the advent of liberalism as an IR theoretical body of knowledge, some new theories emerged that questioned the extreme linearity and western centrism of this geopolitical and economic vision. In response to modernity theories, dependency theory emerged, and later, the World-Systems Theory built upon it. Unlike the idea that modernity can be achieved by all countries, the WST suggests that modernity is actually the main obstacle to the development of underdeveloped countries. As Chew and Lauderdale note, "underdevelopment comes from the unequal distribution of resources, and from the exploitation of less developed countries, as well as emerging countries, through center-periphery relations" (2010: 41). This system relies on a flow of resources and capital from the developed countries to the underdeveloped ones, perpetually impoverishing the periphery while enriching the powerful core.

The exploitative nature of global capitalism is a well-established phenomenon, where the most developed countries benefit from the underdevelopment of peripheral zones, also known as the Third World. These underdeveloped zones provide cheap and unskilled labour for the developed countries to use for their own gain. However, this system is not limited to European capitalist states, as it is a structural basis of capitalism worldwide. Building on the dependency theory, which emphasizes the hierarchical structure of inequalities in the global system, Immanuel Wallerstein's analysis identifies class relations and exploitation as the underlying causes of this system. He contends that the global economic system is built on a core-periphery structure, where the core countries, including the developed countries, exploit the peripheral countries to maintain their own economic dominance.

Wallerstein's analysis emphasizes the need for a more equitable distribution of resources and the need to challenge the structures of power that maintain the current global economic system. Theotónio dos Santos, one of the founders of dependency theory, warned:

"The relation of interdependence between two or more economies, and between these and world trade, assumes the form of dependence when some countries (the dominant ones) can expand and can be self-sustaining, while other countries (the dependent ones) can do this only as a reflection of that expansion, which can have either a positive or a negative effect on their immediate development" - (Santos, 1970: 231).

Wallerstein's analysis shifts the focus from mere state-to-state relations, as assumed by realism, to the intricate dynamics of global capitalism. The world-system, rather than individual states, becomes the appropriate unit of analysis. It recognizes that global power relations have structured development and underdevelopment for centuries (Chase-Dunn and Grell Brisk, 2019). The division of labor, discussed by Marx and Durkheim, extends beyond national boundaries and encompasses power relations within and between countries. This division of labor is embodied in a geographical division within the world-system or world-capitalism, as Wallerstein argues.

While the exact origins of the world-system are debated, Wallerstein posits that the 16th century marks the emergence of the current form of the world-system with its capitalist accumulation of private capital. Authors like Janet Abu-Lughod and Giovanni Arrighi trace the origins of the world-system to the 12th or 13th century, while Andre Gunder Frank, Leonid Grinin, and Chase-Dunn argue for a continuous historical process dating back to civilization's early stages. This macro-historical analysis aligns well with the Arctic's examination within the world-system framework. World-Systems theory recognizes that elites in the periphery often accept the exploitative system due to limited hierarchical options, despite underdevelopment and exploitative relations with core countries. Critics argue for countries' agency in pursuing their own development strategies, but World-Systems theory acknowledges structural barriers that restrict agency.

2.7.2 Incorporating new regions in the World-System

According to Chase-Dunn and Hall (1997: 65), real or effective incorporation is defined as the integration of a region's production "processes into the interdependent network of production processes that constitute the world market", where the economy of that region begins to reproduce the patterns of the world economy and the dominance of subsistence economies ceases to exist. This process signifies the end of incorporation into the world-economy, in contrast to nominal incorporation, where "dominant patterns of production and reproduction within the region are still typical of external areas" (Chase-Dunn and Hall, 1997: 63). Wallerstein outlines five stages of incorporation in the world-system. It begins

with "external zones" where societies have limited or no contact with the world-system. The next stage is the "autonomous zone" where some contact is observed, but the economy remains largely unchanged. The third and fourth stages involve the export of primary and secondary sector products, respectively, without significant industrialization. Finally, the "dependent periphery" represents full integration into the world-system while remaining reliant on the external market and subject to the influence of stronger actors (Mason, 2014).

According to Carlson (2001: 239), incorporation into the world-system involves socio-cultural changes, economic specialization, industrial development, and shifts in political power. This process creates new production zones with low-cost labor, allowing capitalists to expand geographically and find fresh avenues for capital accumulation outside of saturated markets (Hopkins et al., 1987: 771).

In his book "ReOrient: Global Economy in the Asian Age", Andre Gunder Frank (1998) argues that the Opium Wars were a turning point in China's integration into the world-system. The wars forced China to open up entirely to the world-economy, which had a devastating impact on China's trade balance as Chinese silver was exchanged for opium from India. China became a peripheral player in the world-economy, until Maoist policies isolated the country and led to economic collapse. This collapse relegated China to “external-zone”. After Mao's death and the rise of Deng Xiaoping, China shifted towards a more market-oriented economy, opening up to international markets and becoming a major player in the global economy. This led to a boom in China's industrial sector, and eventually to the relocation of American industries to China, contributing to the process of American deindustrialization.

China's incorporation into the world-system as a periphery, and subsequent rise to becoming one of the biggest centers of large volume production of manufactured goods sent to core countries, was driven by the search for cheap labor in the world-economy's productive networks. This allowed multinationals and big Western capitalists to relocate their industries to China to accumulate larger amounts of capital through the profit generated by low wages or servitude practiced in China. Its rapid industrial growth created a challenge for Western control. China's rise as a major global power under Xi Jinping's leadership can be attributed to the diversification of its economy, and their bet on the Research and Development. This highlights how incorporation into the world-system involves creating new geographic zones with untapped market potential, allowing countries to find new avenues for capital accumulation.

The incorporation of new regions is achieved through “trade-induced political evolution” (Carlson, 2001: 238), and is characterized by the inclusion of “external areas”, meaning, parts of the globe that are little explored in the world economic system. In principle, this region then becomes part of the periphery of the world-economy. The Arctic has become an important region in the world-system, with the potential to be a new market in a saturated global economy. The rapid incorporation of the

Arctic into the world-system has made it an interesting case to study, especially considering the rise of the semiperiphery and hegemonic struggles. In this context, the Russian Arctic can be seen as a new region that has emerged to challenge the old order of the world-economy. It is worth noting that the integration of the Arctic into the world-system has been quite unique, as it happened quickly through peripheralization. This paper argues that the Arctic has moved rapidly from being an external zone to a periphery, and that, if current trends continue, it could quickly ascend to a semi-periphery of the China-dominated world-system. China's emergence as a major player in the Arctic, particularly through its investments in the Russian Arctic, has played a significant role in the region's economic and industrial growth. Understanding the impact of China's rise on the Arctic's development is crucial, as it will shape the future trajectory of the region.

2.7.3. Hegemonic Struggles

The macro-historical analysis of the relations between states and the dependence between them, elevates the World-Systems Analysis to a different level from most other IR theories. For example, when looking at the relations between Portugal and England, both in the metropolis and in the respective colonies, Santos (2000: 460) observe how Portugal ended up being decisive in the construction of the modern capitalist British Empire. The world-system is characterized by economic and power interdependence, with nations vying for global hegemony. The British Empire's ascendance to global hegemony in the 18th and 19th centuries exemplifies this. Factors such as the discovery of gold in Minas Gerais and the Methuen Treaty, which facilitated the transfer of surplus from Portuguese colonies to English soil, played a significant role (dos Santos, 2000: 460). Rapid industrialization, agricultural production, a formidable naval force, the dominance of the sterling, and the widespread adoption of the English language further solidified their hegemonic position (Terlow, 2003: 83-84). According to Arrighi, hegemony refers to a state's ability to lead and govern a system of sovereign states, driven by a perceived general interest (Arrighi, 2010: 28). The British Empire's pursuit of economic dominance, military strength, and cultural influence exemplify their path to global hegemony within the world-system.

This general interest, despite being ambiguous, has worked throughout history as an ideological claim that perpetuates some “credibility under conditions of systemic chaos” (Karatasli and Kumral, 2017: 8). In other words, it legitimizes the imposition of the hegemonic force on the rest of the world-system, under the excuse of bringing “Order ab Chao” (Order out of Chaos). However, for theorists of the modern world-system such as Andre Gunder Frank, the concept of “hegemony” is not limited to the simple domain of the economic field and the domain of the flow of resources, as far as the geopolitical game is concerned. This is a more complex process, which is based on the construction and reproduction of a dominant ideology (in the IR, we have already seen how liberalism occupied this role). In a

Gramscian view of power relations, the dominant ideology permeates all aspects of civil and political life, including the media, politics, and academia. Rising great powers strive to establish intellectual and moral leadership over new states, presenting their political and economic models as ideal systems to be adopted by others (Karatasli and Kumral, 2017: 6).

The WST challenges realism and liberalism by suggesting that global hegemony operates in cycles. During periods of hegemonic growth, the system is characterized by structure dominance and a unipolar phase. Conversely, during the decline of the hegemonic power, the world-system experiences instability and multipolarity, with new contenders emerging. The agency of nations and actors shapes the structure of subsequent cycles. In a transitional multipolar system, uncertainty and insecurity prevail, emphasizing the importance of exploring new economic zones and engaging in geopolitical and geoeconomic battles. These factors determine new global dynamics and the emergence of a new hegemonic power. Contrary to realist views, the WST recognizes the existence of a global authority during cycles of hegemony. While the hegemonic power may not assist all states, its selective aid showcases its immense power and influence, asserting its authority in the international system.

Critics accuse the WST of being resistant to change, but the theory can explain both unipolar and multipolar periods of dominance. While not primarily focused on prediction, it offers insights into the near-future world. However, hegemonic power is not stable, often devolving into rivalry (Chase-Dunn, Jorgenson, Reifer, and Lio, 2005). According to Komlosy (2019: 35), phases of hegemonic competition are more common than unipolar phases, with a dominant core lasting unchallenged for only about 25 years. Even in earlier societies and chiefdoms, the rise and fall of hegemonies were called into question by phenomena such as "semiperipheral marcher conquest," where a semiperipheral chiefdom conquers most core countries to form an empire (Chase-Dunn, Jorgenson, Reifer, and Lio, 2005).

According to Arrighi (2010), China's rise is part of a broader shift in the global capitalist system, challenging Western hegemony and creating a more multipolar world. The competition between semiperipheral countries experiencing rapid economic growth and core countries can lead to tensions and rivalries. Understanding China's interest in the Arctic requires recognizing their desire to escape saturated markets and create new production and investment locations. Cooperation with Russia in the Arctic aligns with China's economic development policy, providing access to new markets and abundant resources. Countries like China and the US are driven by a desire to maintain and expand their power, influenced by the hierarchical and macro-historical structure of the global system. The rise of the semiperiphery, particularly China, is a significant phenomenon shaping global dynamics, with its economic and political influence growing steadily. Overall, the contemporary global context highlights the challenges to Western dominance and the emergence of new economic and geopolitical centers, with China's ascent serving as a prominent example.

Moreover, the Arctic has also emerged as a new region of strategic importance, particularly due to its vast natural resources and its potential as a key shipping route in the future. As a result, the Arctic has become an arena for geopolitical competition, with Russia and China among the key players seeking to expand their influence in the region. The analysis presented here suggests that China's rise as a global power does not necessarily indicate a pursuit of hegemony, as it lacks an explicit drive for cultural influence and expansionism. Instead, China seems to position itself as a contender in the ongoing power struggle within the world-system, aiming to establish a multipolar order based on a balance of power. This proposed order would differ fundamentally from the unipolar system established by the USA in the post-Cold War era.

China's ascent poses a significant challenge to the existing global power structure by embodying a distinct set of values and priorities. Rather than imposing its cultural norms on the world, China adopts a pragmatic approach focused on economic growth and strategic partnerships. This pragmatic strategy allows China to carve out a unique position within the global system, challenging traditional hierarchies of power and influence. In the upcoming chapter, I will delve into the intricate interplay between the rise of the semiperiphery and the ongoing struggles for hegemony that characterize the global system. I will particularly emphasize the influence of China as a rapidly emerging superpower and its role in the Arctic region, and in shaping the world order.

2.7.4 Semiperiphery and its Rise

According to the World-Systems Theory and its adherents, including Wallerstein, relationships within the world-economy extend beyond the binary notion of core and periphery, giving rise to the concept of the semi-periphery. This intermediary position is characterized by its "intermediate status between the core and the periphery" in terms of economic exchanges (Nooy, Mrva, & Batagelj, 2018: 37). Thus, the semiperiphery plays a crucial role in the ongoing struggles for hegemony and the shaping of the global system. The concept of the semiperiphery within the world-system theory proposed by Wallerstein (1976) is crucial in understanding the global economy. Semiperipheral countries possess the potential to ascend to the core or descend to the periphery, and they play a crucial role in the manufacture and export of most products due to their high level of industrialization. These countries exhibit a blend of characteristics, including access to educational opportunities and institutions similar to those found in core states, while still retaining peripheral cultural and labor-division traits that keep them from achieving core status. McDonald (2014: 4) elaborates on this idea by emphasizing the importance of understanding the unique features of semiperipheral countries in analyzing the global economy.

Therefore, and as will be relevant to this work, Wallerstein (1976) and Chase-Dunn and Hall (1997) found that only the semi-periphery bring the winds of change of any world-system, and Chase-Dunn (et al, 2010) calls this process the “semiperiphery development”. By functioning as central zones

for the flow of core-periphery and periphery-core resources, they are much less vulnerable to economic downturns, given their high industrialization and autonomy capacity, which allows these areas to follow a more protectionist policy in times of crisis, without losing their industrial strength and without major impacts on GDP. If for Wallerstein (in Chase-Dunn and Rubinson, 1977: 476), the semiperiphery "stabilize the system by concentrating deviant political forms in an intermediate position", it would be expected that the destabilization of this group of countries would have far-reaching repercussions, possibly even bringing changes to the system itself. In this sense, Sutherland (2021: 60) states that "the process of the transformation of world-systems through semi-peripheral action lies in the creation of new economic, financial, industrial, and governmental institutional structures". Chase-Dunn and Hall (1997, in Sutherland, 2021) argue that "the most successful capitalist nations in the core, in particular those nations that are or were hegemonic, were at one time semi-peripheral".

Chase-Dunn et al. (2010) argue that semiperipheral countries drive upward mobility and transformative behaviors. They can expand networks beyond the old core due to their self-induced overaccumulation crisis. The Arctic, supported by China's financing, has the potential to become a crucial region in shifting away from saturated markets. The rise of the semiperiphery challenges the established order, with the Russian Arctic gaining prominence through simultaneous leadership from regional power (Russia) and global power (China). Quigley (1961; 1979) emphasizes that semiperipheries are vital for civilizational changes and innovation, even in production and institutions. According to Quigley (1979), change emerges at the limits of decaying civilization, leading to the emergence of a new civilization in a different geographical location.

Chase-Dunn (1999: 208), reflects on how the intermediate position of these countries gives them an excellent position to make "strong challenges to capitalism", and therefore, the core states work together to prevent the formation of alliances between semiperipheral countries. This is especially true when the technologies they have imposed on the system become diffused globally and new technologies are developed by countries in the semi-periphery. These developments create new contradictions in the world-system that make it increasingly difficult for core countries to keep up with the pace of innovation. They strive to move from being dependent on core countries for capital and technology to becoming more self-reliant and competitive in the global market. This process involves efforts to enhance their industrial sectors, invest in research and development, and establish strategic alliances with other countries. Innovation plays a crucial role in the semiperiphery's rise. By fostering a culture of innovation, these countries can generate new ideas, technologies, and products that give them a competitive edge. They invest in research and development, promote entrepreneurship, and create an enabling environment for technological advancements. World-Systems Theory offers a useful framework for understanding the ongoing rivalry between China and the USA. According to WST, semiperipheral

countries like China have historically played an important role in introducing new innovations and technologies to the world system.

A contemporary example of the “race for innovation” between core countries and countries that intend to challenge the established hegemony, is mirrored perfectly in the fierce competition between China and the US regarding innovation in the area of telecommunications and the Internet, especially of 5G and 6G technologies. If, when it comes to 5G, it is visible that “Washington has not prioritized development of next-generation telecoms (5G) to the extent that Beijing has” (Lee, Nouwens and Tay, 2022: 2), then with regard to 6G, it also begins to exist a certain disparity with China starting a massive investment in this communication technology (Lee, Nouwens and Tay, 2022: 2). Currently, it is possible to see this tension in the way Sino-Russian cooperation unfolds in the world-system and how the United States and China are currently engaged in a geopolitical battle for global influence. The US has traditionally been a dominant player in the western world, with many countries looking to it for leadership and support. However, with the rise of China as a global superpower, there has been a shift in the balance of power, and China has been working to expand its sphere of influence.

The relevance of the semi-periphery in my work lies in the current systemic crisis of world capitalism, which has sparked new rivalries. China and Russia, both former members of the semi-periphery, play a crucial role in this context. The shift from traditional Western capitalism to the advocated "state capitalism" by these countries challenges the core principles of capitalism based on private capital accumulation and free trade. China's rise as a superpower can be attributed to this paradigm shift. The competition in Arctic shipping reflects the struggle between the existing hegemonic power and the former Asian semi-periphery seeking its place in a multipolar world. The Arctic's potential semi-peripheralization is influenced by the intersecting cycles of rise and fall, as described by Arrighi, alongside the development of semi-peripheral regions. Additionally, Arrighi's cycles provide insights into the timing of China's ascent to core or hegemonic power, as its pursuit of a multipolar world order aligns with periods of hegemonic crises. It is crucial to examine how these factors interact with one another, as they will significantly shape the geopolitical landscape in the years to come. By analyzing these trends, one can gain a better understanding of the current global power dynamics and try to predict how they may evolve in the future.

2.7.5 Cycles of Rise and Fall and Material Expansion

The cycles from the Annales School (based on Kondratiev) and Modelski also identify the hegemonic cycles of the modern world system, which, according to Immanuel Wallerstein, were 3 world hegemonies spread over 4 cycles. A Dutch seventeenth century hegemony which saw the emergence of “joint stock companies, a stock exchange and a colonial empire built around profit-taking” (Khutkyy and Chase-Dunn, 2017: 1073), a British hegemony in the eigteenth and then nineteenth century which

began with the intensification of its "agricultural production, (and) its industry, followed by extensive overseas trade and financial operations" (Khutkyy and Chase-Dunn, 2017: 1075) and U.S. hegemony in the twentieth century. For Wallerstein (in Chase-Dunn, Jorgenson, Reifer and Lio, 2005: 236), there are three stages in each cycle: "*first is based on success in the production of consumer goods; the second is a matter of success in the production of capital goods; and the third is rooted in success in financial services and foreign investment."*

According to Arrighi, hegemonic cycles have a simpler rise and fall behaviour. In the growth phase of world hegemony, there is a material expansion characterized by a period of rapid industrialization. However, with market saturation, the focus shifts to financial markets, and we move to a phase in which hegemony slowly abandons what I would call "physical economy", or industrialization, to move to a phase of financial manipulation of markets (Robinson, 2011: 7). This is the period known for the deregulation or liberalization of markets, in which the overaccumulation of capital, allied to overproduction means that "capital can no longer find sufficiently profitable areas for investment in production or distribution" (Bond, 1999: 417). This leads to what Bond (1999: 417) calls "casino capitalism", carried out by financial speculation. Currently, it has its most striking expression in the financial markets of London and Wall Street.

If, on the one hand, the semiperiphery "has been more actively developing the 'real economy'" (Grinin and Korotayev, 2013: 367), it is verifiable that Western countries allocate greater shares of GDP to the financial sector, to the detriment of its own industrial output. For Arrighi (in Robinson, 2011: 7), "an increasing mass of money capital sets itself free from its commodity form, and accumulation proceeds through financial deals". This second hegemonic phase, despite appearing to be the most prosperous phase of global power, is actually the beginning of the fall of the core. It is the deindustrialization phase of the world-core, mirrored by the "fast growth of the export sectors" in the semiperiphery and by countries such as "USA and some other core countries becoming (my emphasis) more and more the world center of consumption" (Grinin and Korotayev, 2013: 368). The semiperiphery then feeds on this need for unbridled core consumption, in order to develop its industry and become more relevant in the global hierarchy. Arrighi calls it the "illusory phase", since the state then becomes an instrument in the hands of private capital accumulation, which, seeing their profits falling, resort to capital loans with high interest rates, increase in the mass of capital in circulation and to wars to feed on new capital.

The eventual improvement in the living standards of the semi-periphery and periphery populations, means that the core cannot extract the same profits, leading to the need to create new markets (even if this implies wars and invasions) to extract resources in order to mirror the process that led them to hegemonic status in the past. Since the first period of hegemonic ascendancy is fixed in a determined geographic space, which will become the core, the second financial cycle, when dealing

with the constraints of the overaccumulation of capital, turns to financial specialization instead of trade and production, in order to become the “bank of the world” (Taskesen, 2010: 60). The adoption of the dollar standard as the most used currency of exchange in the world is an example of this second phase in current world events. Part of this process of financialization and consequent decline of world hegemony, are the hegemonic transitions characterized by systemic chaos in the world-system, and by the reorganization of world production in new centers, creating interstate rivalry, and the industrialization of the semiperiphery that emerges as competing with hegemonic power and the financial core. China's rise from an external area in the communist era, into semiperiphery after liberalization and finally to the status of a major competitor with the US today, is an unmistakable sign of this process.

In this sense, the importance of China as a global player emerges in a cyclical phase of US hegemonic decline, which could be more profitable for Chinese forces, since even Latin American countries have had the audacity to create more solid relations with countries that contest the western core, such as China, Russia and Iran (Burron, 2014). Throughout history, semiperiphery development has played a cyclical role in the rise and decline of global powers. The United States itself transitioned from the British semiperiphery to core status in the early 20th century, eventually becoming a hegemonic power after World War II. Although US hegemony is currently waning, history shows that a decline in power does not necessarily lead to a complete loss of global status. The second British hegemonic cycle, for example, involved seeking new geographic spaces like India and China to maintain dominance. The Opium Wars played a crucial role in Britain's pursuit of hegemony. Without such expansion, the concentration of capital in a specific geographic area would have hindered the United Kingdom's rise in the 19th century.

The rise of the semiperiphery leads to intensified rivalry and systemic chaos within the world-system, challenging existing power structures. It reflects cycles of capital accumulation in trade, commerce, and high finance, fostering competition. Chase-Dunn argues that the current state of the world-system differs from Wallerstein's bifurcation theory. Wallerstein saw a clash between authoritarian capitalism in Davos and a more egalitarian system in Porto Alegre. However, Wallerstein's perspective is limited by his belief that the world-system is only 500 years old. I agree with Chase-Dunn and Andre Gunder Frank that the world-system predates the Middle Ages, dating back to the Neolithic era. From this broader perspective, Chase-Dunn acknowledges that the ongoing transformation won't necessarily result in a purely authoritarian or purely egalitarian system.

Chase-Dunn perceives the bifurcation as a competition between the transformative takeover of the semi-periphery and a second round of US hegemony (Hung, 2017: 640). Wallerstein's vision appears limited due to his temporal narrowness and the dimension of the world-system. By considering the world-system to be only 500 years old, Wallerstein suggests that we may be approaching its end.

However, embracing Chase-Dunn's ideas clarifies how the hierarchical system of accumulation and the rise and fall of hegemonies have persisted since the beginning of civilization. This perspective eliminates any romantic notions of a stark division between a world of darkness and an ideal era, as proposed by Wallerstein. Instead, it recognizes a historical process that mirrors the distant past, leading to a structurally different world rather than one entirely opposite to our current reality. Leonid Grinin and Koroyatev (2013: 68) view the current crisis of the world-system not as the end of modern capitalism, but as an opportunity for the emergence of new institutional forms of accumulation. They focus on the rise of China and its potential to challenge the basic logic of capitalism, introducing a new "market society" that contests the financial power of the West. This aligns with Arrighi's description of the first systemic cycle of accumulation. In terms of Russia's role in the geopolitical landscape, there is a possibility of a strategic shift towards closer economic ties with Asian markets, particularly China. This shift may be influenced by economic sanctions from Western powers, but it also reflects broader shifts in global power dynamics.

As already noted above, the technological factor also has an impact on these hegemonic cycles, and may even be one of the major causes for the emergence of the semiperiphery as a core. The competition between China and the US for the dominance of 5G and 6G technology is yet another expression of these cycles, since the current market saturation can boost “new technology (that) allows economic expansion” (Turchin and Hall, 2003: 39). The Arctic is a crucial area for innovative advancements in agriculture, industrialization, and trade. Its harsh weather conditions provide an impetus for creative problem-solving to develop projects in the region. Additionally, existing technologies can be utilized more efficiently and frequently in the Arctic.

According to Giovanni Arrighi's theory of cycles of material expansion, the rise of new economic powers is often accompanied by a shift towards new geographies of production and resource extraction. This can be seen in the case of China's rise, which has been characterized by a focus on manufacturing and industrial production, as well as a growing demand for natural resources to fuel its economic growth. In recent years, there has been a renewed interest in the Arctic region as a potential source of natural resources, particularly in the form of oil and gas reserves. This interest has been driven in part by the growing demand for energy resources from emerging economies such as China, which has been investing heavily in Arctic resource development. The revitalization of industrial output in the Arctic can thus be seen as a reflection of the cycles of material expansion described by Arrighi, as new economic powers seek out new sources of raw materials and energy to fuel their growth. In the case of China, this has involved a focus on securing access to resources in regions such as Africa and the Arctic, as well as developing new technologies to enhance resource extraction and transportation.

3. Methodology

Having explained and deepened the World-Systems Theory, it is not surprising then that I will use it throughout the rest of the work. As such, I will explain the methods I will use in the analysis and discussion of the work, and how I will analyze the geopolitical reality in the Arctic, from the point of view of Sino-Russian Relations and the role of shipping in shaping the region as part of hegemonic struggles. The literature review demonstrated the superiority of the World-Systems Theory (WST) regarding the analysis and objectives of this study. WST emphasizes the importance of economic relationships and their influence on state behavior, offering a comprehensive understanding that surpasses the narrower focus of Liberalism and Realism. It recognizes the economic interests of both countries in accessing Arctic resources and trade routes, and analyzes historical cycles of incorporation, including the expansion of capitalist relations into new territories.

WST also offers a broader perspective on the rise of the semiperiphery, dividing the world system into core, semiperiphery, and periphery regions. In the case of Sino-Russian relations in the Arctic, both countries possess significant economic and military capabilities. WST allows for an analysis of how these actors strategically enhance their position and potentially challenge existing hegemonic powers. Additionally, WST considers the hegemonic struggles that arise in the global system, recognizing the competition for resources, control over trade routes, and influence in the Arctic as manifestations of these struggles. By encompassing economic and geopolitical interests, WST provides a comprehensive analysis of how Sino-Russian relations in the Arctic contribute to larger hegemonic dynamics in the global system.

The secondary data that I will use will involve the analysis of shipping-related data in the Arctic region, specifically focusing on the Northern Sea Route, and its special connection to Sino-Russian relations. I will also demonstrate how the industrialization of China and the Russian Arctic is one of the key factors under examination in this study. I will use the inductive method, from which, by demonstrating the data and my analysis of Arctic shipping in the Sino-Russian context, I will then proceed to discuss how these trends and developments in the region and its maritime routes and technology, will then be better understood on the macro-scale perspective based on cycles, hegemonic struggles and globalization trends only explained by WST authors.

To do this, I will be using mostly secondary data, taken from databases and existing literature. While primary data collection would have allowed for a more thorough analysis, the use of existing secondary data is a common practice in social science research and can still provide valuable insights. Moreover, using existing data allows for the examination of long-term trends and patterns, which is particularly important for a theory like WST that emphasizes the importance of historical context. Additionally, this analysis will also consider the role of geopolitical actors such as Russia, China, and

the United States in shaping the Arctic's position in the world-system. Understanding the motivations and strategies of these actors will be essential in assessing the Arctic's potential for semiperipherialization and its implications for the larger world-system.

Ultimately, this analysis aims to contribute to the ongoing discussion on the Arctic's role in the world-system and to provide a new perspective on the region's position in the core-periphery hierarchy. By exploring the Arctic through the lens of WST and examining the dynamics of geopolitical competition in the region, this work will offer a unique perspective on a critical and rapidly evolving area of global importance. Eventually, it is not the data that are innovative, but my interpretation of the data. I will connect dots that have not been connected until now, and try to make more sense of the Arctic from this macro-historical perspective and related to WST patterns.

To gain a comprehensive understanding of the Russian Arctic and its connection to China-Russian trade, I will analyze several reliable sources of secondary data. These sources include Larin (2020), Statista (2022), and Mazneva & Kravchenko (2014). These are all statistical analysis of the volume of trade. I will also take a look at another statistical analysis of the tons transportated by Sea on the NSR, Suez Canal and Cape of Good Hope. To achieve it I will rely on Kiiski, 2017; Humpert, 2022; Lauserre, 2021 and the content of Table 3 in the Appendix. Duchatel and Duplaix as well as Ritz, 2018 will be helpful in understanding China Maritime trade and LNG gas trade statistics. The little primary data I will analyze will be official documents and speeches, like the Polar Silk Road documents and commercial agreements like “Power of Siberia”.

If realism and liberalism would serve to explain specific phenomena of some state and non-state actors in the Arctic at a certain time, only with the World-Systems Theory I will then be able to insert, for example, the development of the NSR in a greater scale, putting it a in the context of globalization and in its due historical context.

As already mentioned in previous chapters, I will first analyze 3 essential issues when shipping in the zone:

1) The Northern Sea Route, and its importance for the world-economy, and for the development of Russia and China as potential rivals of the western economy.
2) The vision of transporting Yamal LNG via shipping, as an essential engine for the economy of the former semi-periphery of Asia.
3) Finally, I will speak about the use of the smart grid in the Arctic, through its (especially) Chinese investment in 5G and 6G infrastructure, as well as satellites for “smart” navigation by ships in the Arctic.

In the discussion, I will then make a parallel between the data and indicators obtained in the analysis of results, in order to relate these 3 points with several indicators recommended by the World-

Systems Theory. I will structure the discussion in the following manner: firstly, I will examine the Arctic's position in the global scale and its relationship with the positions of Russia and China in the World-System. This will involve analyzing the process of the Arctic's incorporation into the world-system, followed by an exploration of its current position in the core-periphery hierarchy. Ultimately, I will argue that the Arctic is very close to becoming a semi-periphery, particularly within the system that challenges US hegemonic order.

In fact, this semiperipherialization of the Arctic seems to be of the interest of both Russia and China (with hidden disadvantages for both sides), and transforms the region in a way not entirely perceptable for the common WST analysis because it skips a few steps in the incorporation proccess. Or at least, they happened too much fast to be noticed.

Despite most authors considering the Arctic as a periphery, there are certainly indicators that point towards a more prominent and relevant position in its economy and political organization i nthe near-future. Although its system still remains somewhat rudimentary in some areas, its rapid expansion and development leave no doubt that there is a possibility for its upward mobility in the global scale. In essence, this work seeks to demonstrate that the Arctic is not only a region of great importance for the future of global geopolitics, but also an area that can be analyzed in light of the theoretical framework provided by World-Systems Theory. By focusing on the cycles of hegemonic struggles, the rise of the semiperiphery, and the incorporation of new regions into the world-system, I aim to connect the dots and shed light on the underlying patterns that explain the rapid development of the Arctic.

While the use of secondary data may limit the scope of my analysis, I believe that my innovative perspective on the subject, particularly with regards to the Arctic, will provide new insights for future research. By examining the current geopolitical context and existing literature, I will argue that the Arctic is positioned to become one of the most important regions in the world-economy, particularly as we enter the first cycle of material expansion of a potential new hegemony. In doing so, I hope to contribute to a better understanding of the dynamics of the world-system, and the role that the Arctic plays within it.

In the next chapter (Analysis), I will not only use important statistical data to demonstrate the growing relevance of NSR and shipping in the region, but I will also trace its historical path, especially in China and Russia. Also speeches by specialists in the NSR and Yamal LNG, or even by state officials, as well as the perception of the development of the NSR and Yamal by the hegemonic rival, USA (and western world) will be used.

Finally, I will follow the development of the Arctic with regard to new technologies such as satellites, 5G and 6G, with the clear intention of later understanding how the introduction of these technologies can then be related to the introduction of new technologies efficiently in new regions of the globe by the rivals of the declining hegemony, also called “development of the semiperiphery”. To

support my analysis of the results from the WST perspective, as I have already highlighted, there are still very little analysis of the Arctic from this theoretical point of view.

However, three brilliant works stand out in the relationship between the Arctic and the WST:

Reassessing China's Growing Presence in the Arctic: A World-System perspective by Xiaowen Zheng, which will be extremely important for understanding China's role in the Arctic and its relationship with Russia in the region. This work also relates the new cycle of material expansion of the world-economy with the rise of China in the region.

The Evolving Arctic in the World-System by Zachary Lavengood. Perhaps this is the most important work for my analysis, as it not only inserts the Arctic, for the first time, in the unique perspective of the WST, but also interprets its place in the hegemonic struggles and even uses its analysis of the shipping of the region inserted in this framework.

The Global Arctic Handbook by Matthias Finger and Lassi Heininen, who despite not dedicating themselves exclusively to the analysis of the Arctic from a WST perspective, also go through it, but above all, understand the Arctic in a larger context of globalization and its masterful importance in this historical process. Here, too, shipping and the "rush" for the Arctic are analyzed. In order for the reader to better understand our analysis of the WST, and how it should include the Arctic in its framework of analysis, I have created a table that best explains this relationship. It will be on Table 1 (in appendix).

4. Analysis

The Northern Sea Route (NSR) plays a crucial role in Russia's vision for a developed Arctic and its integration into the Polar Silk Road, particularly in collaboration with China. This route connects the Baltic Sea to the Bering Sea, passing through the Russian Arctic. It brings new opportunities for previously inaccessible and sparsely populated regions in Russia (Kobzeva, 2020), fostering connectivity. For Chinese provinces like Heilongjiang and Jilin, increased maritime transport through the Arctic holds potential for regional development and aligns with the Polar Silk Road project. China has invested in hydrocarbon extraction ventures, infrastructure projects, and improved telecommunication capabilities in the region, aiming to transform the NSR into an international transport corridor. The once remote and harsh Northern Sea Route has gained significance due to climate change and the use of nuclear-powered icebreakers. These icebreakers make navigation through the icy waters feasible, reducing shipping distances and costs. As a result, the NSR has become an appealing alternative to traditional shipping routes. Overall, the NSR serves as a key element in Russia's Arctic development strategy and China's efforts to enhance connectivity through the Polar Silk Road (Lukin 2020 in Lavengood, 2021). Climate change and advancements in icebreaker technology have made the route more accessible and economically viable.

From 1940, until the end of the Cold War, the Soviet Union understood the potential of this route, and in 1987 it even reached the point of transporting around 6 million tons of cargo in a year (Kiiski, 2017: 27). However, it “declined rapidly afterwards, with associated deterioration of the infrastructure” (Blunden, 2012: 115), within the context of the fall of Soviet Union and the collapse of the Russian economy. The collapse of the Soviet Union and Russia's economic disruption, coupled with less attention paid by successive governments until Putin, led to the following scenario: in 1991, 15 vessels crossed the NSR, in clear contrast to only 2 in 1997 (Lasserre, 2021: 94, in Finger et al, 2021). The decrease was gradual, as can be seen in table 2 (in appendix). Lasserre (2021: 94, in Finger et al, 2021) goes further, and analyzing the tons transported is possible to grasp the same situation: 210,000 tons transported in 1991, an accelerated decrease until 1997, where only 30,000 tons were transported.

The development of maritime transport in the region began its reactivation phase recently, around 2010, when the first high-tonnage vessel to use the route from Murmansk to China, “delivered its cargo of gas condensate to Ningbo”, on a voyage of about 22 days, equivalent to almost half the time it would take in the Suez Canal (Blunden, 2012: 118). The period from 2010 to 2013 was pivotal in testing the technical feasibility of shipping trips on the NSR. Atomflot's nuclear icebreakers played a crucial role in carrying out the testing phase with some success. For example, in 2011, a seismic vessel completed a trip across the NSR between Norway and New Zealand in just 9 days, saving around 10-13 days compared to the Suez Canal and 8 days compared to the Panama Canal (Blunden, 2012:118). Table

3 (in appendix) reveals the remarkable surge of interest in the Northern Sea Route (NSR) by the Russian government in recent years. The number of official sea transits from 2007 to 2009 stood at 2, 3, and 5 respectively. However, in 2010 alone, there were 13 official transits, representing a three-fold increase from the previous three years combined. Since then, there has been a remarkable upward trend with some minor fluctuations. In 2011, the number of official trips on NSR surged to 41, indicating a year-over-year increase of approximately 215%. This trend continued, with a further 70% increase recorded in 2013, reaching a total of 71 official trips.

After a temporary slowdown in the Northern Sea Route (NSR) following the 2014 Crimean War, the trend has once again started to pick up in recent years. The increasing number of trips on the NSR demonstrates its growing importance as an Arctic shipping route. Traditional maritime routes, such as the Suez Canal and the Strait of Malacca, are becoming narrower and face challenges like accidents and piracy, despite increased regulation. Due to reaching their carrying capacity, both the Suez and Panama Canals are undergoing projects to create new channels and widen routes. The Egyptian government completed the creation of a new Suez Canal in 2015, and an expansion of the current canal was announced in 2023 (Gerson, 2023). However, most ships seeking an alternative route to the Suez still must navigate the expensive and lengthy Cape of Good Hope (Martínez-Zarzoso, 2013). The NSR offers a more viable alternative in terms of time, distance, and cost for shipping goods from Europe to Asia. Although not yet operational year-round, the NSR reduces the distance between China and Germany (Dong and Sur, 2020: 4-5) by approximately 2600 nautical miles, resulting in a 21% reduction in transportation costs compared to the Suez Canal. Similar reductions in distance and costs are seen for the UK. Additionally, the NSR enables significant increases in trade volume between European countries and China compared to the Suez Canal.

The Northern Sea Route is gaining importance as a global shipping route and is seen as an alternative to the Suez Canal, however, it still lags behind in terms of volume and traffic. According to Skripnuk et al. (2020: 4), in 2006, the total cargo carriage volume passed through the NSR was 1900 tons, while in 2017, it was about 10,600 tons. In contrast, the Suez Canal denoted around 900 million tonnes of cargo volume in 2017 (Skripnuk et al., 2020: 4). This significant difference makes the idea of the NSR as a direct replacement for the Suez Canal a mere ideal for the future. The NSR still faces challenges due to weather conditions and lack of investment since the collapse of the Soviet Union several decades ago. However, within the context of climate change and future possible year-round on the NSR, Karamperidis (2022: 432-433) suggests that the shipping industry, being a "cost-driven industry," may favor the NSR. It offers lower transportation costs, greater distance, and larger cargo capacity compared to more traditional routes. Despite its growing importance, the Suez Canal remains a primary maritime route for Europe-Asia traffic due to its strategic geographical location. The NSR should be considered as an alternative to other routes to the Suez Canal rather than a direct replacement.

China is increasingly seeking alternatives to the South China Sea, which has experienced a surge in pirate attacks, making it the area with the highest number of such incidents in recent years. This is a significant concern for China as approximately 30 percent of global maritime trade passes through this region (Schoenberger, 2014), and its geographical features, such as island chains and narrow passages, make it vulnerable to pirate attacks. Consequently, China is exploring alternatives, particularly the Northern Sea Route and Arctic waters. These areas are not only strategically important for China to mitigate the risk of conflict with the United States, which has military bases surrounding much of Chinese territory, but they also offer opportunities for China to expand its influence. As China continues "evolving from a traditional land-based economy into an ocean country" (Blunden, 2012: 216), projects like the Maritime Silk Road and the Polar Silk Road have become instrumental in enhancing its connectivity and trade routes. Despite ambitious plans to connect various regions through railroads, it is crucial to recognize that China-Europe maritime trade is three times larger than air trade (Duchatel and Duplaix, 2018: 3).

In 2016, the percentage of Chinese GDP anchored in maritime indicators, such as the exploitation of maritime resources or their transport, already represented around 9.5 percent, and 2016 also represented a year in which "64 percent of EU-China trade in goods (in volume) was transported by sea" (Duchatel and Duplaix, 2018: 13). 2013 was a key year for this transformation, curiously also coinciding with the beginnings of reactivation and testing in the NSR, which leads to the possible inference that there may be some coordination between Russia and China to develop a quasi-strategic alliance with regard to the joint development of their maritime industries. In 2013, the Chinese State Council took a series of measures to renew and modernize most of its naval capacity that had been lost or had simply fallen asleep. The State Council noted that "only 75 percent of the shipbuilding industry was being used" (Duchatel and Duplaix, 2018: 21) and that around 50 shipbuilding companies would be "declared to be in line with the new requirements and to qualify for bank credits and government financial support" (Duchatel and Duplaix, 2018: 21), as a way to reactivate the entire Chinese merchant industry and to assume a greater role in the oceans. The Chinese State Oceanic Administration (SOA) even declared that the 21st Century would be the "century of oceans" (Duchatel and Duplaix, 2018: 3).

In September 2014, China's Ministry of Transport anticipated an "eventual increase in vessel traffic" (Lanteigne, 2018: 5), and in 2017 Beijing and Moscow launched the official construction of the so-called "Ice Silk Road", as a common strategy for the development of the Arctic (Ying, 2017). This project will include "energy and raw material extraction, infrastructure development, and expanded use of the Northern Sea Route (NSR) for maritime trade between Northeast Asia and Europe" (Lanteigne, 2018: 2). In 2013, the Chinese vessel Yong Sheng successfully crossed the NSR from Dalian to Rotterdam in just 33 days. This voyage raised questions about the feasibility of using the NSR as a faster and potentially less carbon-intensive alternative to the traditional route through the Suez Canal.

Although the NSR can be unpredictable due to weather and maritime conditions, China's first successful voyage serves as a promising example for future use of the route (Zhao and Hu, 2016). It's important to note that China is subject to Russian legislation when navigating the NSR. Russian laws define the NSR's boundaries from Russia's Far East to Alaska, spanning across the Kara Sea to the Bering Strait. Geopolitical tensions arise in the legal realm, as the United States argues that the NSR and the North-West Passage should be considered international transport routes governed by the principles of freedom of navigation (Fedorov et al, 2020: 3).

China's position on the Northern Sea Route is somewhat ambiguous. While they desire the internationalization of the NSR to secure their own autonomy on the route, they oppose similar claims by the US in the South China Sea. However, China recognizes the importance of the Arctic region, with its vast untapped resources and the potential to alleviate the Malacca Dilemma. Taking advantage of the NSR's shorter transit times aligns with China's economic strategy, reducing shipping costs and meeting resource demands. Cargo volume on the NSR has been rapidly increasing, with 3.9 million tons in 2013, 10 million tons in 2017, and a significant leap to 18 million tons in 2018. From 2018 to 2021, traffic volume experienced an eightfold development, reaching over 30 million tons in 2021, according to the Northern Sea Route Information Office (Humpert, 2022). Despite the number of tons transported having increased sharply between 2017 and 2018, this increase was not seen in the number of ships that transited on the NSR during those years but could be seen in subsequent years. From 2018, a door was opened for the progressive but accelerated increase in the number of vessels passing through the NSR per year.

Approximately 30 percent of trips on the Northern Sea Route (NSR) are operated by COSCO, a Chinese company (Humpert, 2022). In 2021, 26 vessel trips were made to China via the NSR, with 14 of them operated by COSCO. A study sponsored by COSCO found that these trips on the NSR saved “a total of 220 days of shipping time, 6,948 tons of fuel, and $9.36 million USD worth of costs compared to using traditional routes” (Sun, 2018 in Lavengood, 2021). The year 2018 marked a turning point in Sino-Russian cooperation on the NSR. An investment of approximately 9.5 billion Chinese dollars in projects related to the Belt and Road Initiative (BRI) and collaboration with the Eurasian Economic Union led to an increase in Chinese voyages from 5 in 2018 to 26 in 2021 (Staalesen, 2018). According to Maxim Kulinko, deputy director of Rosatom's Northern Sea Route Directorate, in 2021, 79 out of 92 vessels that transited the NSR were non-Russian, highlighting the NSR's growing international significance. In summary, COSCO's significant presence on the NSR, along with increased investments and initiatives by the Russian government, has contributed to the growing internationalization and importance of the NSR as a vital shipping route. There is a forecast that suggests an "ice-free NSR route by 2050" (Huang and Korolev, 2016: 188), and the Russian Minister of Energy has stated that the goal is to increase the number of tons traveling on the NSR from the current 30 million to 80 million by 2024 (Trutnev, 2022). However, the implications of climate change for the navigability of the NSR are

somewhat ambiguous. While the disappearance of polar ice caps due to warming could open up new opportunities for shipping, it also raises concerns about the potential increase in natural disasters.

Russia's strategy for the NSR depends on either a resumption of relations with the West or a shift towards the East. According to Panov, a special representative of the State Corporation Rosatom, Russia may prioritize economic ties with Asia to remain competitive in the global economy (Tass, 2022). The Arctic resources can be fundamental in this new paradigm, to the extent that Russia has created a whole new Ministry dedicated to the development of the Arctic, called "The Ministry for the Development of the Russian Far East and Arctic". NSR ends up having a decisive role in the export of "non-commodity products to Asian markets and to import products to satisfy the demand in Russian regions", according to Stanislav Chui (2022), Director of the Planning and Consulting Centre for Information and Economic Modelling at the Institute of Construction, Housing and Utilities, State Academy of Investment Experts.

The development of the Northern Sea Route will have significant geopolitical and economic impacts on the Arctic region and on Russian-Chinese relations. The construction of a complex transport network that aims to connect the Arctic with Asia and Europe by land or sea, within the context of the Polar Silk Road, aligns with the current national interests of China and Russia. In the 5-year Plan built by China in its document entitled "National Economic and Social Development and the Long-Range Objectives Through the Year 2035" (Liu and Solski, 2022: 854), the reference to the Arctic as inserted in the context of the Belt and Road Initiative and its line of development, when in chapter 33 it is stated that China's objectives include "participating in pragmatic co-operation in the Arctic to build the "Polar Silk Road" as well as enhance capacity to protect and use Antarctica" (Liu and Solski, 2022: 854). The development and increasing influence of the Northern Sea Route (NSR) in the Arctic can be seen as part of a broader trend suggested by proponents of WST who argue that the West's hegemony is in decline, while China's rise is accompanied by the growth of its surrounding regions. In this work, I will integrate indicators and analysis of the NSR within the context of structural changes in the World-System. WST offers a macro-scale approach that considers historical and geopolitical trends to explain global events, distinguishing it from other international relations theories.

4.2 Liquified Natural Gas and Northern Sea Route

In 2010, Putin signed a tax-free plan for the development of liquefied natural gas (LNG) production on the Yamal Peninsula, with a target completion date of 2018. This project offered an advantage over previous Russian endeavours as it allowed for gas extraction, liquefaction, loading, and shipping to take place in one location (Lavrenteva, 2020). China recognized the significance of exploring transport infrastructure, resource development, and cooperation in the Arctic, as stated by Xi Jinping (in Lavrenteva, 2020). The Sino-Russian natural gas project on the Yamal Peninsula, valued at

$27 billion, commenced in December 2017. It received financial support from CNPC, China's Silk Road Fund, and French company Total, which holds a 20% stake in the project (Lanteigne, 2018, 4). China is the largest investor, with China National Petroleum Corporation holding 20% of the shares and China Silk Road Fund having 9.9% (Wang et al, 2020: 7). This joint venture is known as Yamal LNG. This extensive project aims to enhance collaboration between China and Russia by jointly investing in the construction of "energy terminals, including LNG terminals (such as Sabetta), oil terminals (like Vitino and Varandey), and coal terminals (including Vanino, Vostochny, and Murmansk)" (Wang et al, 2020: 7), along the Arctic region. The Russian plan involves the construction of an "Arctic hub" in Murmansk and a port in Sabetta to support the Yamal Gas Project. The direction of Russia's oil and gas exports has shifted towards Asia (Roseth, 2014: 849), with China emerging as a significant consumer. China's growing demand for hydrocarbons, with plans to double it by 2040, has led to the strengthening of relations between the two countries and the diversification of their markets. In support of the Yamal LNG project, China is committed to constructing tankers for LNG transportation through the Arctic (CGTN, 2019). Russia, on the other hand, is investing in LNG ports and infrastructure to facilitate the maritime transport of natural gas.

It is estimated that the development of this project on the Yamal Peninsula will create around "12 thousand jobs in Murmansk region, and throughout Russia - more than 80 thousand" (Fedorov, 2020: 5), and that Novatek will be able to transport about 50% of the total cargo flow that passes through the NSR after 2024. Russia has the ambition to increase this volume every year, since it is already known that at least 13 percent of "the world's undiscovered oil and roughly 30 percent of its undiscovered gas " (Lavengood, 2021: 474) are found in areas of the Arctic yet to be explored, not to mention the amount of natural resources existing in areas with already built infrastructures. The Russian Arctic is witnessing an increasing presence of hydrocarbon exploration projects, with notable exports of 17.5 million tons from the port of Sabetta and 8.5 million tons of oil from the Novoport Oil Field in 2017 (Wang et al, 2020: 9). However, such endeavours are not without challenges. The region's harsh conditions, including constant sub-zero temperatures, permafrost, and unpredictable ice storms, pose difficulties in establishing infrastructure and acquiring equipment suitable for these extreme weather conditions. Additionally, limited land and sea transportation options in the area further complicate the transportation of natural gas and the construction of necessary infrastructure.

Despite these challenges, Russia remains determined to achieve its ambitious goals. By utilizing icebreakers for regular navigation rather than just emergencies, the Yamal LNG project and the Northern Sea Route hold the potential to gain increasing importance in international shipping. This shift could address the year-round operation limitation of sea transportation, with implications for global trade and energy markets, as highlighted by a study by Hannon et al. (2015). Moreover, the development of the Northern Sea Route and the Yamal LNG project could contribute to the industrialization of the Arctic

region, extending their impact beyond trade and energy markets. To overcome the challenges posed by ice and adverse navigation conditions, companies involved in the Yamal LNG project are considering the use of underwater LNG carriers (Woodward, 2008). Patents for submarines capable of transporting oil or gas have already been filed, as these submarines are also utilized for military and scientific research purposes. The advantages of underwater LNG storage are already well-established (Zemlyanovskiy et al., 2021), and its use for submarine transport would be an even more significant innovation. In addition to the Yamal LNG project, Russian company Novatek is collaborating with the China National Petroleum Corporation and China Development Bank for the Arctic LNG 2 project. This initiative aims to construct an LNG port on the Novatek-owned Gydan Peninsula, with construction commencing in 2019. Novatek has taken over the infrastructure construction for Arctic LNG 2, and it is estimated that this could reduce costs by 30% compared to Yamal LNG (Mitrova, 2019) in the Ob Gulf and Gydan Peninsula.

However, it is important to note that pipeline gas still dominates the world market compared to LNG, accounting for 70% of international gas trade, while LNG comprises the remaining 30% (Ritz, 2018: 2). While gas pipelines offer limited transportation options with strictly defined routes, LNG is super-cooled and transported by tanker, allowing for greater mobility via various routes, including both land and sea (Ritz, 2018: 2). Gazprom holds the top position as the leading supplier of natural gas via pipelines, while Qatar leads the LNG trade (Ritz, 2018: 2). Geopolitical struggles and competition for gas exports, particularly in Asian markets dominated by LNG imports, have likely contributed to the development of this large scale projects. Japan had already begun importing LNG from Russia through the Sakhalin LNG facility in 2009. However, in contrast to Europe, where pipeline gas dominates imports, approximately 80% of gas imported by Asian countries is in the form of LNG (Ritz, 2018: 7). China, for instance, imports significant quantities of both pipeline gas and LNG. In 2014, China and Russia signed agreements for regional development projects such as "The Power of Siberia." This deal involved pipeline gas deliveries worth $400 billion over a 30-year period from Siberia to China, starting in 2018 (Ritz, 2018: 26). China also made substantial investments in the necessary infrastructure for this project.

However, Ritz's analysis (2018) suggesting that China is preparing to abandon LNG in favor of pipeline gas seems simplistic, as it overlooks projects like Yamal LNG and Arctic LNG 2 within the context of China's diversification policy. China is not solely relying on one option but undertaking large-scale projects to foster a broader range of economic cooperation that can bring them energy benefits. Certainly, China will be aware of factors such as the cost of transportation. In general, the cost of pipelines is lower (in small distances) than that of LNG. However, we cannot forget the great role that the diversification of means of transport and the ease with which LNG can be imported may play in the equation, and even the fact that LNG is “often cheaper to transport over long distances than piped gas”

(Ritz, 2018: 5). The Sino-Russian project benefits from the cost advantage offered by Yamal LNG, where operations and transportation are approximately "10% cheaper via the Northern Sea Route compared to LNG carriers from Qatar" (Dvornikova, 2017: 54). It was projected in 2017 that the combined output of Yamal LNG and Arctic LNG-2 would reach an annual volume of around 80 million tons of LNG. Approximately half of the LNG exports from Yamal LNG are expected to be directed towards China (Xing, 2021). The construction of the Sabetta and Kotelny Cape offshore oil terminal seaports aimed to facilitate LNG transportation to Asian markets (Barnes et al., 2021: 52). Since China is "key supplier of core kits to the Yamal project" (Barnes et al, 2021: 226), Chinese companies are also carrying out, in partnership with Gazprom, projects in Murmansk to try to understand the amount of natural gas that will still be exploited in the area west of Yamal. It is estimated to be about 1.9 trillion cubic meters of natural gas (Barnes et al, 2021: 52).

China's entry into the high-end oil and gas equipment market has positioned it advantageously in its relationship with Russia and the Arctic, playing a crucial role in the region's development. The Arctic's future hinges on either a cooperative zone between China and Russia or complete subordination to Chinese economic influence within Russia. China's involvement is essential for Arctic development and integration into the global economy, bringing significant benefits and opportunities. The Yamal LNG project exemplifies the contributions of (former) semi-peripheral countries like Russia and China to the global economy, creating employment, economic opportunities, and expanding the global energy market through liquefied natural gas shipments. This showcases how the rise of semi-peripheral countries drives economic activity and global interconnectedness through resource utilization.

4.3. Digitalization and Arctic Shipping

The Arctic region is seen as one of the most promising locations for a future hub for global shipping, through its integration into the world-economy and the benefit it will bring to the different players in the High North. In fact, President Putin and his government organized a document called "Arctic Strategy" in 2013. The document stated that Russia was "aiming to provide all technical and social infrastructures necessary for maintaining a permanent population in harsh climatic conditions" (Kinossian, 2016: 227). High tech has been a big source of employment around the world, and it seems that the Arctic would be no exception, especially with the help of China. With the dominance of the 5G and 6G markets, China has recently worked with Russia to strengthen the digitalization of the Arctic, as a way to revolutionize trade and the development of maritime and land transport means in the most adverse regions of the Arctic, but also beyond. Russia has even followed a trend of skipping its 5G development to move directly to the deployment of the 6G network, with Chinese assistance (Artashyan, 2022). An integral part of the Belt and Road Initiative, China enters the Arctic not only in the context of the Polar Silk Road, but also the so-called "Digital Silk Road", with the aim of achieving greater

digitization and connectivity between the regions covered by its mega-projects, in this new phase dubbed by some as the 4th Industrial Revolution.

In 2017, China established a research station and satellite receiver station in Greenland to test 5G networks in challenging climatic conditions (Barnes et al., 2021: 92). This move, perceived as a demonstration of military power, aimed to assess the feasibility of 5G technology in adverse environments. However, pressure from the West influenced Greenland's decision to choose Ericsson instead of Huawei as the main partner for constructing its 5G network (Gronholt-Pedersen, 2019). In contrast, the neighboring Faroe Islands embraced Chinese 5G technology, resulting in the second-fastest internet in the world (Duxbury, 2019). China has also made progress in implementing 5G networks in Iceland, using it as a testbed for communication infrastructures in the Arctic (Alam, Atapattu, & Razzaque, 2015: 722). While the direct implications on the future of the Digital Silk Road in the broader Arctic region are not explicitly clear, these projects demonstrate the potential of 5G and future 6G technologies in sectors such as shipping and connectivity-dependent commercial activities. Synthetic aperture radar (SAR) satellites are crucial for monitoring Arctic routes and providing real-time data on sea conditions, contributing to China's presence in the Arctic shipping industry (Bennett and Iaquinto, 2021: 11). Additionally, Russia launched the Kanopus-V-IK SAR satellite in 2015, designed specifically for operations in the Arctic region, providing high-resolution images for various purposes such as monitoring ice conditions, detecting oil spills, and tracking foreign ship movements (Graham, 2017).

In addition to China's 5G networks, subsea cables have become a key aspect in Arctic geopolitics. Russia's progress in this area was hindered by sanctions, but projects like the Polar Express have emerged involving a 12,650km subsea cable running along Russia's Arctic coastline from Murmansk to Vladivostok, with a cost of $1 billion (Middleton and Rønning, 2022).. The Arctic Connect and Polar Express Projects, partially built by Huawei, seek to connect Europe and Asia through submarine cables along the Northern Sea Route (Erie and Streinz, 2021). These projects improve information transmission, navigation, and resource extraction by utilizing 5G, 6G, and quantum communication networks. Russia is now starting to build Arctic development solutions from the installation of 6G and 5G networks, and one of the most impressive projects involves the installation of a 5G antenna by the Petersburg Electrotechnical University, which will then improve “high-quality communications, television, and internet access to remote settlements in the Far North of Russia” (Barbara, 2023). To support the development of 6G technology, the Skolkovo Institute of Science and Technology and the Institute of Radio Manufacturing Science “may receive more than 30 billion rubles ($501 million) for research on the new communication standard by 2025” (Artashyan, 2022). Russian Deputy Prime Minister Dmitry Chernyshenko has also asked for “additional funds for research and development in the field of 6G communications by August 1 (of 2022)” (Artashyan, 2022).

These networks and infrastructure will be critical in the development of autonomous shipping in the region. Satellites, such as the Chinese BNU-1, were launched under the context of polar observation, in order to monitor in real-time, the weather conditions in the Arctic and Antarctica, for safer navigation purposes, but above all, for the beginning of the tests with autonomous maritime navigation. The use of autonomous navigation promises to reduce costs by eliminating or reducing crew expenses, but requires an infrastructure of high technological sophistication, including communication between ships and with the coast (Lei, 2019), which seems to be one of the features that the 4th Industrial Revolution brings to maritime navigation. Authors such as Munim et al (2021: 324), refer that this communication could only be effective from the correct use of 6G systems, emphasizing the need for cooperation between Russian technological communication systems with China. There are already studies that analyze the development of autonomous navigation capacity on the Northern Sea Route and in the Arctic in general, and how it has the potential to do so (Munim, 2019 and Höyhtyä et al, 2017). However, Höyhtyä et al (2017), contrary to Munim (2019), sees 5G, and not 6G, as of capital importance for the communications needed to effectively carry out autonomous navigation in the Arctic Ocean. Zhang Di, the satellite's chief designer at Aerospace Dongfanghong Development stated in 2019 that "the satellite would support China's endeavors to develop Arctic sea lanes for the Chinese shipping industry" (Lei, 2019), and that this would manage to be a feat in what turns out to be a growing increase in "interest and investment in autonomous ship technologies" (Munim et al, 2021: 321). Whether remotely controlled ships without a crew, or ships with a kind of autopilot, capable of making intelligent autonomous decisions, these promise to either eliminate crew costs, which represent the "largest portion of the overall operating expenses for conventional ships" (Munim et al, 2021: 324), or at least reduce costs by reducing the number of people involved in navigating freight ships.

The development of autonomous navigation technology in the Arctic has the potential to revolutionize transportation in the region by linking the "Siberian rivers to the Arctic Ocean coast and the NSR" (Corell et al., 2019: 23). Advances in autonomous navigation systems and communication technology are driving progress in this area, enabling vessels to navigate safely and efficiently through the region's challenging conditions. The combination of autonomous navigation technology and satellite-based monitoring systems like Automatic Identification System (AIS) that ensures real-time tracking of vessel movements, will enable vessels to navigate the NSR with greater speed and safety, while also reducing costs and emissions. As shipping along the NSR continues to grow, these technologies will become increasingly important for maintaining safe and efficient operations in the region. Governments and businesses that invest in these technologies will have a significant competitive advantage in the Arctic's emerging economy. China then states that it will "actively promote digital connectivity in the Arctic and gradually build an international infrastructure network" (Parsons, 2021: 6), while, at the same time, it will try to put an end to dependence on "reliance on Western companies' satellites for images and data from polar regions"(Parsons, 2021: 6).

As the Arctic becomes more accessible, the volume of data generated from various activities in the region, including satellite imagery, shipping routes, and weather patterns, has increased significantly, and China and Russia have collaborated to develop secure data exchange protocols that protect sensitive information while enabling data sharing between the two nations. This digitalization trend intensifies competition among major geopolitical powers in the Arctic and strengthens the ties between Russia and China. Huawei has established a dominant position in the Russian telecommunications market, with its equipment playing a crucial role in the Northwestern Federal District and ZTE leading in other regions (Kovachich, 2021). Unlike some Western countries, Russia does not perceive Chinese tech giants as a significant internal defence threat. The head of MTS's radio access department in Russia stated that Huawei technologies pose no more security threat than any other provider (Kovachich, 2021). Both countries currently view each other as partners dedicated to Arctic development and beyond, forming a shield against perceived threats from the West as perceived by Putin and the Russian government.

Despite all the digitalization, let’s remember that the Arctic poses significant challenges due to its harsh climate, including extreme cold, strong winds, and frequent storms. These conditions make the region difficult to access and maintain equipment, with limited road infrastructure and increased risks of power outages and communication disruptions. However, these challenges may also drive the push for digitalization in the Arctic, as technicians and advanced technologies become crucial in overcoming these obstacles. Russia and China's approach to employment and workforce development will be crucial in ensuring the region's progress and addressing the needs of the population. The construction of shipping hubs and the integration of traditional trade with new technologies like Big Data, 5G/6G networks, and Artificial Intelligence will shape the future of the Arctic and its participation in Globalization 4.0. Despite its advantages, the Arctic faces two significant challenges. First, it must overcome the adverse climatic environment. Second, it must strike a balance in its dependence on China for development without becoming overly reliant on it for survival. While China plays a vital role in modernizing the Arctic and integrating it into the global system, there is a risk of the region becoming excessively dependent on China's activities and intentions. In the context of World-Systems Theory, this dependence on China can be seen as a result of the Arctic's semi-peripheralization within the competition between a declining American hegemony and the rise of China as a global competitor.

5. Discussion

In this chapter, I will not discuss point by point the analysis made in the previous chapter. Instead, I will take the liberty to blend the WST with the results of the previous chapter to construct a narrative analysis and propose the use of WST to better understand the processes at play in the Arctic on a global scale. I will argue that only by knowing the premises of the WST, is possible to understand the rise of the Arctic in a macro context, without getting stuck in contemporary arguments that the Arctic is either a zone of conflict or cooperation. These arguments can be proven too simplistic for the comprehensive analysis that will be made in this work.

Nevertheless, it is necessary to understand that there are major limitations to this macro-scale analysis alone, which may leave out some important contributions of realist and liberal theories. In a master's dissertation, I admit that some narrowness in the subject matter is necessary, and I fully understand that the challenge I set myself is not in line with traditional dissertations that pose a starting question and skim it off until the last piece of statistical data proves its point. In this work, I follow the method of trying to understand how the Arctic and WST can coexist, and above all, whether WST covers the complexity of inhospitable regions like the High North. While WST may be the most suitable theory for understanding the Arctic in its entirety, it is important to consider other perspectives and open a discussion about how the Arctic fits within the broader context of international relations.

Is the Arctic on its way to becoming part of the Russian or Chinese Core? Will it have a more semiperipheral role? Or will it be completely relegated to an exporting region with cheap labour? The challenges that the Arctic presents, from adverse weather conditions and temperatures to the lack of infrastructure, put analysts of this region in the uncomfortable position of having to do some exercises of future reasoning. I consider the Arctic one of the most fragile and (paradoxically) potentially valuable areas. Fragile because any disruption could be catastrophic for the region's development and integration into the world economy. Valuable because, as a region with so much yet to be explored and one that has acquired such importance in the last decade by governments of former semiperipheral countries such as Russia, China, and even Core countries like Canada and the United States, it has emerged as one of the greatest investments of the 21st-century nation-states in the Arctic Circle. However, it would not be possible to bring the Arctic into the conversation without thinking about the topic of incorporation into the world-system. For Xing Li (2017 in Zheng, 2019), "the rise of China will eventually generate 'promotion by invitation' and bring about the enlargement of 'room for maneuver' and 'upward mobility' for the global periphery". This means that, according to Li (2017), new regions of the world are incorporated into the world-system with a greater role in it as the cycles of incorporation run in contraction and expansion movements.

The Arctic is then the obvious candidate for this process. Its incorporation may be the subject of much academic and theoretical debate since it has not been an incorporation like the others in the world-system. For example, the Arctic region has always been a challenging area to incorporate into the world system due to its adverse climatic conditions. Without sufficiently advanced technology, any development in the region could be jeopardized. Thus, the use of the Arctic for economic purposes has been limited to a subsistence economy. For example, whaling only became an industry in the Arctic from the 1930s until it was banned in the 1960s, and the extraction industry had its boom after the 1960s (Poseidon Expeditions, 2023). As was seen in the chapter before, during the Cold War, the Soviet Union understood the potential of the Arctic route and pushed for the growth of industrial exploration in the region from the 1940s. By 1987, the Soviet Union was transporting around 6 million tons of cargo in a year. However, after the collapse of the Soviet Union and the subsequent economic disruption in Russia, attention to the Arctic waned. The decrease in maritime transportation through the Northern Sea Route (NSR) was evident, with only 2 vessels crossing the NSR in 1997, compared to 15 in 1991. The transport of cargo through the Northern Sea Route, as shown in Table 2 (in appendix), experienced a significant decline from 1991 to 1997. In 1991, a total of 210,000 tons were transported, while only 30,000 tons were transported in 1997. The situation gradually improved with the reactivation of the development of maritime transport in the region in the 2010s, as can be attested by Table 3 (in appendix).

In 2010, the first high-tonnage vessel used the route from Murmansk to China and delivered its cargo of gas condensate to Ningbo in about 22 days, equivalent to almost half the time it would take in the Suez Canal. The exponential growth of the extraction industry during the 21st century, as a result of greater demand from international markets for gas and oil, further propelled the reactivation of the Arctic's industrial exploration. The data presented in Table 3 (in appendix) highlights the significant increase in the use of the Northern Sea Route (NSR) by the Russian government in recent years. This trend represents a crucial phase in the Arctic's incorporation into the world system, as the NSR offers a faster and more efficient transport route between Europe and Asia, potentially changing global trade patterns. Since 2010, the number of official sea transits on the NSR has been steadily increasing. In 2013 alone, about 3.9 million tons of cargo traveled on the NSR, and this value increased to 18 million tons in 2018, and a staggering 30 million tons in 2021 (Humpert, 2022). The Northern Sea Route Information Office even reported an eightfold development of traffic volume from 2014 to 2020 (Karamperidis, 2022: 426), which confirms the growing importance of the NSR in global trade.

For Chase-Dunn and Hall (1997: 63), real or effective incorporation is defined as "the integration of its production processes into the interdependent network of production processes that constitute the world market", in which the economy of that region begins to reproduce the patterns of the world economy and the dominance of subsistence economies ceases to exist. This process is the end of the incorporation of a region, in contrast to nominal incorporation, in which "dominant patterns of

production and reproduction within the region are still those typical of external areas" (Chase-Dunn and Hall, 1997: 63). Immanuel Wallerstein's conceptualization of the world-system includes five stages of incorporation, each representing a different level of integration of societies into the global economy. The first stage are external zones, where societies have little or no contact with the world-system. The second stage is autonomous zones, where some contact with the global economy is visible, but the primary form of economy remains unchanged. In the third stage, contact periphery, societies export primary sector materials, but lack the infrastructure to industrialize (Mason, 2014: 20-24**)**. The fourth stage is similar but refers to the exportation of secondary sector products. Finally, Wallerstein identified the fifth stage as dependent periphery, in which societies are fully integrated into the world-system, yet still reliant on external markets for survival. In this stage, societies are subject to the influence of stronger actors within the world-system (Mason, 2014: 20-24**).**

There is little doubt that the Arctic has finalized its incorporation into the world-system, and is now in the 5th stage of incorporation. In fact, most authors reviewed in this paper point to the Russian Arctic as part of the periphery. With its subsistence economy having long ceased to be predominant in the region (National Ocean Economics Program, 2023), it has undergone major changes in its economic composition from fishing to extraction (and mining) as the main economic activity. It is possible to see in Image 1. (at appendix) that Russia is one of the Arctic zones with the lowest percentage of indigenous population, and it is also the Russian Arctic that has maintained since the 1970s, very low values of subsistence economy related to fishing, for example. This information can be seen in Graph 2 (in appendix). While the Russian Arctic is currently considered peripheral, I anticipate a change in its status. The region shows promising signs of upward mobility, particularly with China's increasing influence. Although climate conditions have impacted its peripheralization, I believe political decisions have played a more significant role. This paper focuses on the analysis of 1990s data, which reveals how political choices and economic disruptions primarily influenced shipping in the NSR. In fact, the data in Table 2 and 3, demonstrate how the cycles of disinvestment and investment in shipping in the region, have meant that the development of the Arctic has always been hostage to these political wills and economic conjunctures and has fluctuated accordingly.

The number of vessels using the NSR today equals what the Soviet Union would have had if it hadn't collapsed. The Russian government's approval of a development project until 2030 has significantly increased cargo volume, showcasing the positive impact of government investment. This highlights the importance of public investment in infrastructure and services to support Arctic shipping and boost its economic potential. It's no coincidence that Putin's initiation of projects like Yamal LNG and feasibility tests of the NSR in 2010 led to a significant increase in ships crossing the Arctic route. Table 2 (in appendix) explains perfectly how the economic and political collapse scenario led to a near withdrawal of NSR vessels. From 1991 to 1997, the gradual decrease in vessels (apart from 1993), and

the substantial decrease in the number of tons passing through the NSR are indicative of the influence that the economy and political disruptions had on the potential of the Russian Arctic. This whole situation began to reverse around 2010-2013, with the successive projects presented by the Russian government to develop the sea route. In fact, economic and political factors seem to be the independent variables that explain the recent increase in NSR traffic. Lasserre even concludes that "economic factors, some of which, like world commodity prices or freight rates (...) have a much greater impact on the development of Arctic shipping than the mere melting of sea ice" (Lasserre, 2021: 95).

As noted in the previous chapter, the decrees and projects for industrial development in the region began around 2015. However, the most pressing results began to be noticed from 2018 onwards. Looking at the figures in the previous chapter, one can see how the growth was almost exponential when it came to the shipping industry in the region. In 2013, the Northern Sea Route (NSR) witnessed the transportation of 3.9 million tons of cargo. However, by 2018, this figure had jumped drastically to a total of 18 million tons, as highlighted by Humpert (2022). Notably, the momentum did not slow down, as further analysis of the data indicates. The increase in cargo transported on the NSR from 2013 to 2018 was about 14 million tons, and the increase from 2018 to 2021 was even more significant. In just three years, the amount of cargo transported on the NSR surged from 18 million to 30 million tons, representing a staggering 12 million-ton increase in cargo transportation in that period. From 2013 to 2018, the annual rate of growth was about 2.8 million tons, while from 2018 to 2021, the growth rate was 4 million tons per year.

Also, the number of trips has recently increased exponentially. And the case of voyages operated by Chinese companies, are proof that Sino-Russian cooperation in the Arctic, although recent, has been fostered very hard and is part of both countries priorities. As noted earlier, Chinese trips in the NSR have increased from 5 in 2018, to 26 in 2021 (Staalesen, 2018). Zheng (2019) categorically infers that most of the current views on the Chinese presence in the Arctic and the role of this region in the world-system still have a huge gap in the academic literature, thanks to oversimplification. I am in full agreement with Zheng (2019) when he states that the views of Chinese presence lack a structural view and fall only on 3 hypotheses:

- Positive view, in which analysts argue that Chinese cooperation in the Arctic with the respective Arctic Circle nations will bring economic benefits to the development of the region.
- Negative view, mostly shared by Western think tanks and political actors especially in the US, who view Chinese meddling in the Arctic with great concern as another region "semi-colonized" by the Chinese.
- Pragmatic view, which states that China is in the Arctic only to import raw materials.

As Zheng (2019) states, these views are "superficial phenomenon-to-phenomenon or surface-level understanding" not only of the Arctic, but of the increase in Chinese investment in the region. Even the opening of new shipping routes, or the increase in maritime trade in the region cannot be merely explained by these immediatist views of geopolitical phenomena, without a historical-structuralist context of meso-scale events. As WST explains so well, one of the most relevant causes of states' actions depends on their position in the global hierarchical structure and the historical-cyclical context in which it is embedded. For example, China's position will be completely different in a unipolar or multipolar context in the international system. Also, its position as core or periphery will be paramount to understanding its actions in the macro context. The Arctic is no exception. Zheng's insights into the Arctic can aid in analysis and align with subsequent analysis on the rise of the semi-periphery in a world-system theory context. Lavengood's work, nevertheless, may offer greater relevance in understanding the Arctic's position in the hierarchical structure across its various regions.

According to Zheng (2019), China's rise can be attributed to its industrialization and the deindustrialization of core countries. The attraction of Chinese labor by these countries contributed to China's emergence as a major industrial power and its current challenges to the West. While the narrative of China-Arctic relations focuses on industrialization, transportation, and access to raw materials, it has limitations: understanding geopolitical phenomena requires considering global historical cycles and patterns rather than solely focusing on resource exploitation. Although resource exploitation and economic power are important, they have less impact on core-periphery relations without the necessary conditions for success, which historical cycles and patterns can provide. The presence of China in the Arctic has the potential to transform the region from a historically excluded zone to a rapidly rising semi-periphery, with a high degree of economic diversification, combining both labor-intensive and skill-intensive production structures (Roberts, 2013).

In this sense, there is a notable diversification of the Russian Arctic economy, with a more even distribution of GDP across all three business sectors when compared to other Arctic regions. For example, Alaska, Greenland, and the Finnish Arctic have a much higher share of GDP in the tertiary sector, with 60 percent of their Arctic GDP coming from this sector alone (Duhaime and Caron, 2021). In contrast, the Russian Arctic has a more balanced distribution, with approximately 40 percent of its GDP belonging to both the primary and tertiary sectors (Duhaime and Caron, 2021), as can be seen in Graph 3 (in appendix). Diversifying the Russian Arctic's economy has become a priority. While extractive and mining activities, as well as fishing, still belong to the primary sector, the shipping industry has also been recognized as important for development, as acknowledged by Lavengood (2021). The tertiary sector offers shipbuilding, chemical and engineering industries, as well as the production and construction of ships and icebreakers as sources of economic value, reducing dependence on raw material exports. Transportation falls under the third sector, focused on moving

goods. Autonomous shipping (4th sector) is rapidly growing due to digitalization, positioning the Arctic in a prominent position in the core-periphery hierarchy.

Beyond the extractive industry and maritime exports, the economic diversification of the Arctic has the potential to foster innovation and the development of new industries, such as tourism and Industry 4.0 sectors. Moreover, projects like Polar Express prioritize the implementation of 5G and 6G technologies, aiming to improve the infrastructure related to resource extraction and transportation. Both Russia and China seem to be eyeing the Arctic as a potential semi-periphery, whether consciously or not. While both countries may take short and medium-term benefits from this, the long-term outlook is less certain, particularly for Russia. Lavengood (2021) suggests that weak infrastructure and population trends in the Russian Arctic relegate it to the periphery, although I disagree. The region has already started industrializing and developing the shipping industry, with China's support. Lavengood (2021) also argues that the Arctic's populations are too dispersed and lack the infrastructure to support a semi-peripheral lifestyle. However, studies show that urbanization in the Arctic is increasing and is in line with the overall Russian average. This suggests that the Arctic has potential to develop into a semi-periphery, if strong governance is put in place to support economic diversification and growth.

Taking the example of cities like Yamalo-Nenets and the Nenets region in general, they are not too far from the Russian average in terms of urbanization. Rozanova-Smith (2021), analyzes these cities and understands right at the beginning of his study that the Russian average urbanization rate is around 74%, and Yamalo-Nenets is 83%, meaning, above the general Russian average. When one looks at the urbanization rate of the Nenets region, it turns out that it is only 1 percentage point below the Russian urbanization rate (Rozanova-Smith, 2021). However, it should not be forgotten that most of "the Arctic cities originated in the twentieth century" (Popov, 2022: 82), and that the rate of urbanization since then has been increasing, with 55 of the 60 Arctic cities to be created between the 20th and 21st centuries (Popov, 2022). Igor Popov (2022) identifies the capital importance of resource extraction and shipping-related projects and infrastructure to the degree of Arctic urbanization.

The table presented by Popov (Table 4 in appendix) highlights the significance of shipping not only in the formation of new cities but also in the development of resource extraction areas and transport hubs, which have seen the formation of the most cities. Specifically, 16 cities were formed in regions with mineral resource extraction, and 17 in regions with ports and transport hubs, whereas only 14 and 6 cities were formed in areas with military bases and electric stations, respectively. Additionally, the size of the population in these areas is positively correlated with the degree of development in maritime infrastructure and resource extraction. These findings support the notion that greater investment in shipping, ports, and the digitalization of maritime commerce will accelerate urbanization in the Russian Arctic, counter-arguing the idea that the region is poorly urbanized and underdeveloped.

As mentioned in the Analysis chapter, Putin and his government created the "Arctic Strategy" in 2013, which aimed to provide the necessary technical and social infrastructure for a permanent population in harsh conditions. High-tech industries could offer employment opportunities in the Arctic, and China could play a role in this development. Despite my disagreement with Lavengood regarding the urbanization of the Arctic, I concur with his view on the peripheralization of the region due to the absence of strong local or regional governments capable of effectively managing the wealth generated from natural resource trade. Strong governance is a key requirement for a region to become a semi-periphery. In the Arctic, this is still an area that needs significant improvement. It may be the biggest obstacle preventing the region from transitioning from peripheral to semi-peripheral status.

The Arctic's resource wealth benefits peripheral areas where local or regional governments remain weak, hindering the region's ability to benefit from its own resources. Thus, the creation of strong local or regional governments is essential for the Arctic to achieve semi-peripheral status and benefit fully from its resource wealth. According to Wallerstein (1974), semi-peripheral states "need stronger political machinery than either the core or the periphery" to combat market interference. However, in this regard, the Arctic has not fully assumed itself. Nonetheless, efforts are beginning to be seen in this direction, such as the creation of the "Ministry for the Development of the Russian Far East and Arctic." Local Arctic governments are also initiating projects, such as the development of a tourism route by the authorities of Khatanga (Staalesen, 2019).

Despite local government control over Arctic policies, including the election of local governors, their weak involvement in decision-making raises suspicion among local politicians and populations. The Kremlin prevents the creation of an "Arctic Lobby" to avoid too much independence for local governors and its potential consequences on Russian strategy. The Kremlin's strategy did not allow the Arctic to keep some of its local governors after Putin's election. The head of Komi Republic was arrested, and the governors of "Nenets, Yamal-Nenets, Sakha, and Krasnoyarsk had all stepped down "voluntarily" (Blakkisrud, 2019). The Kremlin follows a policy called by Wilson (2008: 75), "matryoshka federalism," and like dolls, "nested regions in Russia are separate entities which are situated, both geographically and politically, within larger 'host' regions." These regions are called okrug and are mostly located in the Russian Arctic.

These okrug have a special status in Russia that gives them a greater degree of autonomy from the central government compared to the other regions of the country, but also a greater nebulousness in their effective autonomy from the federal government, which has triggered several conflicts since the end of the Soviet Union between local governments, the host regions and the federal government (Wilson, 2008: 76). The conflicts increase especially in places with access to vast amounts of untapped resources, as one would expect, although the government has managed to increase its control over the okrug. As China's financial support of the Arctic increases, regional governments in the area may become more

influenced by China. Also, much of the smart grid infrastructure will be owned by China, which will preserve their influence upon regional governments.

Will China attempt to exert influence over Arctic governments to gain more control over the economy of the region? If so, then greater independence for regional Arctic governments would benefit China by allowing them to build closer relationships with players who are more open to negotiations and facilitation. Therefore, China would benefit from the upward mobility of the Russian Arctic region.

Achieving a balance between economically and politically strengthened Arctic regions, while maintaining the authority of the central government, is the great challenge for the Russian government in the region. I don't think the Arctic can escape its semi-peripheralization given the global trend of the world-system, the rise of semi-periphery like China (now core), and the diversification of its economy. In fact, only 3 factors, in my view, would be able to stop this process:

1. climate change, which could unleash a set of unprecedented catastrophes that could endanger the entire expansion of Arctic infrastructure, and relegate it back to an excluded zone of the world-economy. Here I place climate change as a disruptive factor in the Russian Arctic, and not as a helper in the development of the NSR as has usually been done by analysts.
2. The hegemonic struggles between USA and China and Russia. If, for example, the Russian Invasion of Ukraine has devastating long term effects on Russian economic intentions, the potential for a developed Russian Arctic will worsen.
3. The fall of Chinese power or its possible disinvestment in the Arctic, because of unrelated factors, will certainly be disastrous for the Russian Arctic and the rising Asian economy.

The authors discussed in this paper would likely categorize the Arctic as a "dependent periphery," which essentially means "periphery." However, the Arctic presents a unique case due to its sudden peripheralization during the industrialization of the Soviet Union, followed by its collapse in the 1990s, and a subsequent revival in recent times. Despite this, I believe that the Arctic is transitioning towards semi-peripheral status due to several key factors.

Firstly, the Arctic has experienced significant industrialization, with a focus on shipping and exports, and investments in new technologies such as 5G and 6G. Secondly, the Arctic has diversified its economy within this industrialization scenario, with investments in various economic sectors. Finally, the Arctic is prioritizing better-paying jobs, which goes against the common misconception that it is a place with low-cost labor. In fact, a study done in 2021 by Rozanova-Smith (2021) leads to the conclusion that young people themselves see the Russian Arctic as a relatively good place to live with social support from the local government. Also for the Yamalo-Nenets region, where liquified gas is found, 50% of women and 53% of men saw the advantages of this region related to higher wages than

in the rest of the country (Rozanova-Smith, 2021). Also higher pensions and granted more quickly by the government are advantages identified by the young people in the Arctic region.

The creation of specialized jobs related to the extraction industry and even the aforementioned projects related to 5G, 6G antennas and satellites could put the Arctic in a very prominent position for its full incorporation into the world-system. In fact, and here it is possible to see how the Arctic is a unique location for this analysis, the Arctic region could move from an area dominated by a subsistence economy, directly to a region with specialized and high wages. As Zheng (2019) argues, "China is logically dedicated to the relocation of productive activity and the probability of alternative profitable outlets, where the Arctic is highly compatible," aligning with the idea that the world-system expands into new regions as alternative markets to those saturated by capitalism.

In this hierarchical system, the unequal exchange of resources, as described by WST, implies "higher wages in the core countries and in turn lower prices in the peripheral area" (Zheng, 2019). Therefore, the Arctic will likely be an area with high wages, not only when high-tech infrastructure is involved, but mainly because it is a remote and difficult to access region with riskier labor conditions, leading to higher wages. Thus, the conclusion of this sub-chapter demonstrates that the Arctic is currently a periphery in transition to a semi-periphery, as noted from the analysis of the digitalization of the region and the investment in various economic sectors. While my interpretation of the reality of the Arctic may be debatable, it adds to the minimal discussion on the subject, in which most authors characterize the Russian Arctic as a peripheral and underdeveloped region, despite acknowledging its growing importance in the world-system.

5.2 Hegemonic Struggles in the High North

World-system analysis emphasizes the significance of hegemonic struggles in shaping the international order. Presently, such struggles are occurring between a declining US and a rising China. However, it's important to note that these struggles do not always entail one superpower replacing the other as the global hegemon. They are influenced by the prevailing international polarity. In this context, China's challenge to the American order can be seen as a push for a more multipolar world, rather than a bid for unipolarity. While China or another emerging power may eventually become the dominant player, the current diversification of the global economy through Chinese investment challenges unipolarity itself, not just the hegemonic power. Overall, China's actions can be seen as advocating for a multipolar world, an idea shared by Russia as well.

Notably, World-Systems Theory and its proponents, including Immanuel Wallerstein, have strong connections to George Modelski's theories of global power cycles. Modelski's work, "Sea Power in Global Politics, 1494-1993," emphasizes the importance of maritime and naval power in the rise of great superpowers and their attainment of hegemonic status in the international system. The author

argues that throughout history, control of sea routes has been critical to maintaining economic dominance and projecting military power. Modelski (1998) argues that nations that were able to control the major sea trade routes were often the dominant powers of their time. For Modelski (1998: 3), the sea was of utmost importance in the sense that there would be no "global system without global reach," and that only by controlling the seas could there be global reach. In fact, Modelski speaks of oceanic power, or oceanic system as the basis for control of the seas in any modern world-system and identifies the maritime hegemonies since Ancient Greece with their "thalassocracy," or "rule of the sea" (1998: 5). This author has no doubt that the great hegemonies controlled the seas: from Portugal, the Netherlands, the UK and now the US.

For Blunden (2012: 116), changes in transport routes historically led to "seismic shifts in the balance of economic and political power", and she argues that the great geo-strategist Alfred Thayer Mahan correctly postulated that "the necessity of a navy, in the restricted sense of the word, springs from the existence of peaceful shipping" (Blunden, 2012: 117). This means, that maritime trade is one of the most important features of any construction of a top position in the core-periphery hierarchical system. For Blunden (2021), and I tend to agree strongly, these seismic shifts occurred with changes at sea. For example, Venice's power in the Mediterranean was challenged by ocean voyages and the Spanish and Portuguese Discoveries in the New World during the 15th centuries, leading to a dramatic increase in Iberian power relative to Venice.

Of course, comparing the Age of Discovery with the opening of new routes in the Arctic is largely exaggerated, and does not portray the contemporary conjuncture. However, it is necessary to see the importance of British ocean power in the 19th Century, which allowed it to control global trade and establish colonies throughout the world. In this sense, the Arctic could be a point of contestation, or of opening new sea lanes for the great superpowers. Let’s not forget, for example, that the "Anglo-Dutch wars were fought in order to settle broad questions of global commercial policy in which merchant shipping was paramount" (Cafruny, 1995: 291). For the author, Dutch power was based on the "command of the seas", not only through a naval navy of great strength, but above all through the establishment of trading companies for the seas, such as the Dutch East Indies Company (Cafruny, 1995: 291).

In the 19th century, the "ownership and registry of world shipping was highly concentrated in Britain," which was, according to Andre Gunder Frank, the "most essential element in the British balance of payments" (in Bergesen, 2016: 157). Looking at world-shipping in the 19th century, one finds that the British merchant fleet "accounted for between 32 percent and 45 percent of world shipping tonnage in the 19th century" (in Bergesen, 2016: 157). Bergesen then asks the question, of why no land economy has ever reached the status of hegemony. Portugal, Spain, Netherlands, Great Britain and USA, all maritime economies. In this sense, it is logical to associate the growing importance of the Northern Sea

Route and its increase in shipping with the Chinese and Sino-Russian ambition to rise in the global hierarchy, and even challenge American power on the seas. The development of container transportation has led to a new phase of liner transportation, which is one of the most important factors in the economic globalization and fragmentation of world production. Therefore, it is possible to contemplate that the sea has always played a crucial role in global power politics, serving as a conduit for trade and conflict. Today, the Arctic Ocean, with its vast natural resources and strategic location, has become the focus of this new struggle for control between the United States, China, and Russia about the Northern Sea Route (NSR). As noted on the Analysis chapter, China has been shifting its focus from a traditional land-based economy to an ocean economy.

The legal battle over the Northern Sea Route (NSR) involves the US, China, and Russia, with differing interpretations of international law regarding passage rights in the Arctic Ocean. Russia claims the NSR as an internal waterway under its control, while the US and China argue for its status as an international waterway open to all. This dispute has far-reaching implications for NSR control and the future of Arctic governance and international law. Regarding struggles for dominance of High North waters, China "abides by the International Code for Ships Operating in Polar Waters (Polar Code)" (Liu and Solski, 2022: 856), and calls for greater international cooperation to build infrastructure to develop Arctic shipping routes. China has emphasized its vision of a multipolar world order in the Arctic through its emphasis on respect for "international law underpinned by the United Nations" (Liu and Solski, 2022: 856). Although Sino-Russian cooperation is intensifying, it should be stressed that China still has some reticence about the status of the NSR as being under Russia's full jurisdiction. Nevertheless, China claims to comply and respect the United Nations Convention on the Law of the Sea (UNCLOS), while stating that "the freedom of navigation enjoyed by all countries in accordance with the law and their rights to use the Arctic shipping routes should be ensured" (Ministry of Foreign Affairs of the People's Republic of China, 2018).

China avoids contesting Russia's jurisdiction over the Northern Sea Route (NSR) but also refrains from claiming it as international waters. China faces a dilemma: asserting the NSR as "international waters" weakens its arguments in the South China Sea, while aligning with Russian jurisdiction diminishes its influence in the region and risks its investments. Despite opposing foreign intervention, China takes a cautious and balanced approach in its rhetoric, considering these complexities. This strategic approach allows China to maintain a balance between protecting its interests in the South China Sea and avoiding conflicts with Russia. Both China, in the South China Sea, and Russia in the Northern Sea Route, carry out rhetoric of great concern with "potential adverse effects of uncontrolled foreign shipping in proximity to their coasts" (Liu and Solski, 2022: 865), and the protectionism of their coasts and exclusive economic zones are an example of this. This Sino-Russian protectionist position of their maritime coasts follows the concerns expressed by the USA over Russia's claims of sovereignty over the NSR and its restrictions on foreign ships passing through the area. While

Russia considers the Northern Sea Route as a national treasure, the United States insists on its internationalization, arguing that it is an international waterway and should be open to all countries without Russia's permission. The US responds to Chinese military operations in the South China Sea by emphasizing the importance of international law, particularly UNCLOS, which upholds freedom of navigation. The US expresses concerns over China's extensive claims of sovereignty in the region and its construction of artificial islands and military installations in disputed areas. To challenge these claims and assert the rights of all nations to navigate freely, the US conducts freedom of navigation operations in the South China Sea (CSIS, 2019).

As tensions rise between Russia and the US in the Arctic, both countries recognize the economic potential of the region. Russia aims to leverage its strategic position, while the US closely monitors developments, acknowledging the Northern Sea Route's potential as a rival to traditional shipping routes like the Cape of Good Hope. With advancing infrastructure, technology, and logistics, the NSR's economic significance continues to grow, intensifying competition among interested nations. The route's increasing importance is evident as it garners more attention and cargo traffic each year. In 2020, the NSR witnessed the transportation of 33.5 million tons of cargo, a rise from 31.5 million tons in 2019 (TASS, 2021). The prospect of a Northern Sea Route versus Cape of Good Hope rivalry suggests that the NSR may surpass the latter in terms of significance and prominence in the coming decades. While the Cape of Good Hope serves as an established alternative route, the NSR's potential to rival it underscores its growing presence in the global economy. In comparison, the Cape of Good Hope is one of the busiest shipping routes in the world, with thousands of vessels passing through each year. According to Baysoy (2019: 145), the Cape of Good Hope saw a total of 60-70 billion tons of cargo transported in 2020. This is significantly higher than the amount of cargo transported along the NSR. However, it is worth noting that the NSR is still a relatively new shipping route, and its potential as a major trade route is still being explored. While the amount of cargo transported along the NSR is currently much lower than that of the Cape of Good Hope, it is possible that this may change in the future as the route becomes more established and efficient.

Blunden (2012: 117) highlights that, in line with the causes I previously mentioned, the significance of climatic conditions, although important, takes a secondary role compared to the crucial impact of innovation and political decisions in driving initiatives that prioritize maritime trade. Instability in Yemen and the Suez Canal, related to piracy and other congestion problems, could "rapidly change the balance of commercial advantage, accelerate advanced technologies of shipbuilding and navigation, and bring the NSR into operation much faster than currently envisaged" (Blunden, 2012: 118). In this line of thought, it is possible to verify how the application of great Chinese investment in the Northern Sea Route is in line with the hegemonic struggles that historically take place via control of the oceans. This way, it will not be an exception that the Chinese power will have to develop from the control of new sea routes, especially in areas previously excluded from the world-economy, as is the

case of the Russian Arctic. This previous exclusion from the world-system gives the Arctic the status of a still very virgin unexplored area, which could be used by China and Russia to elevate themselves and the Asian markets in the world economy.

China's interest in the Northern Sea Route (NSR) goes beyond accessing European and Asian markets. They view it as a safer alternative to potentially congested trade routes. In the 2018 Polar Silk Road document, China emphasized the importance of participating in NSR infrastructure construction and prioritized navigation safety (Liu and Solski, 2022: 856). To support the growing shipping industry, Russia would need to develop a high-tech marine service complex in the Arctic, and this would require advanced technologies and infrastructure to ensure safe and efficient navigation, enhancing Russia's influence in the region. China's increasing economic influence in the Arctic poses a potential challenge to US global hegemony, intensifying geopolitical competition between the two superpowers. The development of maritime infrastructures in the Arctic by Russia and China has significant implications for the US as it aims to safeguard its economic and security interests. The competition among Russia, China, and the US in the Arctic is expected to escalate as each nation seeks to protect their strategic interests and maintain their dominant position.

5.3 Rise of the Semiperiphery and Innovation in the Arctic

Zheng (2019: 100) brilliantly explains that the rise of emerging powers, especially China, symbolizes "the strength and success of the world system in bringing more untapped parts of the world to the logic of capitalism without changing the fundamental relations of inequality within the system." In my opinion, such an incisive focus on the Arctic also appears in the context of creating new regions of the world with the capacity to prosper and create new divisions of labour. Indeed, when one looks at the Belt and Road Initiative, or Chinese investment in the South American or African continent, one immediately identifies that these areas are contested between American, Western financial power, power of local nations, and Chinese economic power. The Russian Arctic is an unavoidable exception. By establishing good relations with Russia, China then gets almost direct and exclusive access to an economy that is not even touched by the current hegemonic powers, and is able to create a new source of income and prosperity from the Arctic, without even having to worry about Western competition in the same geographical space, at least in the Russian arctic. It is the escape from the cycles of overaccumulation of capital taken literally. Furthermore, China's economic presence in Russia's Arctic is also likely to have political implications, as Russia may become increasingly dependent on Chinese investment and economic support. This could potentially give China indirect influence over Russia's Arctic policy, which in turn could affect the overall governance of the region.

China's rise as a semiperipheral country can be attributed to its market-oriented reforms, leading to rapid growth in manufacturing and increased foreign investment. China possesses a skilled workforce,

advanced infrastructure, and a strong manufacturing base akin to core countries. This unique mix has propelled China to become a major player in global trade and investment, showcasing the potential of semiperipheral nations in the global economy. According to Case-Dunn, the emergence of a former semiperiphery is a result of the changing dynamics of capitalism and globalization, which have allowed these countries to achieve rapid economic growth and development. In fact, the rise of the semiperiphery is seen by some WST theorists (like Samir Amin and Giovanni Arrighi) as a positive development, as it represents a shift away from the domination of a small group of core countries and towards a more diverse and inclusive global economic system. China is the perfect example of this process, and it is taking the lead when it comes to challenging the unipolar world order. In the context of the Russian Arctic, China's rise as a global economic power is particularly significant. China's increasing demand for natural resources and its growing presence in the global energy market have made it a key player in the Arctic region.

As a semiperipheral country, Russia has been seeking to expand its economic influence and reduce its dependence on Western markets, and China has emerged as a key partner in this effort. The shift from extracting taxes and tribute by military force to accumulating profits through commodity production represents a change in the logic of competition. In the Arctic, the diversification of sectors of the economy, from shipping to Industry 4.0, requires greater specialization of its workforce, elevating the Russian Arctic to a more prominent position in the world-system driven by Chinese power and investment. According to Chase-Dunn (2005: 179), modern hegemonies, "were all formerly semi-peripheral nation-states that rose to the position of hegemony by transforming the institutional bases of economic and political/military power." The author argues that China and Russia's emergence as semi-peripheral players in the world system can be traced back to their contestation of modern capitalism and Western hegemony during the first phase of communism. However, this process of contestation did not end with the fall of communism and continues to shape these countries in the present day. Today, China and Russia advocate for alternative economic models and social arrangements, including the concept of social market or state capitalism. These ideas represent a departure from traditional Western economic models and have important implications for the future trajectory of these nations and their role in the world system. In my analysis, the rise of China, and consequently, the development of the Arctic driven by the yellow dragon, is part of this process of contestation of unipolar hegemony and modern capitalism. That is, the combination of the fall of hegemonic power (USA), with the emergence of revolutionary challenges to capitalism in the semiperiphery (China), lead then to the Arctic being used as a new zone of spatial networks built by China to challenge the old world-system.

In the past, the Netherlands, England, and the United States were all semiperipheral before becoming core states and achieving hegemonic status. They were able to do so by adopting new economic models and challenging the authority of the old core. Similarly, China has emerged as a major

player in the global economy, challenging the traditional dominance of Western powers. China's state capitalism and its emphasis on economic growth and modernization have propelled it to become a major economic power in the world. Semiperipheral areas function as central zones for the flow of resources between core and peripheral regions, making them less vulnerable to economic downturns. They typically have high levels of industrialization and autonomy, which enables them to adopt more protectionist policies during times of crisis without significantly impacting their industrial strength or GDP. For Wallerstein (1976), as discussed in chapters above, the semiperiphery stabilizes the world system by concentrating deviant political forms in an intermediate position, and its middle position could be essential to the creation of new economic, financial, industrial, and governmental institutional structures. Quigley (1979) argues that semiperipheral zones are essential for civilizational changes and tend to innovate from an institutional and production standpoint.

China's dominance in technological innovation, particularly in areas like 5G, 6G, and Industry 4.0, contrasts with the saturated financial markets of Anglo-American powers. The rise of the semiperiphery is closely tied to innovation within the global economic system, as these economies rapidly advance in industrialization, technology, and innovation to catch up with the core regions. The competition between China and the US in Industry 4.0 reflects the race for innovation between core and semiperipheral countries. The outcome will have significant implications for the global economy and power dynamics. In the Russian Arctic, Industry 4.0 can impact the development of autonomous systems and smart infrastructure, enabling exploration, monitoring, and transportation in the harsh environment. Advanced technologies offer more efficient and sustainable infrastructure for economic activities in the region. China's investments include satellites like BNU-1 for weather monitoring, autonomous navigation for safer maritime operations, and 5G technology provision in the Faroe Islands. Resilient infrastructure, such as synthetic aperture radar satellites, enhances shipping capabilities in the Arctic.

As stated before, Russia is investing in the Polar Express, a subsea cable along its Arctic coastline, to enhance connectivity and protect data. Huawei is involved in this project, as well as the Arctic Connect initiative, aiming to connect Europe and Asia via submarine cables along the Northern Sea Route. These projects improve communication for resource extraction and transportation. In the gas sector, the Yamal LNG project explores innovative solutions like underwater LNG carriers to overcome navigation challenges and ice accumulation. Repurposing submarines for LNG transport and investments in LNG and ship automation highlight the importance of innovation in Sino-Russian collaboration in the Arctic. Chinese investment in Industry 4.0 in the Russian Arctic, along with their dominance in the region, could lead to an economic boom and elevate the Arctic's position as a semi-periphery. This aligns with the views of Christopher Chase-Dunn, who sees the semiperiphery as an innovator challenging the old order. China's rise challenges American hegemony, and with the new form

of material expansion advocated by Arrighi, the Arctic is expected to gain further importance in the world-system.

5.4 Cycles of Material Expansion and Hegemonic transition: its effects on the Russian Arctic

Arrighi argues that cycles of globalization create opportunities for the relocation of labor, capital, and commodities to previously untapped regions of the world. In the context of China's rise in the Arctic and the world-system, this can be viewed as a similar phenomenon to Kondratiev's cycles. As Zheng (2019) notes, China's investment in the Arctic can be attributed to the region's vast untapped natural resources, which are crucial for the capitalist world-economy's primary energy supply. The ascendancy of a new hegemony or semi-periphery to the core typically involves material progress, such as industrial growth and investment in raw materials. In contrast, the descent phase of a hegemonic cycle is characterized by a focus on financial markets and the deindustrialization or relocation of industry. The current era of capitalism, centered in the US and London, has exhibited these characteristics, especially since the end of the Gold Standard in 1971. According to Zheng (2019), the current phase of the world economy is the B-phase, which is characterized by declining profit rates in leading economic sectors. To recover profit rates, core states need to establish new leading sectors or new monopolies, which requires relocating declining sectors from the core to the periphery or semi-periphery. This relocation provides opportunities for upward mobility within the system, particularly for countries in the semi-periphery or periphery. China has been the primary beneficiary of this capital relocation and has consistently been the largest receiver of foreign direct investment among developing countries since 1993.

As China became the center of world manufacturing exports, its society experienced rapid industrialization and urbanization, leading to a transformation of its class structure. Zheng (2019) views the rise of East Asia, including China's rise, as occurring during a Kondratieff B-phase, which is associated with the growth of new technologies and industries, and the rise of new economic powers. Wallerstein (1999), has argued that East Asia has benefited most from this phase. As an emerging global core, China is actively seeking profitable outlets and relocating its productive activity in line with the current Kondratieff B-phase of the world economy. The Arctic region is seen as highly compatible with this strategy, and China's investment in the region is viewed as a way to seize opportunities for profitable outlets and relocate its productive activity. Although Arrighi's cycles are constructed with Kondratieff cycles in mind, it is important to note that they are distinct from Kondratiev cycles especially in understanding how cycles of rise and fall of hegemonies work from the standpoint of the economic typology used by each nation. For example, while Kondratiev cycles brilliantly reveal that technological innovation and industrial innovation and growth lead to new powers contesting the declining hegemony,

it is important to understand how protectionism and the current state capitalism carried out by China fits perfectly into Arrighi's cycles, as opposed to Kondratiev cycles, which do not mention how each nation contests the old order in economic terms.

Kondratieff's phase B also explains that this is the phase of new economic powers on the rise, but gives no hints as to how this nation will assert itself in international markets. Arrighi, however, explains that the new economic power will assert its power in a cycle of material expansion and through state-led investments. This is in total contrast to the great openness of markets and free-trade typical of the hegemonic decline phase of the old order. It is in this sense that the strategy of promoting investments related to the state and its power, fit with the current way China is asserting itself economically. While the U.S. began a process of relocation of its industries, and a turn to the casino economy centered on the stock market and fictitious capital, the emerging power is turning to industrial sectors, energy, raw materials, and productive technological innovation, as is the case of the bet on 5G and Artificial Intelligence for the most diverse sectors.

In addition to Arrighi's cycles, it is the author Alan Cafruny who wonderfully describes how these material expansion cycles related to cycles of free trade vs. protectionism also occur in global shipping. The author argues that international maritime relations reflect the political, economic, and legal principles of a given era. The history of shipping has been marked by cycles of free trade and protectionism, and openness and closure, which have evolved in tandem with broader phases of free trade and protectionism. The author (Cafruny, 1995) also discusses the contribution of the Netherlands and England to the development of free trade and mercantilist systems in the seventeenth and eighteenth centuries. The Dutch established a free trading system centered around their fleet, which was the core of their short-lived hegemony. In response, England enacted the Navigation Acts in the mid-seventeenth century, which provided a legal basis for mercantilism and challenged Dutch hegemony. The repeal of these acts in the mid-nineteenth century marked the rise of British free-trade imperialism, as noted by Cafruny (1995: 289). The Dutch sought to create a unified world market with free access to ships and cargoes, promoting the idea of 'freedom of the seas', but it quickly clashed with Britain's commercial revolution in the mid-17th century (Cafruny, 1995: 291). According to Cafruny (1995), the rise of American power was supported by a protectionist policy that funded large-scale industrial and maritime projects, which stood in contrast to Britain's free trade practices of its second cycle as hegemony. Thus, cycles of free trade and protectionism have played a significant role in shaping the history of shipping and international relations.

In the early years of the United States, the country adopted mercantilism as its primary economic policy, leading to conflicts with Britain. However, the US gradually shifted towards free trade in the mid-19th century. Between World War I and II, international shipping was reorganized on the basis of mercantilism, but the US led the way in re-establishing a modified system of free trade in shipping after

World War II, which still exists today. The world-systems literature explores the historical development of capitalism through the lens of transportation, emphasizing the importance of resource transport from periphery to core, increased speed and scope of circulation, and the leading role of transportation as a sector for rising hegemons. For Bunker and Ciccantell (2004: 568), in order to achieve economic growth, a rising power has to reach an harmonious coordination between "domestic technological advances, particularly in heavy industry and transport, with the external solution of access to cheap and steady sources of the raw materials used for heavy industry". Bunker and Ciccantell (2004: 573-574), recognize that was the development of shipbuilding and shipping industries, along with the favorable trade terms with Great Britain that allowed the U.S. to establish a strong foothold in the global market, setting the stage for its eventual emergence as a global economic superpower.

For Bunker and Ciccantell (2004: 1), the rise of China is explained by "the role of raw materials and transport industries as generative sectors". China's growing economic power has resulted in a significant increase in its shipping industry, with the country becoming one of the world's largest importers of raw materials such as iron ore and coal. Many of China's ports now focus on transshipping coal from internal mines, which is then loaded onto small bulk carriers for carriage to the southeast coast cities (Bunker and Ciccantell, 2004: 581). The current Arctic expansion of transportation by China and Russia can also be seen in this context. As new shipping routes open, these countries are investing heavily in Arctic transportation infrastructure, such as icebreakers and ports, to take advantage of the region's natural resources and expand their economic influence. This highlights the continued relevance of transportation infrastructure in shaping global power dynamics. The rise of multipolar world orders via industrial investment can be seen as a response to the challenges posed by the hegemonic phase of the world-system. During this phase, the dominant power uses its economic and military power to impose its will on other states and exploit their resources and labor. This creates an unequal global distribution of wealth and power, which can lead to resistance and challenges from other states. Investment in national industry and manufacturing can be seen as a strategy employed by rising powers to challenge the hegemon and create a more equal distribution of power. By protecting their domestic industries from competition and promoting state-led development, these states are able to build up their own economic and military power and create a more balanced international order.

China has employed state capitalist policies, such as restrictions on foreign investment and state-led development of strategic industries, to challenge the current US-led global order and assert its own influence in the international system. Arrighi (in Robinson, 2011: 8) argued that China's rise as a global economic power represents a challenge to the existing world order, as China seeks to expand its influence and challenge the dominant role of the United States. However, he also suggested that the transition from the current order to a new one will not be easy, and that it will likely involve a period of crisis and conflict. The Sino-Russian strategy for the Arctic is based on the growth of the physical

economy, as this region is not conducive to the expansion of the financial phase without material expansion. This has led to renewed interest in the Arctic, which is seen as an unexplored region with vast potential for development in various sectors. The diversification of the Arctic economy, a characteristic of a region leveraged by an ascending semiperiphery, is driven by the world-system's cycle of material expansion, which emphasizes the growth of industry and a "physical" productive economy. The Russian Arctic is a prime example of this trend, with major bets being placed on the energy sector and exports via shipping. This approach stands in contrast to the Anglo-American system's emphasis on a financial economy.

In essence, the Arctic is once again caught up in two major global processes: the rise of the semiperiphery and the possible beginning of a new cycle of material expansion in the world-system, which seems to be driven by China. When looking at the GDP of each nation, especially the major superpowers, and examining the data regarding the percentage allocated to each sector, it is observed that the United States has undergone deindustrialization, with only 19% of GDP allocated to industry and 80% to services in 2017 (CIA, 2017). These data reflect the phase of financialization of American hegemony, as described by Arrighi. In contrast, China has a much more balanced balance sheet, with 40% of GDP allocated to industry and 50% to services (CIA, 2017). The Arctic is in a phase of accelerated industrialization that places it in a favorable position to catch the wave of a possible cycle of material expansion of a new hegemony, and Chinese investment in the region's industry and shipping is an expression of this. In summary, my idea that the Arctic is in the transition to semi-periphery is then a result of 3 factors: 1) its massive industrialization, 2) the diversification of its economy within the industrialization scenario, as already seen by the investment in various economic sectors, and finally 3) the focus on better paying jobs. These 3 factors fit perfectly within the framework of analysis of WST when it comes to the rise of the former semiperiphery and the cycles of material expansion in a new multipolar world.

6. Conclusion

Through the analysis I developed, it has become evident that the Russian Arctic is undergoing a significant transformation from being a peripheral region to a semiperipheral one, propelled by the collaboration between China and Russia. The increase in trade along the NSR creates new economic opportunities and diversifies the region's economic base. The shorter shipping distance and reduced reliance on traditional routes allow for cost-effective transportation of goods, attracting international trade and investment. This increased economic activity leads to the establishment of industries, job creation, and infrastructure development, fostering the region's growth and transition from periphery to semiperiphery. Second, digitalization plays a fundamental role in facilitating the region's development. By adopting advanced technologies and digital infrastructure, the Russian Arctic can overcome geographical challenges and enhance its connectivity with global markets. Digitalization enables efficient resource extraction, improved logistics and transportation, and enhanced communication networks.

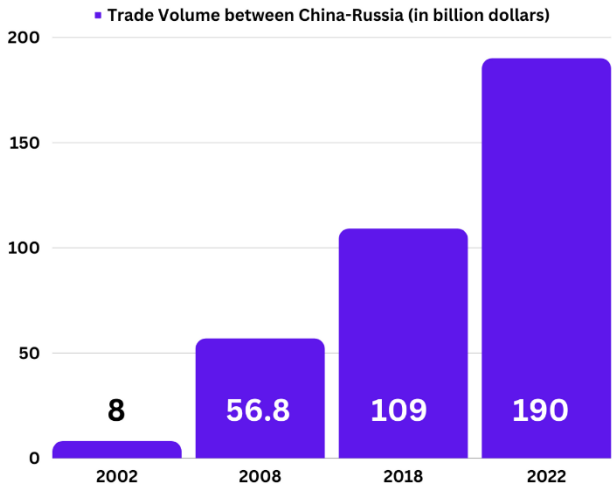
This transformation is further reinforced by the ongoing hegemonic struggles between the United States and China, the rise of the semiperiphery as a challenger to the established order, and the cycles of material expansion proposed by Arrighi. The World-Systems Theory has played a crucial role in understanding the dynamics and implications of the Russian Arctic's rise. By incorporating the WST into the analysis, this thesis has provided a comprehensive framework for examining the region's position within the global economic and geopolitical order. The WST offers insights into the interdependencies and power dynamics between core, periphery, and semiperiphery regions, and their impact on the transformations occurring in the Russian Arctic.

Applying the WST to the study of the Russian Arctic has shed light on the underlying forces driving its ascent. The cooperation between China and Russia in the Arctic, driven by their pursuit of alternative economic models and the challenges to Western hegemony, aligns with the WST's emphasis on the rise of the semiperiphery as a challenger to the core powers. The cycles of material expansion proposed by Arrighi provide a lens through which to understand the shifting power dynamics. The WST has facilitated the analysis of the complex interactions between China, Russia, and the United States, and the role of the Arctic in their geopolitical competition. It has also highlighted the transformative potential of the Russian Arctic and have enriched the examination of sino-russian cooperation in the Arctic and contributed to a more comprehensive understanding of the region's trajectory within the world-system.

Appendix

Map 1: Retrieved from: Dudarev and Odland (2022)

Map 2: Retrieved from: Humpert, 2021



Graph 1. Sources: Larin, 2020 and Gao, Cash, Yan and Aizhu, 2023

My theoretical framework	lead to	lead to	lead to	lead to	lead to
Core-Periphery Relations lead to Hegemonic Power and Unipolarity	Overaccumulation of Capital, world-system crisis and decline fo the hegemonic power	New incorporated areas in order to escape the overaccumulation trap	Interstate System competition leads to semi-peripheric countries trying to replace the core and the "old order", or to create a more egalitarian world-system	Industrialization and diffusion of new technologies and trade develop on the new areas, incorporating those new regions	Development of those (former) underxplored regions, of paramount importance for the new core
US Hegemony dominance and core-periphery relations around its power	Overaccumulation of capital and decline of USA hegemonic power	Arctic as a new incorporated area in the world-system in order to escape this trap	Interstate System competition leads to China and Russia trying to counterattack US Hegemonic power, by ascending to the core or by creating a multipolar world	Industrialization and diffusion of new technologies and trade (shipping) development on the Arctic, as part of the incorporation and development of former underxplored regions, by the semiperiphery	Rise of the former semiperiphery of the East, leading to geographic reallocation of the center of rivalry. The Russian Arctic becomes of paramount importance for the development of new regions to accumulate capital by the semiperiphery
In Practice	lead to	lead to	lead to	lead to	lead to

Table 1.

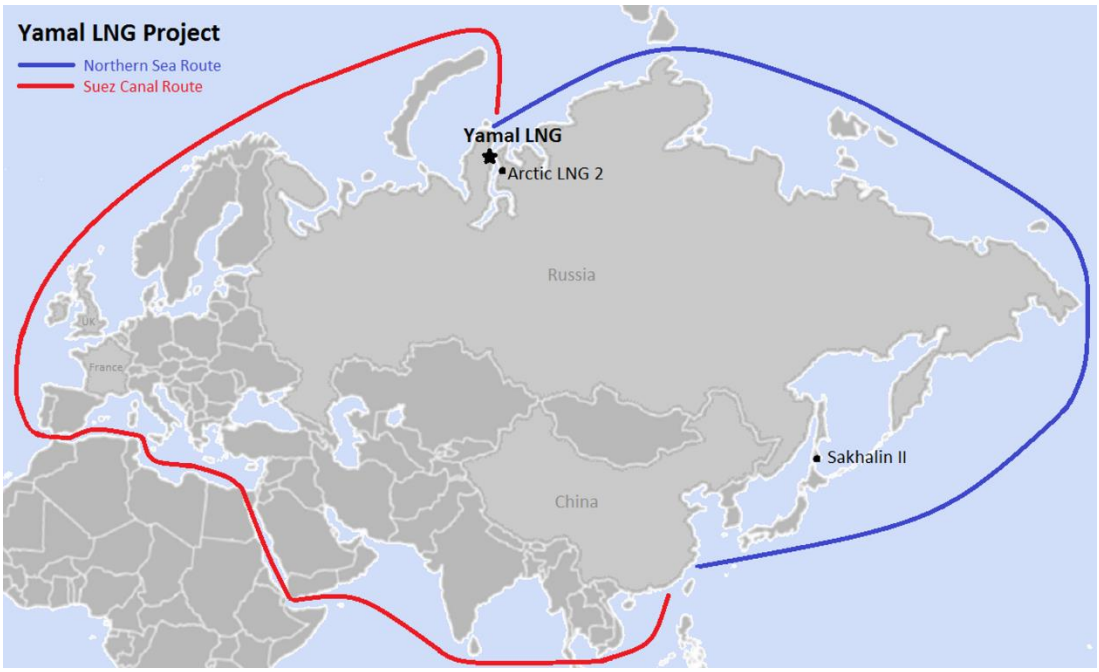
	1991	1992	1993	1994	1995	1996	1997
Number of vessels	15	12	22	7	8	3	2
Tonnage (1000 tons)	210	186	226	10	120	38	30

Table 2. Evolution of Northern Sea Route Transits, 1991-1997

Retrieved from: Lasserre (2021: 94).

Ship type	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Icebreaker					2	3	2	2	1	2	
Government ship					1	0	1	1	3	1	
Cruise or passenger ship				1	1	0	1	3	1	1	
Tug, supply vessel	1	1		4	4	5	1	1	4	4	
Commercial ship	1	2	5	6	31	38	64	24	15	11	
Research ship				2	2	0	2	0	0		
Total official transit	2	3	5	13	41	46	71	31	18	19	25?

Table 3. Number of official transits, Northern Sea Route, 2010-2017 Retrieved from: Lasserre, (2021: 94).



Map 3: Retrieved from: Lavrenteva, 2020

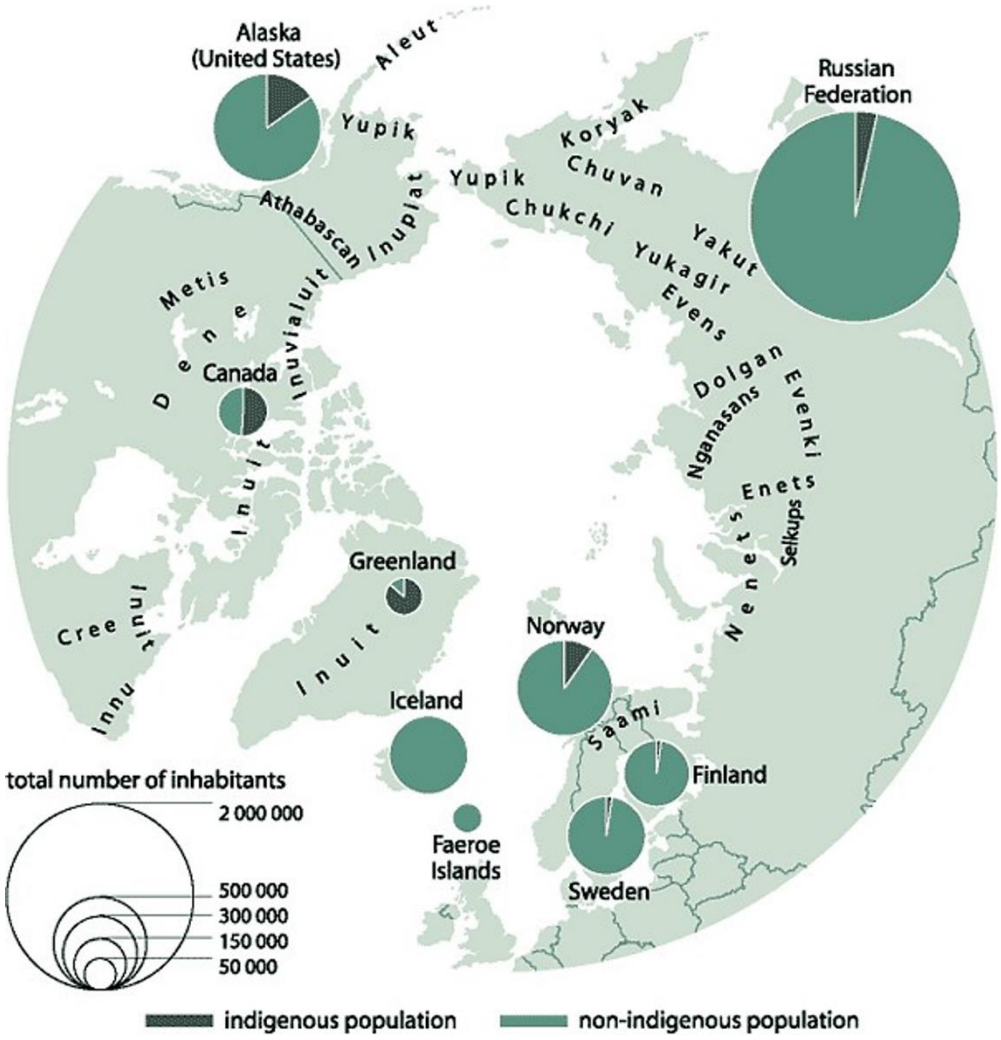
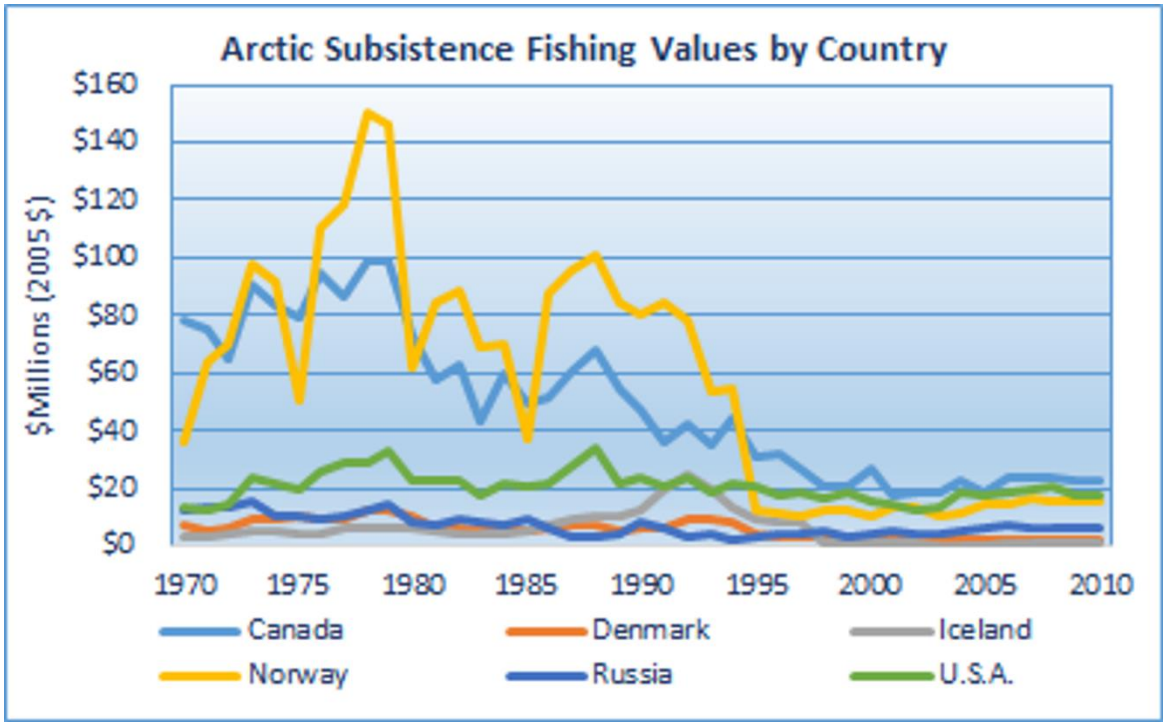
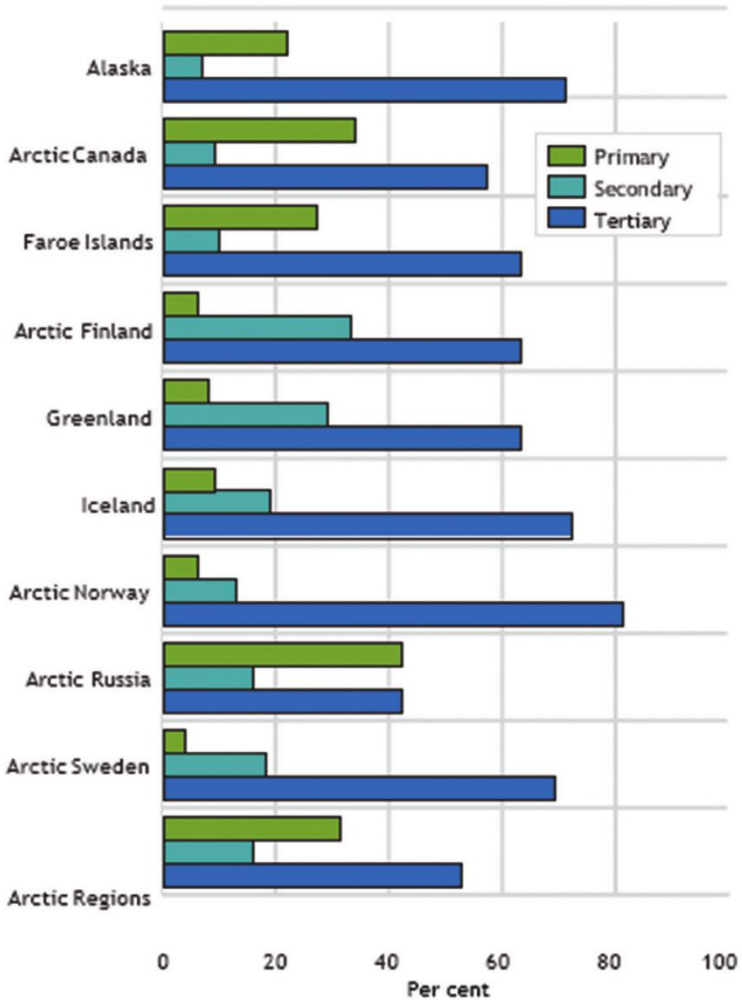


Image 1: Retrieved from: National Ocean Economics Program (2023). Arctic Subsistence Economy. Retrieved from: https://www.oceaneconomics.org/arctic/subsistence/default.aspx



Graph 2: Retrieved from: National Ocean Economics Program (2023). Arctic Subsistence Economy. Retrieved from: https://www.oceaneconomics.org/arctic/subsistence/default.aspx

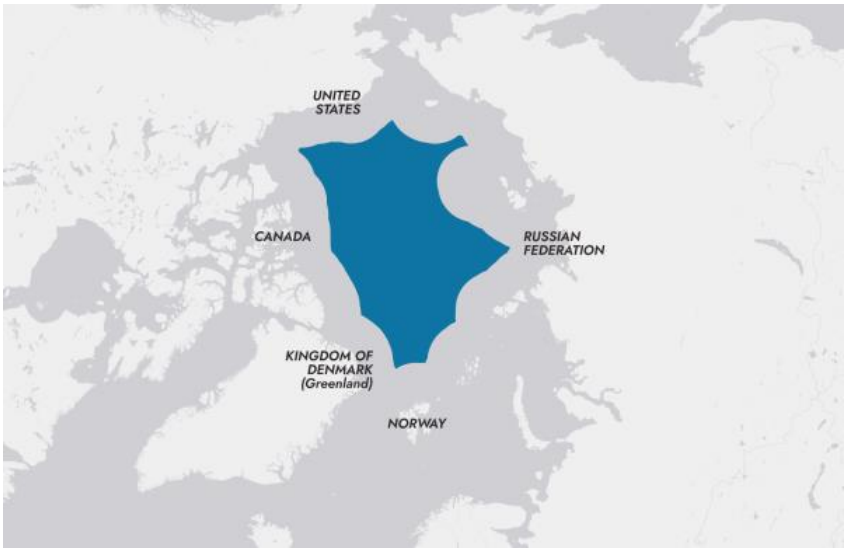


Graph 3: Source: Duhaime, G. and Caron, A. (2021)

Numbers and population sizes of the cities with various patterns of urbanization.

	Background for the foundation	Number	Population size
1	Centers of mineral resources extraction	16	458.563
2	Ports and other transport hubs	17	456,154
3	Cities around military bases	14	36,089
4	Cities around electric stations	6	31,964
5	Others	7	52,785

Table 4: Source: Popov, I. (2022).



Map 4: Retrieved from: Arctic Council. (2020). Exploring the Arctic Ocean: The Agreement That Protects an Unknown Ecosystem. Retrieved from https://arctic-council.org/news/exploring-the-arctic-ocean-the-agreement-that-protects-an-unknown-ecosystem/

Bibliography:

- Lim, Kong Soon (2018). China's Arctic Policy and the Polar Silk Road Vision. In Heininen, L. & Exner-Pirot, H. (Eds.) Arctic Yearbook 2018, pp. 420-432. (Akureyri, Northern Research Forum) , Available at SSRN: https://ssrn.com/abstract=3603710
- OECD. Retrieved 22 June 2022, from https://www.oecd.org/ocean/topics/ocean-shipping/
- Isachenkov, V. (2015). Russia to UN: We are claiming 463,000 square miles of the Arctic. Retrieved 17 September 2022, from https://www.businessinsider.com/russia-to-un-we-are-claiming-463000-square-miles-of-the-arctic-2015-8
- Moe, A., Fjærtoft, D., & Øverland, I. (2011). Space and timing: why was the Barents Sea delimitation dispute resolved in 2010?. *Polar Geography* , *34*(3). doi: 10.1080/1088937x.2011.597887
- Dahlburg, J.T. (1987). *Gorbachev calls for Peace, cooperation in Arctic*. AP NEWS. Retrieved September 10, 2022, from https://apnews.com/article/ed8452a6d9b7a62f5138a73a9de89432
- Käpylä, J., & Mikkola, H. (2015). ON ARCTIC EXCEPTIONALISM: CRITICAL REFLECTIONS IN THE LIGHT OF THE ARCTIC SUNRISE CASE AND THE CRISIS IN UKRAINE. *The Finnish Institute of International Affairs*, (85).
- Triggs, Gillian. 2011. "The Antarctic Treaty System: A Model of Legal Creativity and Cooperation ." in *Science Diplomacy: Antarctica, Science, and the Governance of International Spaces* , edited by Berkman, Paul Arthur, Lang, Michael A., Walton, David W. H., and Young, Oran R., 39–49. Smithsonian Contributions to Knowledge. https://doi.org/10.5479/si.9781935623069.39
- Røseth, Tom. 2014. Russia's China Policy in the Arctic. *Strategic Analysis* 38 (6): 841–859
- Kobzeva M.A. Cooperation between Russia and China in Arctic Shipping: Current State and Prospects. Arktika i Sever[Arctic and North], 2021, no. 43, pp. 89–108. DOI: 10.37482/issn2221-2698.2021.43.8
- Didenko, N., Skripnuk, D., Kikkas, K. and Kaźmierczyk, J., 2022. Development of Northern Sea Route and Arctic Maritime Logistics. In: I. Ilin, T. Devezas and C. Jahn, ed., *Arctic Maritime Logistics: The Potentials and Challenges of the Northern Sea Route*, 1st ed. [online] Springer. Available at: https://link.springer.com/book/10.1007/978-3-030-92291-7 [Accessed 30 August 2022].
- NASA, 2022. *Arctic Sea Ice Minimum | NASA Global Climate Change*. [online] Climate Change: Vital Signs of the Planet. Available at: https://climate.nasa.gov/vital-signs/arctic-sea-ice/ [Accessed 28 August 2022].
- Federov, V & Zhuravel, V & Grinyaev, Sergey & Medvedev, Dmitriy. (2019). Scientific approaches to defining the territorial boundaries of the Arctic. IOP Conference Series: Earth and Environmental Science. 302. 012012. 10.1088/1755-1315/302/1/012012.

- Arctic Institute, 2022. Russia. Available at: <https://www.thearcticinstitute.org/country-backgrounders/russia/> [Accessed 2 August 2022]
- Dudarev, Alexey & Odland, Jon. (2022). Forty-Year Biomonitoring of Environmental Contaminants in Russian Arctic: Progress, Gaps and Perspectives. International Journal of Environmental Research and Public Health. 19. 11951. 10.3390/ijerph191911951.
- Humpert, Malte (2021). **Riches lie below the waters of Russia's Arctic. The Economist. Retrieved from:** https://www.economist.com/europe/2021/11/27/riches-lie-below-the-waters-of-russias-arctic. [Accessed 22 February 2023]
- Gabuev, A., 2015. *A "Soft Alliance"? Russia-China Relations After the Ukraine Crisis*. [online] EUROPEAN COUNCIL ON FOREIGN RELATIONS. Available at:https://ecfr.eu/archive/page/-/ECFR126_-_A_Soft_Alliance_Russia-China_Relations_After_the_Ukraine_Crisis.pdf [Accessed 14 July 2022].
- "Treaty of Good-Neighborliness and Friendly Cooperation Between the People's Republic of China and the Russian Federation," Ministry of Foreign Affairs of the People's Republic of China, July 24, 2001, http://www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/t15771.shtml
- Larin, V., 2020. Russia–China Economic Relations in the 21st Century: Unrealized Potential or Predetermined Outcome?. *Chinese Journal of International Review*, [online] 02(01), p.2050001. Available at: https://www.worldscientific.com/doi/epdf/10.1142/S2630531320500018 [Accessed 16 July 2022].
- Statista. 2022. *Russia: goods trade with China by flow 2021 | Statista*. [online] Available at: https://www.statista.com/statistics/1003171/russia-value-of-trade-in-goods-with-china/ [Accessed 21 September 2022].
- Gao, L.; Cash, Joe; Yan, Shen and Aizhu, Chen (2023). **China's 2022 trade with Russia hit record $190 bln - customs. Retrieved from:** https://www.reuters.com/world/china-customs-says-trade-with-russia-hit-new-high-2022-2023-01-13/
- Arrighi, Giovanni. 2010. The Long Twentieth Century. New and Updated Edition edition. London and New York: Verso.
- Luo, Z. (2017). Intrastate Dynamics in the Context of Hegemonic Decline: A Case Study of China's Arms Transfer Regime. *Journal of World-Systems Research*, *23*(1), 36–61. https://doi.org/10.5195/jwsr.2017.600
- Li, Cheng. (2016). **Assessing U.S.-China relations under the Obama administration. Retrieved from:** https://www.brookings.edu/opinions/assessing-u-s-china-relations-under-the-obama-administration/

- Dan, Roberts (2015). **Obama warns of 'weaponising the internet' ahead of Xi Jinping's US visit. Retrieved from:** https://www.theguardian.com/technology/2015/sep/16/obama-china-cybersecurity-weaponise-the-internet-xi-jinping-visit
- **Kastrenakes, Jacob (2018). Trump signs bill banning government use of Huawei and ZTE tech. Retrieved from:** https://www.theverge.com/2018/8/13/17686310/huawei-zte-us-government-contractor-ban-trump
- Neslen, A. (2014). Europe's dependency on Russian gas may be cut amid energy efficiency focus. Retrieved 22 July 2022, from https://www.theguardian.com/world/2014/sep/09/europe-dependency-russian-gas-energy-efficiency-eu
- Mazneva, E., & Kravchenko, S. (2014). Russia, China Sign $400B Gas Deal After Decade of Talks. Retrieved 22 July 2022, from https://www.bloomberg.com/news/articles/2014-05-21/russia-signs-china-gas-deal-after-decade-of-talks
- Aizhu, C., & Meng, M. (2017). Russia beats Saudi Arabia as China's top crude oil supplier in 2016. Retrieved 13 July 2022, from https://www.reuters.com/article/us-china-economy-trade-crude/russia-beats-saudi-arabia-as-chinas-top-crude-oil-supplier-in-2016-idUSKBN1570VJ
- Perović, J., & Zogg, B. (2019). Russia and China: The Potential of Their Partnership. *CSS Analyses In Security Policy*, (250), 1-3. Retrieved from https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/pdfs/CSSAnalyse250-EN.pdf
- Lukin, A. (2021). The Russia–China entente and its future. *Int Polit* **58**, 363–380 https://doi.org/10.1057/s41311-020-00251-7
- Putin, V. (2012). Vladimir Putin on Foreign Policy: Russia and the Changing World. Retrieved 15 August 2022, from https://valdaiclub.com/a/highlights/vladimir_putin_on_foreign_policy_russia_and_the_changing_world/
- Russian Federation and the People's Republic of China. (2022). *Joint Statement of the Russian Federation and the People's Republic of China on the International Relations Entering a New Era and the Global Sustainable Development*. Retrieved from http://en.kremlin.ru/supplement/5770
- Karatasli, S. S., & Kumral, S. (2017). Territorial Contradictions of the Rise of China: Geopolitics, Nationalism and Hegemony in Comparative-Historical Perspective. *Journal of World-Systems Research*, *23*(1), 5–35. https://doi.org/10.5195/jwsr.2017.591
- Gilpin, W., 1890. *The cosmopolitan railway: compacting and fusing together all the world's continents*. San Francisco: History Co., pp.1-85.
- Lincoln, A., 1861. *Abraham Lincoln papers: Series 1. General Correspondence. 1833-1916: William Gilpin to Abraham Lincoln, Friday, September 13, 1861 (Situation in Colorado*

Territory). [Manuscript] http://hdl.loc.gov/loc.mss/ms000001.mss30189a.1164000, Abraham Lincoln Papers at the Library of Congress.

- US State Department, 2022. *United States Relations with Russia: Establishment of Relations to World War Two*. https://2001-2009.state.gov/r/pa/ho/pubs/fs/85739.htm, Washington, DC.
- NYT (1906). To London by Rail. https://www.nytimes.com/1906/03/27/archives/to-london-by-rail.html
- **Treaty concerning the Archipelago of Spitsbergen, 1920. Entry into force: August 1925**
- Kopra, S. (2020). *China and its Arctic trajectories: The Arctic Institute's china series 2020*. The Arctic Institute - Center for Circumpolar Security Studies. Retrieved November 5, 2022, from https://www.thearcticinstitute.org/china-arctic-trajectories-the-arctic-institute-china-series-2020/
- New Internationalist, 2009. *THE ARCTIC: A HISTORY*. [online] https://newint.org/. Available at: https://newint.org/features/2009/07/01/arctic-history/ [Accessed 26 August 2022].
- Inman, P. (2019, August 19). *Why does Donald Trump want to buy Greenland?* The Guardian. Retrieved October 5, 2022, from https://www.theguardian.com/us-news/2019/aug/19/why-does-donald-trump-want-to-buy-greenland
- Ermolaev, S. (2017). *The formation and evolution of the Soviet Union's oil and Gas Dependence*. Carnegie Endowment for International Peace. Retrieved August 27, 2022, from https://carnegieendowment.org/2017/03/29/formation-and-evolution-of-soviet-union-s-oil-and-gas-dependence-pub-68443#_edn38
- Bukharin, O. (2006). Russia's nuclear icebreaker fleet. *Science & Global Security*, *14*(1), 25–31. https://doi.org/10.1080/08929880600620559
- Jordan, J. (2021). *Russia's Coercive Diplomacy in the Arctic*. thearcticinstitute.org. https://www.thearcticinstitute.org/russia-coercive-diplomacy-arctic/. [Accessed 1 November 2022]
- MIKHAIL GORBACHEV, 1987. *MIKHAIL GORBACHEV'S SPEECH IN MURMANSK AT THE CEREMONIAL MEETING ON THE OCCASION OF THE PRESENTATION OF THE ORDER OF LENIN AND THE GOLD STAR TO THE CITY OF MURMANSK*. [online] Available at: https://www.barentsinfo.fi/docs/Gorbachev_speech.pdf [Accessed 28 August 2022].
- Murkowski, L., 2021. *Arctic Exceptionalism*. [online] Afsa.org. Available at: https://afsa.org/arctic-exceptionalism [Accessed 28 August 2022].
- Stewart, W. (2013). *Siberia is the future, declares Vladimir Putin*. siberiantimes.com. https://siberiantimes.com/business/opinion/news/siberia-is-the-future-declares-vladimir-putin/
- Kubny, H. (2020). *Arctic Tourism in Russia to be Promoted*. polarjournal.ch. https://polarjournal.ch/en/2020/11/28/arctic-tourism-in-russia-to-be-promoted/

- Yanishevskya, E., Fokina, N., Selivanova, E., Kompanchenko, A., Makarov, D., & Goryachev, A. (2021). Processing of Sulfide Copper-Nickel Ores from the Deposits in Murmansk Region by Heap Leaching. *Minerals*. https://doi.org/10.3390/min11080820
- Didenko, Nikolay & Skripnuk, Djamilia & Kikkas, Ksenia & Kaźmierczyk, Jerzy. (2022). Development of Northern Sea Route and Arctic Maritime Logistics. 10.1007/978-3-030-92291-7_2.
- Henderson, Isaiah (2019). "Cold Ambition: The New Geopolitical Faultline". *The California Review*
- Siberian Times, 2020. *Giant sailing ship encounters no ice as it attempts the Northern Sea Route*. [online] Siberiantimes.com. Available at: https://siberiantimes.com/other/others/news/giant-sailing-ship-encounters-no-ice-as-it-attempts-the-northern-sea-route/ [Accessed 28 August 2022].
- Akram, Qudsia & Fareed, Munaza. (2020). China's Malacca Dilemma: Power Politics in Indian Ocean. 29-44.
- Lukin, A. (2015) *Mackinder revisited: Will China establish eurasian empire 3.0?*, *The Diplomat*. Available at:https://thediplomat.com/2015/02/mackinder-revisited-will-china-establish-eurasian-empire-3-0/ (Accessed: November 5, 2022).
- Zou, Han & Zhou, Libo & Jian, Yongxiao & Wang, W. (2001). Arctic Upper Air Observation on Chinese Arctic Research Expedition 1999. Polar Meteorology and Glaciology. 15. 141-146.
- Kopra, S., 2020. *China and its Arctic Trajectories: The Arctic Institute's China Series 2020 - The Arctic Institute*. [online] The Arctic Institute. Available at: https://www.thearcticinstitute.org/china-arctic-trajectories-the-arctic-institute-china-series-2020/ [Accessed 24 August 2022].
- Hsiung, C. W. (2020). *The Emergence of a Sino-Russian Economic Partnership in the Arctic?* The Arctic Institute. https://www.thearcticinstitute.org/emergence-sino-russian-economic-partnership-arctic/
- Storey, I. (2006). China's "Malacca Dilemma". The Jamestown Foundation. *China Brief Volume: 6 Issue: 8*
- Wishnick, E. (2017). *CHINA'S INTERESTS AND GOALS IN THE ARCTIC: IMPLICATIONS FOR THE UNITED STATES*. Strategic Studies Institute (p.42)
- Lanteigne, M. (2018). Northern Crossroads: Sino-Russian Cooperation in the Arctic. *Poltical and Security Affairs - National Bureau of Asian Research*, 1–3.
- Shipeng, Guo and Blanchard, Ben (2008). **China signs border demarcation pact with Russia. Retrieved from:** https://www.reuters.com/article/china-russia-border-idUKPEK29335820080721
- Luhn, A., & Macalister, T. (2014). Russia signs 30-year deal worth $400bn to deliver gas to China. *The Guardian.*

- Kirchberger, S., Sinjen, S., & Wörmer Nils. (2022). Sino-Russian Scientific Cooperation in the Arctic: From Deep Sea to Deep Space. In *Russia-china relations: Emerging alliance or eternal rivals?* (Ser. Scopus, p. 189). essay, Springer.
- Humpert, M. (2019) *Russia's Rosatomflot launches third new nuclear icebreaker*, *High North News*. Available at: https://www.highnorthnews.com/en/russias-rosatomflot-launches-third-new-nuclear-icebreaker (Accessed: October 7, 2022).
- US Department of Defence (2016) "Report to Congress Department of Defense Arctic Strategy," https://media.defense.gov/2019/Jun/06/2002141657/-1/-1/1/2019-DOD-ARCTIC-STRATEGY.PDF, Accessed on 11 November 2022
- The State Council Information Office of the People's Republic of China, 2019. *China's National Defense in the New Era*. Beijing: Foreign Language Press.
- Pompeo, M. (2019). *Looking North: Sharpening America's Arctic Focus*. Address, Rovaniemi; Finland.
- Tass (2022). **Geopolitical changes stimulate development of Northern Sea Route, Arctic — expert.** https://tass.com/economy/1504599. Eastern Economic Forum
- Stavridis, J. (2019). *China is joining the rush for Arctic Riches*. Bloomberg.com. Retrieved November 12, 2022, from https://www.bloomberg.com/opinion/articles/2019-04-16/china-is-joining-the-rush-for-arctic-riches
- Tisdall, S. (2019). *Trump's bid to buy Greenland shows that the 'scramble for the Arctic' is truly upon us*. The Guardian. https://www.theguardian.com/world/2019/aug/24/trump-greenland-gambit-sad-sign-arctic-up-for-grabs
- Gronholt-Pedersen, J. (2021). *In Arctic push, US extends new economic aid package to Greenland*. Reuters. Retrieved November 7, 2022, from https://www.reuters.com/world/europe/arctic-push-us-extends-new-economic-aid-package-greenland-2021-09-15/
- Zeuthen, Jesper. (2017). Part of the Master Plan? Chinese Investment in Rare Earth Mining in Greenland. Arctic Yearbook. 2017.
- Pengelly, Martin (2019). **Trump confirms he is considering attempt to buy Greenland. Retrieved from:** https://www.theguardian.com/world/2019/aug/18/trump-considering-buying-greenland
- Saumarez Smith, Otto, 'Optimism, Traffic, and the Historic City in Post-War British Planning', *Boom Cities: Architect Planners and the Politics of Radical Urban Renewal in 1960s Britain* (Oxford, 2019; online edn,Oxford Academic , 23 May 2019), https://doi.org/10.1093/oso/9780198836407.003.0001, accessed 20 Aug. 2022.
- Hobbes, Thomas (2010). *Leviathan. Revised Edition*, eds. A.P. Martinich and Brian Battiste. Peterborough, ON: Broadview Press

- Sterling-Folker, J., 2013. *Making sense of international relations theory*. 2nd ed. Boulder: Lynne Rienner.
- Kegley, C. and Raymond, G., 2007. *The global future : a brief introduction to world politics*. 2nd ed. Belmont: Belmont, CA : Thomson/Wadsworth.
- Mearsheimer, John, J., 2001. 'The Tragedy of Great Power Politics' W. W. Norton & Company, NYC 2001:1-366
- Waltz, Kenneth (1979). Theory of International Politics. Reading, MA: Addison Wesley.
- Barry, M. (2007) Realism, Rational Action, and the Humean Theory of Motivation. *Ethic Theory Moral Prac* **10**, 231–242. https://doi.org/10.1007/s10677-007-9074-6
- Pribadi, Winner. (2013). On Structural Theories of International Relations: Examining Waltzian Structural Realism And Wallerstein's World System Theory. Jurnal Hubungan Internasional. 2. 25-34. 10.18196/hi.2013.0024.25-34.
- Rose, Gideon. 1998. "Review: Neoclassical Realism and Theories of Foreign Policy." World Politics, vol. 51, no. 1, pp. 144–172.
- Harknett, R. J., & Yalcin, H. B. (2012). The Struggle for Autonomy: A Realist Structural Theory of International Relations. *International Studies Review*, *14*(4), 499–521. http://www.jstor.org/stable/41804152
- Boylan, B. (2021) Increased Maritime Traffic in the Arctic: Implications for International Cooperation and Security. *Marine Policy*, *131*, 12-15. https://doi.org/10.1016/j.marpol.2021.104566
- Borgerson, S. (2008). *Arctic Meltdown: The Economic and Security Implications of Global Warming*. Foreign Affairs. https://www.foreignaffairs.com/articles/arctic-antarctic/2008-03-02/arctic-meltdown
- Ikenberry, J. (2009). Liberalism in a Realist World: International Relations as an American Scholarly Tradition. *INTERNATIONAL STUDIES*, (46) 1&2 (2009): 203–19.
- Schwartz, Thomas and Skinner, Kiron K , (2002). The myth of the democratic peace, Orbis, Volume 46, Issue 1, Pages 159-172, ISSN 0030-4387, https://doi.org/10.1016/S0030-4387(01)00113-2. (https://www.sciencedirect.com/science/article/pii/S0030438701001132)
- Riccardi, A. (1998). Promoting Democracy, Peace, and Solidarity. *Journal Of Democracy*, *9*(4), 157-167. doi: 10.1353/jod.1998.0069
- Doyle, M. (1986). Liberalism and World Politics. *American Political Science Review, 80*(4), 1151-1169. doi:10.2307/1960861
- Albright, M. and Jomaa, M., 2017. *Liberal democracy and the path to peace and security*. [online] Brookings. Available at: https://www.brookings.edu/research/liberal-democracy-and-the-path-to-peace-and-security/ [Accessed 29 July 2022].
- Gaddis, John Lewis (2002). "Grand Strategy of Transformation". *Foreign Policy* (133): 50–57. JSTOR 3183557 and https://www.npr.org/templates/story/story.php?storyId=112400053

- Wolfowitz, P., 2009. *Foreign Policy: A Dose Of Wolfowitz Realism*. [online] Npr.org. Available at: https://www.npr.org/templates/story/story.php?storyId=112400053 [Accessed 1 August 2022].
- Rostow, W. W. (1960). "The Five Stages of Growth-A Summary". The Stages of Economic Growth: A Non-Communist Manifesto
- Parry, Abdul Waheed. (2021) "Liberalism And Foreign Policy: An analysis of the Liberal Foreign Policy in International Relations", İNSAMER
- Meiser, J., 2018. Introducing Liberalism in International Relations Theory. In: S. Mcglinchey, R. Walters and C. Scheinpflug, ed., *International Relations Theory*, 1st ed. [online] Bristol: E-International Relations. Available at: https://www.e-ir.info/publication/international-relations-theory/ [Accessed 29 July 2022].
- Robinson, William I., and Jeb Sprague-Silgado,(2018). 'The Transnational Capitalist Class', in Mark Juergensmeyer and others (eds), *The Oxford Handbook of Global Studies*, Oxford Handbooks (online edn, Oxford Academic, 11Dec.2018), https://doi.org/10.1093/oxfordhb/9780190630577.013.35, accessed 19 Dec 2022
- Frankman, Myron J. (1997). "No Global War? A Role for Democratic Global Federalism." Journal cf World-Systems Research 3: 321 -338.
- Robinson, William (2017): „Interview – William I. Robinson". *E-International Relations*.
- Lentini, O. (2000). American Liberalism, One Worldism & World-Systems Analysis. Journal of World-Systems Research, 6(3), 812–826. https://doi.org/10.5195/JWSR.2000.212
- Oskanian, K., 2018. *Out of Illusion, Weakness: Liberalism and Its Blind Spots* . [online] E-International Relations. Available at: https://www.e-ir.info/2018/12/11/out-of-illusion-weakness-liberalism-and-its-blind-spots/ [Accessed 29 July 2022].
- Dittmer, Jason & Moisio, Sami & Ingram, Alan & Dodds, Klaus. (2011). Have you heard the one about the disappearing ice? Recasting Arctic geopolitics. Political Geography. 30. 202-214. 10.1016/j.polgeo.2011.04.002.
- Euractiv. (2022). Sweden and Finland to announce military cooperation. Retrieved November 19, 2022, from https://www.euractiv.com/section/politics/short_news/sweden-and-finland-to-announce-military-cooperation/
- Flake, Lincoln. 2015. Forecasting Conflict in the Arctic: The Historical Context of Russia's Security Intentions. *Journal of Slavic Military Studies*
- Eyre, Kenneth. 1987. Forty Years of Military Activity in the Canadian North. *Arctic* 40 (4, Dec.): 292–299. 28: 72–98.
- Åtland, Kristian (2007). "The Militarization of the Barents Region". Contribution to the Barents Encyclopedia, 2007-8, http://bar-enc.didaktekon.se/Editor/Samplearticles/Ex-Militarization-L-Atland-2011-09.pdf

- Santos, Theotonio. (1970) “The Structure of Dependence,” *The American Economic Review* , 60:2, pp. 231-236.
- Chase-Dunn, C. and Grell-Brisk, M., 2019. World-System Theory. In: *International Relations*. California: Oxford Bibliographies.
- Reifer, T. E. (2009). Histories of the Present: Giovanni Arrighi & the Long Duree of Geohistorical Capitalism. *Journal of World-Systems Research*, *15*(2), 249–256.https://doi.org/10.5195/jwsr.2009.324
- Matias Vernengo, 2004. "**Technology, Finance and Dependency: Latin American Radical Political Economy in Retrospect**," Working Paper Series, Department of Economics, University of Utah 2004_06, University of Utah, Department of Economics.
- Alschuler, L. R. . (1997). Divergent Development: The Pursuit of Liberty, Equality, and Growth in Argentina and the Republic of Korea*. *Journal of World-Systems Research*, *3*(1), 115–207. https://doi.org/10.5195/jwsr.1997.122
- Kardulias, P. N. (1999). *World-systems theory in practice: Leadership, production, and Exchange*. Lanham: Rowman & Littlefield.
- Carlson, J. D. (2001). Broadening and Deepening: Systemic Expansion, Incorporation and the Zone of Ignorance. *Journal of World-Systems Research*, *7*(2), 225–263. https://doi.org/10.5195/jwsr.2001.180
- Chase-Dunn, C. & Hall, T. (1997). Rise and demise: Comparing world-systems. Boulder CO: Westview Press. Lanham MD: Altamira
- Mason, Rachel. (2014). When Worlds Collide: Hunter-Gatherer World-System Change in the 19th Century Canadian Arctic by T. Max Friesen. American Anthropologist. 116. 10.1111/aman.12090_12.
- Hopkins, T. K., Wallerstein, I., Kasaba, R., Martin, W. G., & Phillips, P. D. (1987). Incorporation into the World-Economy: How the World-System Expands. *Review (Fernand Braudel Center)*, *10* (5/6), 761–902. http://www.jstor.org/stable/40241080
- Frank, Andre Gunder. 1998a ReOrient: Global Economy in the Asian Age. Berkeley: University of California Press
- dos Santos, T. (2000). World Economic System: On the Genesis of a Concept. *Journal of World-Systems Research*, *6*(2), 456–477. https://doi.org/10.5195/jwsr.2000.213
- Kees Terlouw (2003) Semi-Peripheral Developments: From World-Systems to Regions, Capitalism Nature Socialism, 14:4, 71-90, DOI: 10.1080/10455750308565547
- Karatasli, S. S., & Kumral, S. (2017). Territorial Contradictions of the Rise of China: Geopolitics, Nationalism and Hegemony in Comparative-Historical Perspective. *Journal of World-Systems Research*, *23*(1), 5–35. https://doi.org/10.5195/jwsr.2017.591

- Chase-Dunn, C., Jorgenson, A. K., Reifer, T. E., & Lio, S. (2005). The Trajectory of the United States in the World-System: A Quantitative Reflection. *Sociological Perspectives*, *48*(2), 233–254. https://doi.org/10.1525/sop.2005.48.2.233
- Komlosy, A. (2019). Crises, Long Waves, and World-System Analysis. *Journal of Globalization Studies.)*
- Lee, J., Nouwens, M. & Tay, K., (2022). *Strategic Settings for 6G: Pathways for China and the US* , IISS: International Institute of Strategic Studies. Retrieved from https://policycommons.net/artifacts/2648297/strategic-settings-for-6g/3671144/ on 20 Jan 2023. CID: 20.500.12592/qpgm9k.
- De Nooy, W., Mrvar, A., & Batagelj, V. (2018). Attributes and Relations. In *Exploratory Social Network Analysis with Pajek: Revised and Expanded Edition for Updated Software* (Structural Analysis in the Social Sciences, pp. 36-70). Cambridge: Cambridge University Press. doi:10.1017/9781108565691.006
- Mcdonald, Terry. (2014). BATTERED, BUT UNBROKEN: EPISTEMOLOGICAL AND THEORETICAL CHALLENGES TO WESTERN IR THEORY (REALISM AND WORLD SYSTEMS THEORY) European Scientific Journal > ESJ June 2014 /Special/ Edition Vol.1. European Scientific Journal. 1.
- Chase-Dunn C., Niemeyer R., Alvarez A., Inoue H., and Love J. (2010). Cycles of Rise and Fall, Upsweeps and Collapses. In Grinin L. et al. (eds), Globalistics and Globalization Studies (pp. 79–100). Volgograd: Uchitel.
- Chase-Dunn, C., & Rubinson, R. (1977). Toward a Structural Perspective on the World-System. *Politics & Society*, *7*(4), 453–476. https://doi.org/10.1177/003232927700700403
- Sutherland, G., 2021. *Pathways from the Semi-Periphery: The Cases of Japan (1853-1905) and Tonga (1770-1900) in the Modern World System*. PhD. Carleton University.
- Quigley, C. (1961). The evolution of civilizations: An introduction to historical analysis. Indianapolis IN: Liberty Press.
- Quigley, C. (1979). The evolution of civilizations. Indianapolis: Liberty Press.
- Chase-Dunn, C. (1999). GLOBALIZATION: A WORLD-SYSTEMS PERSPECTIVE. *Journal of World-Systems Research*, *5*(2), 186–215. https://doi.org/10.5195/jwsr.1999.134
- McCaleb, Agnieszka & Szunomar, Agnes. (2017). Chinese foreign direct investment in central and eastern Europe: an institutional perspective.
- Al Jazeera (2022). **UK PM hopeful Sunak: China 'number one threat' to Britain, world.** https://www.aljazeera.com/news/2022/7/25/uk-pm-hopeful-sunak-china-number-one-threat-to-britain-world
- Khutkyy, Dmytro & Chase-Dunn, Christopher. (2017). The World-System(s). in The SAGE Handbook of Political Sociology: Two Volume Set. https://digitalcommons.usf.edu/phi_facpub/98

- Robinson, William. (2011). Giovanni Arrighi: Systemic Cycles of Accumulation, Hegemonic Transitions, and the Rise of China. New Political Economy - NEW POLIT ECON. 16. 267-280. 10.1080/13563467.2010.512657.
- Bond, P. (1999). GLOBAL ECONOMIC CRISIS: A VIEW FROM SOUTH AFRICA. *Journal of World-Systems Research*, *5*(2), 412–455. https://doi.org/10.5195/jwsr.1999.138
- **Grinin, L. E., and Korotayev, A. V. 2013. Globalization: Yesterday, Today, and Tomorrow. Litchfield Park: Emergent Publications**
- **Grinin L., and Korotayev A. (2015)** *Great Divergence and Great Convergence*. *A Global Perspective*. New York: Springer.
- Wallerstein, Immanuel. (2003). U.S. Weakness and the Struggle for Hegemony. Monthly Review. 55. 23. 10.14452/MR-055-03-2003-07_3.
- Taskesen, Suat. (2010). SPATIAL-TEMPORAL FIXES AND HEGEMONIC TRANSITIONS IN THE HISTORICAL CAPITALISM. PHd Thesis
- Burron, Neil. (2014). Counter-hegemony in latin america? Understanding emerging multipolarity through a gramscian lens. Quebec Journal of International Law. 2014. 33-68. 10.7202/1068072ar.
- Hung, H.-F. (2017). Hegemonic Crisis, Comparative World-Systems, and the Future of Pax Americana. *Journal of World-Systems Research*, *23*(2), 637–648. https://doi.org/10.5195/jwsr.2017.723
- Rosario and Jones (2022). **Russia jumps to become third-largest market for yuan payments amid sanctions. Reuters. Retrieved from:** https://www.reuters.com/markets/currencies/russia-charges-third-list-countries-using-chinas-yuan-2022-08-18/https://www.reuters.com/markets/currencies/russia-charges-third-list-countries-using-chinas-yuan-2022-08-18/
- Turchin, Peter & Hall, Thomas. (2003). Spatial Synchrony Among and Within World-Systems: Insights From Theoretical Ecology. jwsr. 9. 37-. 10.5195/jwsr.2003.248
- Xinhua. 2022. **China-Africa trade reaches all-time high in 2021, showing resilience amid pandemic.** https://english.news.cn/20220228/f640902f8ba647be9dab9837c035420d/c.html
- MUTETHYA, EDITH. 2023. **Belt and Road bearing fruit across Africa. China Daily** https://global.chinadaily.com.cn/a/202301/17/WS63c5fbf3a31057c47ebaa050.html
- Anu Sharma (2019): An Analysis of 'Belt and Road' Initiative and the Middle East, Asian Journal of Middle Eastern and Islamic Studies, DOI: 10.1080/25765949.2019.1586179
- Ajit Singh. (2021) The myth of 'debt-trap diplomacy' and realities of Chinese development finance. *Third World Quarterly* 42:2, pages 239-253.
- Fernández, V. R., Moretti, L., & Ormaechea, E. (2022). Divergent Convergence: Complementing Theoretical Approaches for Understanding the Rise of the Global South and

the Challenges for "the Rest". *Journal of World-Systems Research*, *28*(1), 98–126. https://doi.org/10.5195/jwsr.2022.1032

- Brandt, L., Ma, D., & Rawski, T. G. (2014). From Divergence to Convergence: Reevaluating the History Behind China's Economic Boom. *Journal of Economic Literature*, *52*(1), 45–123. http://www.jstor.org/stable/24433858
- Blunden, Margaret (2012). "Geopolitics and the Northern Sea Route." *International Affairs - Royal Institute of International Affairs 1944-* 88, no. 1: 2. http://www.jstor.org/stable/41428544.
- Kobzeva, M. (2020). *A framework for Sino-Russian relations in the Arctic*. The Arctic Institute - Center for Circumpolar Security Studies. Retrieved October 15, 2022, from https://www.thearcticinstitute.org/framework-sino-russian-relations-arctic/
- Xiuhua, Z. (2019). Regional aspects of the Arctic Ice Silk Road. *Handbook of Research on International Collaboration, Economic Development, and Sustainability in the Arctic*, 370–394. https://doi.org/10.4018/978-1-5225-6954-1.ch017
- Lavengood, Z. (2021). The Evolving Arctic in the World-System. *Journal of World-Systems Research*, *27*(2), 468–493. https://doi.org/10.5195/jwsr.2021.1042
- Kiiski, T. (2017) *FEASIBILITY OF COMMERCIAL CARGO SHIPPING ALONG THE NORTHERN SEA ROUTE*. dissertation. ANNALES UNIVERSITATIS TURKUENSIS.
- Lasserre, Frédéric (2021). Chapter 6: Arctic Shipping: A Contrasted Expansion of a Largely Destinational Market. In Finger, Matthias & Heininen, Lassi & Konyshev, Valery & Sergunin, Alexander. (2021). The Global Arctic Handbook.
- Cairo News (2014). ****New Suez Canal project proposed by Egypt to boost trade**. Retrieved from: caironews.net**
- Gerson, A. (2023). Stranding of the Mega-Ship *Ever Given* in the Suez Canal: Causes, Consequences, and Lessons to Be Learned. In: Lutmar, C., Rubinovitz, Z. (eds) The Suez Canal: Past Lessons and Future Challenges. Palgrave Studies in Maritime Politics and Security. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-15670-0_12
- Martínez-Zarzoso, I. (2013). Alternative Sea Routes: What Effects on Maritime Trade? *The SAIS Review of International Affairs*, *33*(2), 61–74. https://www.jstor.org/stable/26995401
- Sur, Ji & Kim, Dong. (2020). Multi criteria evaluation of beneficial effect of commercializing Northern Sea Route on Europe and Asia countries. The Asian Journal of Shipping and Logistics. 36. 10.1016/j.ajsl.2020.03.002.
- Skripnuk, Djamilia & Kikkas, Kseniya & Bobodzhanova, L & Lobatyuk, Victoria & Kudryavtseva, Regina-Elizaveta. (2020). The Northern Sea Route: Is There Any Chance to Become the International Transport Corridor?. IOP Conference Series: Earth and Environmental Science. 434. 012016. 10.1088/1755-1315/434/1/012016.

- Karamperidis, S., Valantasis-Kanellos, N. Northern sea route as an emerging option for global transport networks: a policy perspective. *WMU J Marit Affairs* **21**, 425–452 (2022). https://doi.org/10.1007/s13437-022-00273-3
- ***Schoenberger, Sarah (2014).*** **PIRACY IN THE SOUTH CHINA SEA: PETTY THEFT IN INDONESIA, KIDNAPPED SHIPS IN MALAYSIA.** https://cimsec.org/piracy-south-china-sea-petty-theft-indonesia-kidnapped-ships-malaysia/. Retrieved from: www.cimsec.org
- Duchatel, M. and Duplaix, A. (2018). Blue China: Navigating the Maritime Silk Road to Europe. https://ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/resources/docs/ECFR_BlueChinaMaritimeSilkRoad.pdf. Council of Foreign Relations.
- Ying. (2017). *China, Russia agree to jointly build "Ice Silk Road"*. Xinhua. Retrieved November 15, 2022, from http://www.xinhuanet.com/english/2017-07/04/c_136417241.htm
- Zhao, H., & Hu, H. (2016). Study on Economic Evaluation of the Northern Sea Route: Taking the Voyage of Yong Sheng as an Example. *Transportation Research Record*, *2549*(1), 78–85. https://doi.org/10.3141/2549-09
- Fedorov, V & Zhuravel, V & Grinyaev, Sergey & Medvedev, Dmitriy. (2020). The Northern Sea Route: problems and prospects of development of transport route in the Arctic. IOP Conference Series: Earth and Environmental Science. 434. 012007. 10.1088/1755-1315/434/1/012007.
- Stauffer, P. (2008). Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circl. *U.S Geological Survey*. https://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf
- Atodiresei, D., Nedelcu, A., Toma, A., Avram, R., Apetroaei, M. R., Atodiresei, A., & Badiu, R. (2020). COMPARATIVE ANALYSIS OF TWO MARITIME ROUTES IN PART OF NORTH AMERICA IN THE CONTEXT OF GLOBAL WARMING, MELTING ICE CAPS AND OPENING OF NEW PASSAGES FOR NAVIGATION. *Scientific Bulletin "Mircea Cel Batran" Naval Academy, 23*(2), 1-7. https://www.proquest.com/scholarly-journals/comparative-analysis-two-maritime-routes-part/docview/2554402667/se-2
- Jacobsen, S. (2018). *Maersk sends first container ship through Arctic route*. https://www.reuters.com/article/us-arctic-shipping-maersk-idUSKCN1L91BR
- Humpert, M. (2022). *Cargo Volume on Northern Sea Route Reaches 35m Tons, Record Number of Transits*. High North News. https://www.highnorthnews.com/en/cargo-volume-northern-sea-route-reaches-35m-tons-record-number-transits
- Staalesen, A. (2018). *Chinese money for Northern Sea Route*. The Independent Barents Observer. Retrieved December 7, 2022, from https://thebarentsobserver.com/en/arctic/2018/06/chinese-money-northern-sea-route
- Kulinko, M. (2021). **Russia's Northern Sea Route Posts Record Year for Traffic Volume. in Maritime Executive.** https://maritime-executive.com/article/russia-s-northern-sea-route-posts-record-year-for-traffic-volume

- Huang, Jing & Korolev, Alexander. (2016). The Political Economy of Pacific Russia: Regional Developments in East Asia. 10.1007/978-3-319-40120-1.
- Trutnev, Y. (2022). Deputy PM Yury Trutnev: Year-round Northern Sea Route navigation possible in 2024, then then momentum needs to be kept up. *Interfax*.
- Chui, S. (2022). **'The Northern Sea Route Is an Efficient Transport Communication Channel to Deliver Goods Sold on Trade Platforms'. In HSE University.** https://www.hse.ru/en/news/research/603838639.html
- Liu, N., & Solski, J. (2022). The Polar Silk Road and the future governance of the Northern Sea Route. *Leiden Journal of International Law, 35*(4), 853-866. doi:10.1017/S0922156522000516
- Nina Lavrenteva, «Energy Policy in the Arctic: Yamal LNG in Russian International and domestic political agenda», *The Journal of Cross-Regional Dialogues/La Revue de dialogues inter-régionaux* [En ligne], 2020 Special Issue, 83-104 URL : https://popups.uliege.be/2593-9483/index.php?id=137.
- Wang, Dan & Li, Danyang & Gong, Yu & Wang, Rui & Wang, Jie & Huang, Xiao. (2020). Development situation and future demand for the ports along the Northern Sea Route. Research in Transportation Business & Management. 33. 100465. 10.1016/j.rtbm.2020.100465.
- Røseth, Tom (2014): "Russia's China Policy in the Arctic". Strategic Analysis, 38 (6):

849.

- CGTN (2019). **China-Russia energy cooperation deepens. Retrieved from:** https://news.cgtn.com/news/2019-09-17/China-Russia-energy-cooperation-deepens-K3WxetTyRa/index.html
- Hannon, Frederic, Giboin, Pierre, and Andrey Kalinin. "Navigating the NSR: The Arctic Ice-Breaking LNG Carrier." Paper presented at the OTC Arctic Technology Conference, Copenhagen, Denmark, March 2015. doi: https://doi.org/10.4043/25478-MS
- Woodward, John. (2008). Modeling underwater penetration of LNG carrier. Process Safety Progress - PROCESS SAF PROG. 27. 336-344. 10.1002/prs.10264.
- Zemlyanovskiy V. , *et al* 2021 *IOP Conf. Ser.: Mater. Sci. Eng.* **1201** 012072 **DOI** 10.1088/1757-899X/1201/1/012072
- Mitrova, T. (2019). Arctic Resource Development: Economics and Politics. *The Arctic in World Affairs: A North-Pacific Dialogue on Global Arctic Interactions*, 205-224.
- Ritz, R. A. (2018). A Strategic Perspective on Competition between Pipeline Gas and LNG. *The Energy Journal*, *40*(5), 195–220. https://www.jstor.org/stable/26756979
- Shibasaki, Ryuichi & Usami, Takashi & Furuichi, Masahiko & Teranishi, Hiroyuki & Kato, Hironori. (2018). How do the new shipping routes affect Asian liquefied natural gas markets

and economy? Case of the Northern Sea Route and Panama Canal expansion. Maritime Policy & Management. 1-24. 10.1080/03088839.2018.1445309.

- Dvornikova, V., 2017. ECONOMIC FEASIBILITY OF LIQUID NATURAL GAS TRANSPORTATION VIA THE NORTHERN SEA ROUTE: CASE OF YAMAL LNG PROJECT. Master Thesis in Management Program: St. Petersburg University
- Xing, L. (Ed.). (2021). China-EU Relations in a New Era of Global Transformation (1st ed.). Routledge. https://doi.org/10.4324/9781003096948
- Barnes, Justin & Exner-Pirot, Heather & Heininen, Lassi & Lackenbauer, P.. (2021). China's Arctic Engagement: Following the Polar Silk Road to Greenland and Russia.
- Kinossian, Nadir. (2016). Re-colonising the Arctic: The preparation of spatial planning policy in Murmansk Oblast', Russia. Environment and Planning C: Government and Policy. 35. 10.1177/0263774X16648331.
- Artashyan, Argam (2022). **RUSSIA WILL SKIP 5G AND DEVELOP ITS OWN 6G NETWORK. Retrieved from:** https://www.gizchina.com/2022/07/27/russia-will-skip-5g-and-develop-its-own-6g-network/
- Barnes, Justin & Exner-Pirot, Heather & Heininen, Lassi & Lackenbauer, P.. (2021). China's Arctic Engagement: Following the Polar Silk Road to Greenland and Russia.
- Gronholt-Pedersen, Jacob. (2019). **Greenland chooses Ericsson over Huawei for 5G rollout. Retrieved from:** https://www.reuters.com/article/us-greenland-telecoms-ericsson-huawei-te-idUKKBN1YN0XA
- Duxbury, Charlie. (2019). **How Huawei conquered the Faroe Islands. Retrieved from:** https://www.politico.eu/article/how-huawei-conquered-the-faroe-islands/
- A. Chaoub, M. Giordani, B. Lall, V. Bhatia, A. Kliks, L. Mendes, K. Rabie, H. Saarnisaari, A. Singhal, N. Zhang, S. Dixit, M. Zorzi,"6G for Bridging the Digital Divide: Wireless Connectivity to Remote Areas", IEEE Wireless Communications, 2021.
- Alam, S., Atapattu, S., Gonzalez, C. G., & Razzaque, J. (Eds.). (2015). *International environmental law and the global south* . Cambridge University Press.
- Bennett, M. M., & Iaquinto, B. L. (2021). *The geopolitics of China's Arctic tourism resources. Territory, Politics, Governance, 1–22.* doi:10.1080/21622671.2021.188775
- Middleton, Alexandra & Ronning, Bjorn. (2022). Geopolitics of Subsea Cables in the Arctic.
- Graham, William (2017). **Soyuz 2-1A launches with Kanopus-V-IK and over 70 satellites. Retrieved from:** https://www.nasaspaceflight.com/2017/07/soyuz-2-1a-launches-kanopus-v-ik-70-satellites/
- Lei, Zhao. (2019). **Polar observation satellite will debut soon. Retrieved from:** http://www.chinadaily.com.cn/a/201909/09/WS5d75a7d4a310cf3e3556a676.html
- Barbara (2023). R**ussia has created a cheap, foldable 5G satellite dish for the Arctic 11:27. Retrieved from:** https://socialbites.ca/latest-news/191940.html

- Munim, Ziaul & Saha, Rana & Schøyen, Halvor & Ng, Adolf & Notteboom, Theo. (2021). Autonomous ships for container shipping in the Arctic routes. Journal of Marine Science and Technology. 27. 10.1007/s00773-021-00836-8.
- Munim, Ziaul. (2019). Autonomous ships: a review, innovative applications and future maritime business models. Supply Chain Forum. 20. 266-279. 10.1080/16258312.2019.1631714.
- M. Höyhtyä, J. Huusko, M. Kiviranta, K. Solberg and J. Rokka, "Connectivity for autonomous ships: Architecture, use cases, and research challenges," *2017 International Conference on Information and Communication Technology Convergence (ICTC)* , Jeju, Korea (South), 2017, pp. 345-350, doi: 10.1109/ICTC.2017.8191000.)
- Corell, R. W., Kim, J. D., Kim, Y. H., Moe, A., Morrison, C. E., VanderZwaag, D. L., ... & Center, E. W. (2019). *The Arctic in world affairs: a North Pacific dialogue on global-Arctic interactions: the Arctic moves from periphery to center: 2019 North Pacific Arctic Conference proceedings* . Busan, Korea: Korea Maritime Institute.
- Motohisa ABE, Natsuhiko OTSUKA, Northern Sea Route (NSR) as a Major Transport Route: Opportunities and Challenges, Asian Transport Studies, 2018-2019, Volume 5, Issue 4, Pages 617-634, Released on J-STAGE September 01, 2019, Online ISSN 2185-5560, https://doi.org/10.11175/eastsats.5.617
- Parsons, Erin. Chinese Arctic Discourse, 2018 to Present. Peterborough: North American and Arctic Defence and Security Network, 2021.
- Kovachich, Leonid (2021). **Who Will Get a Slice of Russia's 5G Pie?. In Carnegie Endowment. Retrieved from:** https://carnegiemoscow.org/commentary/86092
- Petrov, Oleg & Smelror, Morten. (2014). Uniting the Arctic frontiers – International cooperation on circum-Arctic geological and geophysical maps. Polar Record. -1. 10.1017/S0032247414000667.
- Poseidon Expedition (2023). **ARCTIC WHALING: A HISTORIC SYNOPSIS. Retrieved from:** https://poseidonexpeditions.com/about/articles/arctic-whaling-a-historic-synopsis/
- National Ocean Economics Program (2023). **Arctic Subsistence Economy. Retrieved from:** https://www.oceaneconomics.org/arctic/subsistence/default.aspx
- Roberts, A. (2013). Peripheral accumulation in the world economy: A cross-national analysis of the informal economy. *International Journal of Comparative Sociology*, *54*(5–6), 420–444. https://doi.org/10.1177/0020715213519458
- Duhaime, G. and Caron, A. (2021). The economy of the circumpolar Arctic. In S. Glomsrød, G. Duhaime & I. Aslaksen (Eds.), The Economy of the North - ECONOR 2020 (pp. 17-23). Oslo–Kongsvinger: Statistics Norway.
- Rozanova-Smith, M. (2021). Stay or Leave? Arctic Youth Prospects and Sustainable Futures of the Russian Arctic Communities. *Sustainability*, *13*(21), 12058. MDPI AG. Retrieved from http://dx.doi.org/10.3390/su132112058

- Popov, I. (2022). Prospects of Development for Urban Areas in the Russian Arctic.
- Wallerstein, I. (1974). Dependence in an Interdependent World: The Limited Possibilities of Transformation within the Capitalist World Economy. *African Studies Review*, *17*(1), 1–26. https://doi.org/10.2307/523574
- **Staalesen, Atle (2019). Russian Arctic town explores new way to North Pole. Retrieved from:** https://thebarentsobserver.com/en/arctic-travel/2019/07/russian-arctic-town-explores-new-way-north-pole
- Blakkisrud, H. (2019). Governing the Arctic: The Russian State Commission for Arctic Development and the Forging of a New Domestic Arctic Policy Agenda. *Arctic Review on Law and Politics*, *10*, 190–216. https://www.jstor.org/stable/48710405
- Wilson, G. (2008). Nested Federalism in Arctic Quebec: A Comparative Perspective. *Canadian Journal of Political Science/Revue Canadienne De Science Politique, 41*(1), 71-92. doi:10.1017/S0008423908080116
- Modelski, G. (1988). Sea power in global politics, 1494-1993. University of Washington Press.
- Republic of China and Russian Federation (2019, June 6). Joint Statement of the People's Republic of China and the Russian Federation on Further Deepening the China-Russia Comprehensive Strategic Partnership of Coordination for a New Era. **https://www.bilaterals.org/?joint-statement-of-the-people-s&lang=en**
- Ministry of Foreign Affairs of the People's Republic of China. (2018, January 26). China's Arctic Policy. **https://www.fmprc.gov.cn/eng/wjdt_665385/wjzcs/201801/t20180126_679659.html**
- CSIS. (2019, August 22). Freedom of Navigation in the South China Sea: A Practical Guide. Center for Strategic and International Studies. **https://www.csis.org/analysis/freedom-navigation-south-china-sea-practical-guide**
- TASS. (2021, January 13). Cargo transportation along the Northern Sea Route in 2020 increased by 6.4% to 33.5 million tons. [Translated Title]. TASS. **https://tass.ru/ekonomika/13230633**
- Baysoy, E. (2021). Eastern Mediterranean and the Gateway Regions as a Threat to National and International Security. Journal of Social and Political Sciences, 4(2). **https://doi.org/10.31083/j.josps.2021.04.29**
- Zheng, X. (2019). Reassessing China's Growing Presence in the Arctic: A World-System Perspective. 1. Journal of China and International Relations, vol 7, number 1. doi: 10.1080/10670564.2019.1698708
- Chase-Dunn, C. (2005). Social Evolution and the Future of World Society. *Journal of World-Systems Research*, *11*(2), 171–192. https://doi.org/10.5195/jwsr.2005.385
- Wallerstein, Immanuel (1976). *The Modern World-System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. New York City: Academic Press

- Wallerstein, Immanuel. 1999. The End of the World as We Know it: Social Science for the Twenty-first Century. London: University of Minnesota Press.
- G, Bunker & Ciccantell, Paul. (2004). The Economic Ascent of China and the Potential for Restructuring the Capitalist World-Economy. Journal of World-Systems Research. X. 565-589. 10.5195/jwsr.2004.281.
- Mahan, A. T., & Hattendorf, J. B. (2015). *Mahan on naval strategy selections from the writings of Rear Admiral Alfred Thayer Mahan*. Naval Institute Press.
- Alan Cafruny (1995) Class, state, and world systems: The transformation of international maritime relations, Review of International Political Economy, 2:2, 285-314, DOI: 10.1080/09692299508434321
- Bergesen, Albert (2016). REVIEW SYMPOSIUM ON ANDRE GUNDER FRANK'S REORIENTING THE 19th CENTURY: GLOBAL ECONOMY IN THE CONTINUING ASIAN AGE: World-System Theory After Andre Gunder Frank. **Journal of World-Systems Research, Volume 21, Number 1, Pages 147-161**
- Wallerstein, I. (2003) "U.S. weakness and the struggle for hegemony," *Monthly Review*, 55(3), p. 23. Available at: https://doi.org/10.14452/mr-055-03-2003-07_3.
- Grinin, L. (2014). Origins of Globalization in the Framework of the Afroeurasian World-System History. *Journal of Globalization Studies*, *5*(1).https://www.socionauki.ru/journal/files/jogs/2014_1/032-064.pdf
- Chirot, D. and Hall, T., 1982. World-System Theory. *Annual Review of Sociology*, [online] 8, pp.81-106. Available at: https://www.jstor.org/stable/2945989 [Accessed 19 May 2022].
- Dunaway, W. A. (2003). Ethnic Conflict in the Modern World-System: The Dialectics of Counter-Hegemonic Resistance in an Age of Transition. *Journal of World-Systems Research*, *9* (1), 3–34. https://doi.org/10.5195/jwsr.2003.258
- Robinson, W. I. (2011). Giovanni Arrighi: Systemic cycles of accumulation, hegemonic transitions, and the rise of China. *New Political Economy*, *16*(2), 267–280. https://doi.org/10.1080/13563467.2010.512657
- Central Intelligence Agency. (2007, June 13). The World Factbook - Country comparisons - GDP - per capita (PPP). Retrieved from **https://web.archive.org/web/20070613004816/https://www.cia.gov/library/publications/the-world-factbook/fields/2012.html**
- Arctic Council. (2020). Exploring the Arctic Ocean: The Agreement That Protects an Unknown Ecosystem. Retrieved from https://arctic-council.org/news/exploring-the-arctic-ocean-the-agreement-that-protects-an-unknown-ecosystem/
- European Commission. (2021, June 25). Arctic: Agreement to prevent unregulated fishing enters into force. Retrieved from https://oceans-and-fisheries.ec.europa.eu/news/arctic-agreement-prevent-unregulated-fishing-enters-force-2021-06-25_en

- Japan Times (2023). President Biden is set to meet with 18 Pacific leaders during his visit to Papua New Guinea, as the United States and China compete for influence in the region. Retrieved from: https://www.japantimes.co.jp/news/2023/04/29/asia-pacific/politics-diplomacy-asia-pacific/papua-new-guinea-biden-visit/
- Poseidon Expeditions (2023). ARCTIC WHALING: A HISTORIC SYNOPSIS. Retrieved from: https://poseidonexpeditions.com/about/articles/arctic-whaling-a-historic-synopsis/
- NAD Administration (2016). Strategy of State Ethnic Policy in Nenets Autonomous Okrug till 2025 approved. Available at http://adm-nao.ru/press/government/9220/,
- Chauhan, T. (2020). Why Are Warm-Water Ports Important to Russian Security?. EUROPEAN, MIDDLE EASTERN, & AFRICAN AFFAIRS SPRING 2020
- SHAMEER M. (2017). Power Maximisation And State Security. *World Affairs: The Journal of International Issues*, *21*(2), 10–21. https://www.jstor.org/stable/48531459
- Bloor, Kevin (2022). Understanding Global Politics (Paperback). E-International Relations. ISBN: 9781910814611
- Thompson, D. (2012). The Economic History of the Last 2,000 Years in 1 Little Graph. The Atlantic. Retrieved from https://www.theatlantic.com/business/archive/2012/06/the-economic-history-of-the-last-2-000-years-in-1-little-graph/258676/
- Little, R. (2007). Kenneth N. Waltz's Theory of International Politics. In The Balance of Power in International Relations: Metaphors, Myths and Models (pp. 167-212). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511816635.006