IBN HALDUN UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF POLITICAL SCIENCE AND INTERNATIONAL RELATIONS

MASTER THESIS

THE US-RUSSIA INTERNATIONAL SPACE STATION (ISS) COOPERATION

MERVE AYŞE KIZILASLAN

THESIS SUPERVISOR
PROF. ERIK IVAR RINGMAR

ISTANBUL, 2023

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MASTER THESIS

THE US-RUSSIA INTERNATIONAL SPACE STATION (ISS) COOPERATION

by
MERVE AYŞE KIZILASLAN

A thesis submitted to the School of Graduate Studies in partial fulfillment of the requirements for the degree of Master of Political Science and International Relations

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PROF. ERIK IVAR RINGMAR

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APPROVAL PAGE

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts Political Science and International Relations.

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This is to confirm that this thesis complies with all the standards set by the School of Graduate Studies of Ibn Haldun University.

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ÖZ

AMERİKA-RUSYA ULUSLARARASI UZAY İSTASYONU (UUİ) İŞ BİRLİĞİ

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Uluslararası Uzay İstasyonu (UUİ), ABD-Rusya uzay iş birliğini geliştirmede önemli bir rol oynamaktadır. Bu iş birliği, süper güçler arasındaki yoğun rekabet ile karakterize edilen uzay yarışı döneminden bir ayrılığı işaret etmekteydi. Uzayda savunma/saldırıdan ziyade emniyet odaklı güvenlik iş birliğine doğru bu geçiş, aynı zamanda saldırgan realist yaklaşımlara karşı bir meydan okuma anlamına da geliyordu. Bu bağlamda UUİ iş birliği, ABD ile Rusya ilişkilerinde böylesi bir değişimin sembolü olarak öne çıkmaktadır. Bu çalışma, nedensel faktörleri inceleyerek bu iş birliğinin arkasındaki sebepleri keşfetmeyi amaçlamaktadır. Araştırma, UUİ'nin deklare edilmesi ve Rusya'nın bu uzay programına dahil edilmesiyle ilgili gelişmeleri kapsayan, 1984'ten 1993'e kadar belirli bir tarihsel döneme odaklanmaktadır. Çalışma, pratik bir çerçevede iş birliğini analiz etmek için saldırgan realist anlayışa alternatif olan karmaşık karşılıklı bağımlılık teorisini, kurumsalcı mantıkla birleştirmektedir (Keohane&Nye, 2012; Parsons,2009). Kurumsalcı mantık, kurumsal etkileşimleri ve geçmiş kararlardan kaynaklanan beklenmedik kurumsal değişiklikleri ele almaktadır (Parsons, 2009). Bu nedenle pratik bir harita olarak çalışma, UUİ'nun gelişimi sırasında meydana gelen kurumsal değişiklikleri açıklamak için karmaşık karşılıklı bağımlılığın içerisinde yer alan uluslararası organizasyon modelini de kullanmaktadır. Yöntemsel olarak, ABD-Rusya UUİ iş birliğinin nedensel dinamiklerini analiz etmek için nitel araştırma ve süreç takibine yönelmiştir. Çalışma, iki hipotez önermektedir. İlk hipotez, çalışmanın teorik çerçevesinin ilk süreci için gerekli koşulları sağlayarak, ABD ve Rusya UUİ iş

birliğinin karşılıklı bağımlılığın bir sonucu olduğunu göstermektedir. İkinci hipotez, ikinci sürecin gerekli nedenselliğini sağlayarak, ABD ile Rusya arasındaki iş birliğinin UUİ dizaynı ve regülasyonunda meydana gelen değişiklikler sonucunda gerçekleştiğini ortaya koymuştur. Veri toplamak için 1984'ten 1993'e kadar olan haber, açıklama, yasal belgeler ve raporlar gibi birincil kaynaklar ile akademik çalışmalar ve röportajlar gibi ikincil kaynaklar kullanılmıştır. Çalışmada hipotezleri test etmek için çember testleri uygulanmaktadır. Bulgular, iki ülkenin karşılıklı bağımlılığı sebebiyle Rusya'nın 1993'te regülasyon ve tasarım değişiklikliğiyle UUİ ortaklığına davet edildiğini ve iş birliğinin böylece oluştuğunu göstermektedir. Çember testleri, çalışmada sunulan argümanı doğrulamaktadır.

Anahtar Kelimeler*:* ABD, Işbirliği, Karşılıklı Bağımlılık, Kurumsalcı Mantık, Uluslararası Uzay İstasyonu (UUİ), Uzay Politikaları, Rusya.

ABSTRACT

THE US-RUSSIA INTERNATIONAL SPACE STATION (ISS) COOPERATION

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The International Space Station (ISS) has played a significant role in fostering US-Russia cooperation in outer space. This cooperation marks a departure from the space race era, characterized by competition between superpowers. This shift towards safety-oriented security cooperation rather than defense/offensive approach also meant a challenge against offensive realist assumptions. The ISS occurs as a symbol of a change towards cooperation in the evolving the US-Russia relations in space. This study aims to explore the reasons behind this cooperation. The research focuses on a specific historical period, from 1984 to 1993, encompassing developments related to the ISS' declaration and Russian participation in the program. The study combines complex interdependence theory with institutionalist logic to analyze the cooperation within a practical framework (Keohane&Nye, 2012; Parsons ,2009). The institutionalist logic emphasizes institutional interactions and unexpected institutional changes resulting from past decisions (Parsons, 2009). The study also utilizes Keohane&Nye's international organization model to understand such changes during the ISS's development. The research employs qualitative methodology and process tracing to analyze the US-Russian cooperation on the ISS. The study proposes two hypotheses. The first hypothesis reveals that by providing the necessary conditions for the first process of the theoretical framework, the US-Russia ISS cooperation is a result of interdependence. The second hypothesis revealed that, by providing the necessary causality of the second process, the cooperation was realized as a result of the changes in the ISS design and regulation. Primary sources such as news reports, statements,

and legal documents, and secondary sources including academic works and interviews, are used to gather data. The study also employs hoop tests to assess the validity of the hypotheses. The findings show that due to the interdependence of the two countries, Russia was included in the ISS partnership in 1993 through regulation and design changes, forming this cooperation.

Keywords*:* Cooperation, Interdependence, International Space Station (ISS), Institionalist Logic, Outer Space Politics, Russia, The US.

DEDICATION

To my father / best friend and victims of the earthquake

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Writing about outer space politics was not an easy task. That's why first and foremost, I would like to express my utmost gratitude to my dear advisor, Prof. Dr Erik Ringmar, for supporting me in writing about this topic. Thanks to his humble and non-judgmental approach (which all students admire by the way), I easily shared my ideas with him and was able to start and complete this study. I'm sincerely grateful. Likewise, I would like to thank Dear Prof. Dr. Talha Köse, whom I greatly being inspired and respect. With his encouragement, I embraced and owned the subject more. Thank you for everything. Assoc. Prof. Dr. Ali Aslan was the first professor to approve my thesis framework during the presentation I made in order to start the writing process; thank you very much. I'm sincerely grateful to Assoc. Prof. Dr. Bora Bayraktar. I was able to finish my thesis thanks to the pressure and all kinds of support he put on me to complete it amid our busy schedule. I'm also thankful to him for sharing both academic and professional experiences with me and guiding me on the dark sides of office politics :). Jason Kaplan from the Clinton Library became an essential asset to this thesis by providing me with every detail on what and where to find regarding the related data. He made my life easier, for sure; thank you. My dear friend Abdullahi was there to alleviate my anxiety attacks with his own academic experiences. My other friends and colleagues, who I'd love to write here name by name, but the space here would not be enough; you guys were always by my side. Thank you.

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And that importance is my father... Since my childhood, we used to watch the sky together, imagining exploring outer space and speculating what would happen future. Now with this thesis, I made a small leap to slightly realize what we used to discuss. Dear father, know that everything I do in this life is to make you proud. I miss you more and more every day. I'm eternally grateful for being your daughter here and beyond outer space.

TABLE OF CONTENTS

ÖZ ..... **iv**

ABSTRACT ..... **vi**

DEDICATION ..... **viii**

ACKNOWLEDGMENTS ..... **ix**

TABLE OF CONTENTS ..... **x**

LIST OF TABLES ..... **xiii**

LIST OF FIGURES ..... **xiv**

LIST OF SYMBOLS AND ABBREVIATIONS ..... **xv**

CHAPTER I INTRODUCTION **1**

1.1. Background of the US-Russia International Space Station (ISS) Cooperation 1

1.2. Research Framework 2

1.3. Hypothesis and Methodology 3

1.4. Results 4

1.5. The Roadmap 4

CHAPTER II LITERATURE REVIEW **7**

2.1. Outer Space Politics Literature 7

2.1.1. The OST-Moon Agreement and Challenges Over Sovereignty 10

2.1.2. Regime Theory Argument 13

2.1.3. Cosmopolitan Sovereignty Argument 15

2.1.4. Evaluating the ISS: The Regime Theory and Cosmopolitan Sovereignty 17

2.1.5. Analytical Conclusion 19

2.2. US-Russia Outer Space Relations Literature 21

2.2.1. Defining Outer Space Security 22

2.2.2. Competition for Security and Its Puzzle in US-Russia Outer Space Politics 29
2.2.3. Cooperation for Security in the Outer Space: The US-Russia 37
2.2.4. The US-Russia Outer Space Cooperation: The International Space Station (ISS) 47
2.2.5. Analytical Conclusion 53
CHAPTER III THEORETICAL FRAMEWORK 58
3.1. Explaining the ISS Cooperation 58
3.1.1. Four Typologies 59
3.1.2. Selection of a Typology 67
3.2. Complex Interdependence and Institutional Explanation 74
3.2.1. What is Complex Interdependence? 74
3.2.2. Complex Interdependence and International Organization Model 82
3.3. Methodology and Hypothesis 85
CHAPTER IV THE US-RUSSIA COOPERATION ON THE INTERNATIONAL SPACE STATION (ISS) 90
4.1. Declaration of the Space Station 90
4.1.1. The US-USSR/Russia Outer Space Spectrum Ahead of Space Station Freedom Genesis 96
4.1.2. The Troubles on Building the Space Station Freedom 103
4.2. Complementary Steps Towards the Cooperation 110
4.2.1. Contemplating the Bilateral Civil Outer Space Partnership 114
4.2.2. Searching for "Faster, Better, Cheaper" 118
4.3. The ISS Cooperation 120
4.3.1. The Space Station Redesign 120
4.3.2. Russian Involvement to the Program 123
4.3.3. The US-Russia Official Agreement for the ISS Cooperation 125
4.4. Testing the Hypothesis 128

4.4.1. First Sub-Hypothesis Test 128
4.4.2. Second Sub-Hypothesis Test 133
4.4.3. Outcomes 140
CHAPTER V CONCLUSION 142
5.1. Research Findings 142
5.2. Contributions 143
REFERENCES 145
CURRICULUM VITAE 159

LIST OF TABLES

Table 2.1. Security Scope Matrix..... 35

LIST OF FIGURES

Figure 2.1. Outer Space Security as Concept 24
Figure 2.2. Three-Dimensional Basis for Outer Space Security 28
Figure 3.1. International Organization Model 83
Figure 3.2. Roadmap for Hypothesis Test 88
Figure 4.1. 1957-1994 Annual Number of Launched Objects 94
Figure 4.2. The US-USSR Number of Launched Objects 97
Figure 4.3. Space Launches by Country 99
Figure 4.4. NASA's Share of the US Budget 102
Figure 4.5. Space Station Freedom Model 106
Figure 4.6. NASA Budget 1950-2010 109
Figure 4.7. The US-USSR GDP per Capita 1983-1995 112
Figure 4.8. Russia Inflation Rate 1991 115
Figure 4.9. Space Station Freedom Model Alternatives 122
Figure 4.10. The ISS Model 138

LIST OF SYMBOLS AND ABBREVIATIONS

ACRV	Assured Crew Return Vehicle
ASE	Association of Space Explorers
ASEI	America's Space Exploration Initiative
ASTP	Apollo-Soyuz Test Project
CIA	Central Intelligence Agency
COPOUS	Committee on the Peaceful Uses of Outer Space
CSA	Canadian Space Agency
ESA	The European Space Agency
G7	The Group of Seven
GG	The United Nations Group of Governmental Experts
ICSU	International Council of Scientific Unions
IGA	The Intergovernmental Agreement
IGY	International Geophysical Year
INF	Intermediate-Range Nuclear Forces Treaty
IR	International Relations
ISA	The International Seabed Authority
ISS	The International Space Station
LEO	Low Earth Orbit
MOU	Memorandum of Understanding
NASA	The National Aeronautics and Space Administration
NASDA	National Space Develeopment Agency of Japan
NATO	North Atlantic Treaty Organization
NGO	Non-governmental Organization
NTI	Nuclear Threat Initiative
ROS	The Russian Segment
Roscosmos	The State Space Corporation
SDI	Strategic Defense Initiative
SEI	Space Exploration Initiative
SSI	Space Security Index
START	Strategic Arms Reduction Talks
The OST	Outer Space Treaty

The UN	The United Nations
The US	The United States of America
The USSR	Union of Soviet Socialist Republics
UNOOSA	United Nations Office for Outer Space Affairs
USOS	United States Orbital Segment

CHAPTER I

INTRODUCTION

1.1. Background of the US-Russia International Space Station (ISS) Cooperation

The International Space Station (ISS) plays a crucial role in fostering the development of outer space cooperation between the United States and Russia. Initially known as the Space Station Freedom in 1980s, it served as a tool for the US to demonstrate its superiority over the USSR during the Cold War. However, the domestic political challenges faced by both countries, including budgetary conflicts between NASA and Congress regarding the space station in the US, as well as waning interest in the space program amidst the political and economic upheavals following the dissolution of the USSR in 1991, prompted a reevaluation of priorities. The budgetary constraints due to Congress and constant conflicts between the US space program and state officials have put the ISS in limbo and proved that the US could not build the ISS with the current member countries (Japan, Canada and Europe) due to their limited technological and financial assets. In light of these difficulties, the notion of pursuing shared benefits through collaborative efforts gained precedence over the space competition between the US and Russia. By assessing their respective unilateral resources and capabilities, the two nations elevated space cooperation as the central agenda, recognizing the importance of interdependence in shaping their relations. In this regard, in 1993, under the Clinton Administration, the station underwent a transformation and was redesigned with the aim of establishing Russia as a key partner in its construction, utilization, and advancement due to its strong capabilities and experiences in outer space. This reconfiguration led to the formation of the International Space Station (ISS), a long-term orbital laboratory.

The creation of the ISS marked a significant departure from thetraditional security paradigm prevalent during the space race era between 1955-1975s. The space race, which emerged as a reflection of Cold War tensions, gradually evolved into a cooperative endeavor, reshaping the notion of security and paving the way for bilateral

collaboration in outer space politics between these two major powers within their rational decision-making. Hence, despite persisting hostilities on various issues, bilateral cooperation in outer space continued to progress amid the backdrop of the Cold War. Ultimately, after extensive negotiations, the Russian space program, Roscosmos, was invited to join the ISS program in 1993, leading to the redesign of the space station to accommodate Russian participation.

Consequently, realist assumptions prove inadequate in explaining such dynamics, as there has been a shift from a “hard/military” understanding of outer space security to a cooperative framework centered on safety-oriented security cooperation. This suggests that the nature of outer space activities between the United States and Russia is far more intricate than a mere demonstration or competition for power. The US-Russia cooperation on the ISS serves as a significant symbol of the evolving relations between these rival nations in the realm of outer space (Sheehan, 2007). Thus, the decision of the two countries to collaborate on the ISS poses a compelling puzzle, prompting this research to focus on uncovering the root causes behind their cooperative venture, which was briefly mentioned above. In this framework, the central research question addressed here is “Why the US and Russia decided to cooperate on the ISS?”.

1.2. Research Framework

With this study, I aim to elucidate the reasons behind the cooperation on the International Space Station (ISS) by employing a causal interpretation framework. It investigates the factors related to the states' limitations, capabilities, and relative strengths in order to explore the motivations driving their collaboration. Initially, a specific historical period is established to capture the causal process under investigation, spanning from the initial announcement of the ISS's establishment by then-US President Ronald Reagan in 1984 to Russia's inclusion in the space program in 1993. This period encompasses the primary causal factors in the research. Diverging from previous scholarly works, I introduce the complex interdependence theory as a departure from traditional realist theories. By incorporating Parsons's institutionalist logic and building on the compatible aspects of these two theories, the study examines US-Russia ISS cooperation within the practical framework of complex

interdependence through institutionalist logic. The institutionalist logic focuses on institutional interactions and the unexpected changes that occur as a result of past decisions. While this logic does not provide a practical framework for the execution of the study, complex interdependence offers concrete conditions for engaging with government institutions, transnational interactions, and transgovernmental interactions. It provides guidance on how to analyze the relevant data under specific conditions. Additionally, I utilize the international organization model, which is also encompassed within the complex interdependence framework, as a practical roadmap for understanding the changes that took place from the inception of the ISS to its final form, employing the unexpected institutional changes approach of institutionalist logic. This model provides a solid framework for explaining why institutional changes may arise within a regime like the ISS, elucidating the role of interdependent capabilities in such changes.

1.3. Hypothesis and Methodology

To analyze the data on the ISS cooperation between the US and Russia, a qualitative methodology employing process tracing was deemed suitable. The focus of the study was on identifying root causes and examining causal processes within a specific historical period. Consequently, the research delved into the process data encompassing the trajectory from the initial phase of the space station in 1984 to the stage of ISS redesignation and Russian involvement in 1993. This temporal framework was chosen to uncover and elucidate the conditions and causal mechanisms that led to the collaboration on the ISS. To provide a practical framework, two distinct processes (Process 1 and Process 2) were emphasized within the scope of the research framework and the complex interdependence theory through intuitionalist logic. Based on this approach, the main hypothesis of this research is as follows: The US and Russia decided to cooperate on the ISS due to interdependencies that led to the redesign and re-regulation of the organization to realize this cooperation. To enhance clarity and provide a comprehensive explanation, the main hypothesis was divided into two sub-hypotheses, aligning with the two distinct processes previously highlighted. This division aimed to articulate and expound upon the hypotheses with greater precision and specificity, thereby facilitating a more thorough understanding of the research inquiry. The first hypothesis posited that the US and Russia decided to cooperate on

the ISS as a result of interdependence. The second hypothesis proposed that, due to the changes that took place on the ISS, the US and Russia were able to cooperate in the organization. To test the validity of these hypotheses, archival primary sources, such as news reports, statements, and legal documents spanning the period from 1984 to 1993, were examined. Secondary sources, including academic works and second-hand interviews, were also consulted to gain a comprehensive understanding of the causal process. Furthermore, to substantiate the acceptability of the hypotheses, two hoop tests were introduced. These tests entailed a series of questions designed to assess the plausibility and validity of the hypotheses.

1.4. Results

The first highlighted process emphasizes that a strategic orientation that went beyond traditional military and security concerns, aligning with the preconditions of complex interdependence theory, fostered cooperation between the United States and Russia on the ISS. The multitude of interaction channels and interconnections between the two states led to their engagement in complex interdependent relations, ultimately culminating in the establishment of ISS cooperation. This outcome was facilitated by the presence of financial dependencies and the utilization of technologically dependent capabilities (Keohane & Nye, 2012). Notably, prior to the program's inception, Russian involvement was not initially contemplated. However, due to the complex dependencies, Russia's inclusion in the ISS partnership became a reality in 1993, following regulatory adjustments and redesign, verifying the second hypothesis through Process 2. The successful outcomes of the hoop tests conducted for the two hypotheses further substantiate the argument put forth by this study.

1.5. The Roadmap

In Chapter 2, my objective is to provide a comprehensive definition, critical review, and analysis of existing literature on outer space studies pertaining to Russia-US relations in order to gain insights into the creation and participation of Russia in the International Space Station (ISS). Through an examination of scholarly works in this field, I aim to investigate how bilateral relations in space politics have been conceptualized and to determine the position of the ISS within this framework. By

uncovering potential clues in the scholarly literature, I hope to shed light on the cooperative nature of US-Russia relations in outer space, particularly within the context of the ISS.

In Chapter 3, I provide an overview of Parsons' (2007) explanatory logics, namely the "logic of interpretation" and the "logic of position", and their potential applicability in explaining the decision-making process behind US-Russia cooperation on the ISS. After presenting a summary of these logics, I proceed to evaluate their relevance to the research question at hand. Through a critical assessment, I determine that the institutionalist typology offers a suitable overarching framework for this study. In the subsequent section, I introduce Keohane & Nye's (2012) complex interdependence theory, which provides a practical and process-oriented map for examining the contextual factors that contributed to the cooperation between the two states on the ISS. By employing qualitative methodology and drawing on Mahoney's (2015) historical process tracing, I employ hoop tests to assess and validate the proposed hypotheses.

In Chapter 4, I conduct a meticulous investigation into the timeline that shaped the ISS process, beginning from the initial declaration of the space station to the subsequent invitation extended by the United States to Russia for participation in the ISS program. This research delves into the multifaceted factors—technical, financial, and political—of the relevant period, aiming to uncover the underlying reasons that facilitated the decision-making process for both the US and Russia to engage in this cooperation. Through meticulous analysis, I examine the various variables and data presented in this chapter, scrutinizing their correlation with the theoretical framework. To validate the sub-hypotheses, I employ two hoop tests that involve a series of inquiries addressing each process. These tests aim to verify whether the hypotheses are substantiated.

Remarkably, both sub-hypotheses, H_1 and H_2, successfully withstand the rigorous hoop tests, affirming that the US and Russia entered into the ISS cooperation due to interdependencies that prompted the restructuring and regulation of the organization to facilitate this collaboration. Consequently, the primary objective was to implement crucial adjustments that would establish a functional and efficient regime for the

International Space Station (ISS), ultimately culminating in the successful cooperation between the United States and Russia on the ISS.

In the Conclusion Chapter, I conducted a comprehensive analysis of the research findings and provided a concise summary. Additionally, I highlighted the contributions of this study to the existing literature on the International Space Station (ISS) and US-Russian outer space political relations. This research distinguishes itself from previous studies by offering a unique perspective on the underlying reasons for bilateral ISS cooperation. By merging three distinct approaches, this study provides a fresh and comprehensive explanation for the root causes of cooperation on the ISS. As a result, this research significantly enhances our understanding of the ISS and US-Russia outer space relations, making a valuable contribution to the field.

CHAPTER II

LITERATURE REVIEW

In this chapter, I intend to define, review, and analyze the studies regarding Russia-US outer space relations to understand how the ISS was created and how Russia participated in the space station in the first place. I aim to examine the studies in this field to explore how bilateral relations in space politics have been defined so far and reveal where the ISS is located in this framework. I assume some hints related to the scholarly studies may shed light on the cooperation mode of US-Russia outer space relations on the ISS. In describing the overall US-Russia outer space relations, I divided the subject into two facets. But before depicting them, I believe it is crucial to realize how outer space politics and outer space security are conceptually discussed in the literature. Then, I will be able to follow how relations are defined in this manner and ISS' place in these explanations to shape my argument.

2.1. Outer Space Politics Literature

Visualization and perception of outer space politics come to the fore as a discussion that may be expressed as what John Locke refers to as “tabula rasa”, or “blank page”, where humankind was complimentary to write whatever it chose (Duschinsky, 2012). Yet this blank page cannot be distinguished from pre-existing approaches and values that determine behaviors and practices. As outer space became an ontological reality directly experienced by mankind after the emergence of the first satellite, the major spacefaring powers, the USSR and the US, had particular policies and value systems formed by the “lessons” of history related to the destructive events of the Second World War and the aggravated peace of the Cold War. The clashing approaches are not excluded from the definition and purpose of outer space and space exploration since the extra-terrestrial realm and its exploitation ought to have very real implications for economic, political, technological, and environmental progress on the

ground. Moreover, as space is operated by more international actors, space activities vis-à-vis political substances have multiplied (Bormann & Sheehan, 2009). Hence, outer space emerges as an extent to which various prospects and a multitude of possible interpretations could be envisioned under the international system (Sheehan, 2007).

At a glance, I discovered that many academic studies first attempted to project relations among sovereignty, territory, and state for a contextualization and regulation mechanism while discussing outer space politics and the legal status of space (Harvard Law Review, 1961; Gorove, 1969; Goldman, 1984; Weaver, 1992; Stuart, 2009; Kopal, 2011; Neger & Walter, 2011; Kerrest, Ferreira-Snyman, 2021). But these discussions are seemingly not fixed enough, as an international consensus on the definition of "outer space" has not been reached till the present (Ferreira-Synyman, 2021; Stuart, 2009). Generally speaking, “outer space” refers to “any area beyond the Earth's atmosphere”. The lack of consensus on the conceptualization of outer space poses problems since unilateral actions and delimitations result in fragmentation and legal uncertainty. With new technology and the commercialization of outer space, the delimitations continue to be disputed both theoretically and practically. In this regard, the delimitations of outer space as the province of all humankind prompt the question of where outer space begins. Answering this question would require examining the discussions about the three highlighted concepts and related legal regimes (Ferreira-Snyman, 2021).

Among the studies, the article titled “National Sovereignty of Outer Space”, published by the Harvard Law Review, is perhaps one of the oldest that inquires about the problematic layers indicated above. It was written years before the Outer Space Treaty (OST), which is essentially based on “the Declaration of Legal Principles of Governing the Activities of States in the Exploration and Use of Outer Space”, including “the Moon and Other Celestial Bodies”, that was negotiated and adopted under the auspices of the United Nations in 1967 (UNOOSA, n.d.). According to the article, the sovereignty issue in outer space is directly related to Soviet-American activities. Kerrest also emphasizes that the need to preserve equilibrium between the two superpowers was the real basis for seeking rules during the Cold War (Kerrest, 2011). Although elemental reciprocity concepts would seem to drive each nation to recognize the equally vast rights of the other over superjacent space, neither nation was willing

to admit or recognize any other nation's right concerning sovereignty while launching the satellites. As a matter of fact, the Soviets have simultaneously proclaimed that Soviet airspace extends to infinity. The US State Department, on the other hand, implied in 1958 that American sovereignty may expand for more than a thousand miles, which is far exceeding many current satellite orbits (The Harvard Law Review Association, 1961). At that time, no official or legal initiative for clarification had been offered, as accountable authorities believed that any present attempt to codify rules of law for space sovereignty would be too early. Therefore, states have equivocated on the legal status of space activities, including launching satellites. Yet this case appears to indicate a refraining policy regarding postponing or avoiding consensus for the rules formulations and regulations for outer space sovereignty, similar to the Antarctica case and territorial maritime sovereignty dispute (Harvard Law Review, 1961; Kerrest, 2011).

While considering the sea and outer space, the main similarity between them is that both areas are outside any state's territorial jurisdiction. In this regard, Kerrest points out that in some domains, states may organize an international regime and an international body responsible for regulating the activities conducted there by states to contain conflicts, manage activities, control liabilities, and prevent an anarchical system. An example from the maritime case would be the International Seabed Authority (ISA), which is in charge of controlling the regulation and mining activities under the “common heritage of mankind” under the Montego Bay Law of the Sea Convention (Kerrest, 2011; pp. 249). As my research focus is not on the similarities between sea and outer space regulation issues, I shall not proceed to explain or compare the two areas. However, one thing I question here is, “What if the US-Russia cooperation under the ISS is a result of a rational choice for seeking a regulation similar to the ISA?”. Considering the cost and learned “lessons” from the space race before the cooperation structure between the two countries in the post-cold war period, this question posits an aspect that may support my argument on the causation of US-Russia outer space cooperation on the ISS in further chapters.

2.1.1. The OST-Moon Agreement and Challenges Over Sovereignty

Above, I briefly examined the sovereignty, territory, and state relations arguments to see the scholarly discussions on the interpretation of the overall outer space politics before the Outer Space Treaty (OST) and Moon Agreement. I found that there is neither a clear conception of adequate territorial jurisdiction and sovereignty nor any consensus under a legal and practical framework. Hence, I aim to continue with the articles concerning sovereignty on the OST and the Moon Agreement since they are the first and still in force as international legally binding space documents regarding the spectrum of space activities.

Signed simultaneously in London, Moscow, and Washington in 1967, the OST became the major legally binding component of the current international space law. The treaty has 100 state parties and was signed by 26 other states (Kopal, 2011). The treaty prohibits the stationing of weapons of mass destruction (WMD) in outer space, bans military activities on celestial bodies, and presents legally compulsory rules governing and managing the peaceful exploration and use of space for all (UNOOSA, n.d.). Additionally, the UN negotiated the Moon Agreement, which was proposed to member states for ratification in December 1979 to support the OST (Energy History, 1979). Article I of the Outer Space Treaty is as follows:

> The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interest of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind (UNOOSA, n.d.)

Article 11 of the Moon Agreement supplements the OST by adding that "the moon and its natural resources are the common heritage of mankind" by reading that;

> 1.The moon and its natural resources are the common heritage of mankind, which finds its expression in the provisions of this agreement, in particular in paragraph 5 of this article.
> 2.The moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means (UNOOSA, n.d.).

Hobe (2009) states that the common mean of the two clauses is the notion of imposing some limitation on states' freedoms for the sake of all humankind. While the formerly discussed treaty implied such an aspect in the common province clause, the latter emphasized it more specifically in the "common heritage" provision. In this context,

both agreements underline that outer space cannot be monopolized by any state and should be utilized for the benefit and interest of all mankind. However, the sense that outer space must be explored and operated for the advantage and interest of all countries is not precise. As Ferreira-Snyman (2021) notes, “Although states may have some common interests, the interests of one country may be disadvantageous for other states (pp. 3-5)”. Moreover, peaceful exploration activities or benefit-sharing are not clearly or in detail interpreted to prevent activities that may be perceived as subjectively harmful. Furthermore, Gorove (1969) points out the fundamental questions related to Article II of the Outer Space Treaty, which specifically deliberates the concept of sovereignty as: “Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means (Outer Space Treaty, n.d).”

Gorove (1969) questions the subject matter of appropriation, the meaning of national appropriation, the concept of appropriation, and the practice of sovereignty under the treaty, claiming a lack of clarity and currently available complex problems similar to other scholars' arguments discussed above. Overall, he criticizes the “silence” of the treaty regarding the definition of outer space and its boundaries as distinct from airspace, underscoring that the sole provision encompassed within the treaty delineates the inclusion of the moon and additional celestial entities within the realm of outer space. Hence, this prompts the unanswered question of whether the prohibition would extend to outer space entirely or only part of it; would it relate to the moon or a celestial body as a whole or solely to a part of it? The unclarity of the prohibition of a state's collection of resources such as minerals, precious metal samples, or energy also causes another problematic aspect, as the treaty does not provide an answer such as the type of resources or their location for binding purposes.

As for “national appropriation”, the treaty seems to overlook the prohibition over individual appropriation, a private actor's acquisition, or an international organization other than states and the United Nations. Groove (1969) also cites that any part of outer space, including the moon and other celestial bodies, can be lawfully appropriated by an individual acting on his or her behalf, a private association, or an international organization, considering the current state of the treaty. It's a difficult matter whether an ad hoc international organization could be formed only with the aim of

appropriating outer space. The answer may have to be contingent on the parties' good faith. Nevertheless, as the Treaty declares the freedom of scientific investigation in outer space, there appears to be some support for the argument that appropriation for science or scientific investigation in outer space, including the moon and other celestial bodies, is not prohibited by the Treaty. Regarding the practice of some degree of superior authority, jurisdiction, use, or occupation in outer space, temporary use of a resource without modification or deterioration may be permitted only if it amounts to national appropriation, whereas resource consumption or annihilation may not. The treaty highlights that states shall be held internationally responsible for national actions in outer space, including the moon and other celestial bodies, whether conducted by governmental or non-governmental organizations. Non-governmental organizations' actions, particularly, necessitate state authorization and ongoing control. Article XII, which makes access by representatives of a foreign state conditional on reciprocity, demonstrates that some measure of at least temporary exclusive jurisdiction may be exercised over a particular area on the moon or other celestial bodies, such as a space station like the ISS and its adjacent grounds (UNOOSA, 1996). In fact, the United Nations Declaration on Space, International Cooperation, and Space Benefits (1996) supports this configuration by saying that;

> All States, particularly those with relevant space capabilities and with programs for the exploration and use of outer space, should contribute to promoting and fostering international cooperation on an equitable and mutually acceptable basis.

Nevertheless, according to Oduntan (2011), seeking any conventional sense of explaining sovereignty in outer space would make “no sense” due to the outlawing of sovereignty by international mechanisms such as the OST and the Moon Agreement. Yet, the scope of international legislation required to assure that "outer space as a public utility" is used fairly remains a point of debate (Ferreira-Synman, 2021). In this context, Stuart (2009) discusses the “unbundling” of sovereignty, territory, and the state in outer space, arguing that the traditional understanding of territory and the state is delinked from Westphalian sovereignty and normatively repositioned by “humanity” as the major law branch of analysis in the outer space governance system. Stuart (2009) outlines that although outer space is subject to international regulation, it is not related to traditional sovereignty as follows: “Outer space is a global commons and has been deemed res communis, belonging to all. As such, it poses unique

conceptual and governance challenges in a system traditionally rooted in territorial notions of sovereignty (pp. 10–11)". Hence, Westphalian sovereignty lacks a suitable concept to define outer space politics. The association between sovereignty, territory, and the state requires being "unbundled" due to the nature of neutral territory in outer space. Stuart brings up two theoretical frameworks that would allow such unbundling: Regime theory refers to sovereignty as de-linked from territory and Held's cosmopolitan sovereignty approach as de-linked from the state.

2.1.2. Regime Theory Argument

Within a theoretical framework, Stuart (2009) posits that one of the theories falling within its purview is mainstream rationalist regime theory. This particular theory directs its focus towards the examination of the functions performed by regimes in mitigating international anarchy and resolving diverse collective action problems among sovereign entities, thereby elucidating the nature of cooperative interactions among states. (Keohane,1982). Regime theory is often associated with neoliberal institutionalism, which is based on the concept that regimes are critical to fostering international cooperation and regulating state behavior. As a result, the phrases 'institutionalism' and 'neoliberal institutionalism' are often used interchangeably in IR literature. For regime theory, states are considered to be rational, unitary, dominant actors of the international system, pursuing national self-interest and national security. Rationality refers to states' well-defined and consistent preferences, which encourage them to seek policies that maximize their utility (Keohane, 1984). However, unlike realism, it argues that states' interests are not always in conflict. International politics is not a zero-sum game in which a win for one country entails a loss for another. States generally share common interests, and they collaborate to achieve mutual goals. Common interests do not imply that the interests of the states are all the same. Conversely, when sovereign states engage in the reciprocal adaptation of their policies amidst situations characterized by both divergent and convergent interests, they are engaging in cooperative behavior. Moreover, states contemplate the long-term effects of their current activities and take a long-term approach to interstate relations. When states believe that cooperating will benefit them in the long run, they are sometimes willing to sacrifice their short-term interests to achieve their long-term goals. Regime theory claims that regimes are critical in fostering inter-state cooperation and security

and have the ability to have autonomous influence over them. The existence of regimes alters the anarchy in international relations that would otherwise dominate the system. While the distribution of capacities among states is crucial, it is not the sole factor that influences international consequences. Regimes are vital in addition to power.

Stuart (2009) implies that as the regime theory accepts states' own sovereignty over a distinct territory, it also unbundles the relationship between sovereignty and territory by inspecting "how certain issue-areas that are inherently transnational (such as outer space) can come to be governed through regimes (pp. 11)". In this framework, Stuart (2009) embraces outer space treaties as outer space regimes and argues that they are able to unbundle sovereignty by granting states sovereignty over their own objects in space, despite the objects' detachment from a state's terrestrial territory. States have decided to treat outer space as neutral territory while also treating human-made objects there as parts of each state's sovereign territory based on principles and norms. The objects' responsibility stays with the states, making objects in outer space enclaves of territory belonging to the launching state. In this sense, Article II of "The 1974 Convention on Registration of Objects Launched into Outer Space (1974)" emphasizes this fact by requiring launched objects to be registered through the UN in the name of the launching state. Furthermore, harm to a state's object in space (or its territory on Earth) yielded by crashes is authorized to yield compensation from the state responsible for the collision, according to the Liability Convention (1972). On the contrary, Article 16 of the International Space Station Intergovernmental Agreement issues different liability rules by establishing a "cross-waiver of liability", which forbids any of the five partners or their affiliated entities to proclaim against another partner (or its related entities) for the damage that happened due to International Space Station (ISS) activities except for some strict occasions like willful misconduct. Further negotiated regimes, such as the one set by the International Telecommunications Union for satellite broadcasts and orbital slots, the regime to form cooperation among Earth-monitoring satellites, and the regime for the ISS, are nested within the major treaty-based regimes. For Stuart (2009), the negotiation of norms, principles, rules, and decision-making processes allows states to establish jurisdiction over areas that do not fit the practical and conceptual Westphalian system clearly, thus overcoming the absolute individuation of Westphalian sovereignty in each of these cases. In outer space, the uniqueness of territory, inherent

transnationalism, the blend of new technology, and complexity due to many actors and interests all combine to undermine traditional Westphalian sovereignty in governance systems. Ultimately, regime theory as a framework provides a promising explanation of politics and state rule through cooperation in such a unique area.

2.1.3. Cosmopolitan Sovereignty Argument

Stuart (2009) believes that David Held provides a normative understanding of sovereignty as "de-linked from the state". In this theory and the overall notion of cosmopolitanism, individual human beings are the principal political agents in the system. According to Held (2002), "cosmopolitanism" can be defined as the moral and political view that has the best chance of overcoming the challenges and limitations of both traditional and liberal sovereignty. It builds on components of the liberal international order's values, particularly dedication to human rights and democratic norms that apply to everyone in principle. The transition from classical (Westphalian) to liberal sovereignty is the starting point for analyzing cosmopolitan sovereignty. The liberal sovereignty concept is an endeavor to delimit political power and extend the liberal concern with limited government to the international realm. Moreover, liberal sovereignty seeks to allocate resources according to individual rights rather than statehood. Hence, Held (2002, pp. 15) notes that this aspect was very much the reason for the application of the "common heritage of mankind" canon to the high seas and later treaties on Antarctica and outer space, especially on the Moon (Agreement), as it denotes the exclusion of appropriation rights and obligates the use and seek of resources in the best interests of humanity under peaceful purposes. Transnational matters that challenge the state's ability to rule inside its own borders trigger the shift away from traditional sovereignty. In this context, as international law codifies common heritage ideas and transnational issue areas weaken the state, the state's moral relevance is questioned, while states and societies are subjected to broad, if not universal, standards of judgment (Stuart, 2009). This moral shift and expanded stress on humanity symbolize the cosmopolitan sovereignty at the end. When it comes to the implication of cosmopolitan sovereignty in outer space, two spots emerge for consideration. First, it necessitates a discussion of aspects of current outer space politics that can be comprehended as part of the move to liberal and cosmopolitan

sovereignty; second, it invites thinking of how outer space politics may be supporting the sense of cosmopolitanism in vaster world society via a feedback loop.

As discussed previously, outer space law contains a liberal and cosmopolitan discourse through terms such as “the peaceful purposes” and “the common province of mankind”, based on the admitted principle that outer space is neutral territory under the OST and the Moon Agreement. Additionally, Article V of the OST emphasizes that astronauts are “envoys of all mankind”. Stuart (2009) underlines that these laws are a direction toward means of regulation and a law-making process that create powers, rights, and limits that transcend nation-state claims and have far-reaching implications in principle. As mentioned previously, there are some limitations and gray zones on to what extent these moral mandates have been followed and will continue to be followed in the future, considering most attempts to violate these laws are justified by justifications written in the context of laws. For instance, eight equatorial states' attempts to proclaim sovereignty over parts of geosynchronous orbit were justified by affirming that the OST did not apply to that region. Moreover, weaponization in outer space has been justified by the fact that the OST's clause regarding “peaceful purposes” does not hint at de-militarization but only the absence of war. Hence, states' military activities under the shadow of the "benefit for all’’ notion can be the weakness of the ideal efficiency and utility of the cosmopolitan sovereignty argument in outer space due to a state's ultimate intention for competition. For instance, China is preparing to mine the moon for precious minerals, stating that it is for the benefit of all humanity. However, it may be a step to compete with the US or escalate competition with the US, which eventually threatens outer space security as both countries are not “cooperating on the rules of the road for extracting resources in outer space (Einhorn, 2022)”.

In another respect, the cosmopolitan sovereignty argument deems how outer space contributes to a wider understanding of societal transformations that compel a stronger sense of global community and common humanity, which led to drifting apart from the Westphalian sovereignty approach. In this framework, space philosopher Frank White set forth the concept of the overview effect (White, 2014). The Overview Effect indicates that outer space is driving us to instill a larger sense of our common destiny and humanity in our collective social epistemologies, mostly through empirical

experiences. In this context, according to White (2014), both astronauts and cosmonauts (which means Russians) experience a cognitive transformation towards awareness of the community of the universe during spaceflight and space activities. The term refers to acknowledging the reality of humanity's tiny place in the universe and the interconnection of all lives. This causes a renewed sense of responsibility for the environment and humanity at large. Thus, the potential impact of outer space on collective mentalities paves the way for the need to collaborate on large-scale science projects for space exploration, highlighting global interdependence. This makes the notion of a universal moral code seem both necessary and justified. But thinking that states cooperate in space exploration only as an outcome of collective awareness regarding community seems weak when the nature of state affairs and international relations are considered. In the end, it should not be omitted that states can take strategic steps toward cooperation to maintaining their power and security. Thus, when it comes to outer space and its nature, the necessity of an arrangement that combines these two interpretations is paramount.

2.1.4. Evaluating the ISS: The Regime Theory and Cosmopolitan Sovereignty

One of the reasons for including Stuart (2009) in the literature review was her attempt to define sovereignty in outer space through a case study of the International Space Station (ISS). Before proceeding with the literature on Russia-US outer space relations, I consider that particularly evaluating the ISS in the arguments mentioned above would provide some assets regarding the possible explanation for US-Russia cooperation in the space station.

As Stuart (2009) emphasizes, the ISS program's Intergovernmental Agreement (IGA) and Memorandums of Understanding form a unique structure of governance that designates rule on the station's “territory (pp.13)”. In this framework, under Article 6 of the IGA (n.d.), the ISS regime assigns accountability for the station's individual component segments to the member state that launched it as a manner of re-creating “territory” in space (IGA, nd). In other words, the launching state bears responsibility for any damage caused on Earth or to other space objects except for the ISS. The damage to the station would be waived by the states involved as an outcome of the cross-waiver of liability clause. Consequently, the components of the ISS are

physically connected and interdependent, eventually becoming parts of the territory that belong to various state partners. According to Stuart (2009), the unbundling of sovereignty and territory on the station was a means of safeguarding strategic interests by maintaining the station atomistic through “avoiding political interdependence through blending ownership (pp. 13)”. I also suppose that the regime established on the ISS is intended to serve strategic interests. However, contrary to Stuart (2009), I do assume that sometimes states include themselves in systems that are built on a deliberate or intentional interdependence for security based on rational calculations since outer space politics, by its nature, has economic, political, technical, and environmental implications.

Nevertheless, the regime theory may illustrate how individual actors constructed a creative regime that enabled the control and comprehension of the technically and conceptually complex International Space Station. Despite the station's conceptual complexity as a multinational initiative producing a physically interdependent item in the neutral territory of outer space, participants utilized traditional approaches to territorial sovereignty for the station, assigning individual liability to each launching state. However, as it is placed in the vacuum of space, the ISS based in that region is delinked from each state's traditional borders according to each state's ISS components.

From the standpoint of cosmopolitan sovereignty, White (2014)’s Overview Effect indicates more cosmopolitan understanding and discourse that can also be linked to the ISS. The practical scientific operations that are conducted on the space station, the rhetoric for describing the ISS, and the way the ISS gives visible reinforcement to conceptions of the earth as a unified community are all examples of this. In this context, the ISS is frequently referred to as a substantial cooperative and "human" endeavor. It became a symbol of “what great nations can do through peaceful cooperation (US Department of State, 1998)”. Hence, the ISS can be viewed as a microcosmic structure or system that embraces interdependence principles, illustrating the type of shared community concepts associated with expanding cosmopolitanism. While regime theory defines the establishment of the ISS based on a state-related territory and sovereignty approach defined by a governance system of interdependence, cosmopolitanism highlights the station's dependency on the proper

operation of all hardware and the daily cooperation of its crew, the representatives of both their respective states, and “all mankind” for its survival. However, as Stuart (2009) notes, the ISS is still very much engaged in terrestrially-based power politics and rooted in rationalist discussions amongst actors that result in the station's evolving regime. Thus, the exaggeration of cosmopolitan sovereignty on the ISS would not fully reflect the factual reasons for US-Russia cooperation on the space station.

Nonetheless, considering the moral and long-term ramifications of such a unique project, cosmopolitan sovereignty contributes to the analysis of sovereignty on the station. After all, while one form of sovereignty may prevail in any given political system, features of others can also be found.

2.1.5. Analytical Conclusion

While attempting to analyze the ISS cooperation between Russia and the US, I first focused on the dynamics and definition of outer space politics. This has led me to explore alternative understandings of sovereignty in outer space. I realize that defining this unique area from the traditional Westphalian sovereignty perspective would be inadequate, as outer space, by its nature, is a “global commons” and neutral territory. However, I found out that the notion of sovereignty was and still is quite elusive and controversial, despite the efforts of the fundamental treaties to define sovereignty for outer space. Among these discussions, Stuart's attempt to comprehend such sovereignty through regime theory and cosmopolitanism, then particularly using the ISS as a case study to explain outer space sovereignty, brings an opportunity to evaluate the space station’s governance and offers some ways to contribute to the analysis of the engagement of Russia and the US in the ISS.

The regime theory offers crucial tools for defining the negotiations and preference forms that display cooperative regimes by de-linking sovereignty and territory. In this context, the ISS emerges as an efficient cooperative station that protects its partners' strategic interests and preferences through its unique governance system, such as the notion of cross-waiver liability, and avoids any political interdependence. This way, it also appears as a useful example illustrating Stuart (2009)'s argument about the unbundling of sovereignty and territory in outer space. However, I argue that outer

space cannot be distinguished from political interdependence, as outer space politics and particularly the ISS were formed due to political interdependence itself and its outcomes. In fact, the ISS' cross-waiver liability clause loses its validity if a state carries out any willful conduct that may cause harm to the ISS. This notion demonstrates that the ISS partners would rather make efforts to avoid any harmful consequences of political interdependence than simply avoid it.

As discussed above, cosmopolitan sovereignty focuses on the ethical and moral dimension of outer space activities and relations, using the ISS as an example of such endeavor. It centers on human beings instead of states while defining sovereignty in outer space politics. Cosmopolitan sovereignty's grand discourse with the concepts of "collectivity" and "humanity" while explaining outer space politics is its actual weakness since, in reality, the "common heritage" assets in outer space, as well as the "transnational" benefits from the space station, are sometimes primarily for the benefit of certain world elites or states. The establishment of cosmopolitan sovereignty necessitates a significant cognitive shift in individual hearts and minds, as well as the internalization of those alterations in societal norms and values. This transition could be severely harmed in the future if outer space becomes an arena for escalated weaponization or if resource mining is provided to only particular countries.

Consequently, the inquiry into sovereignty in space is dependent on conceptualizations and developments on Earth, as well as the dialectical connection that exists between the two. The ISS displays the complex relationship between power politics and the state on the one hand and cosmopolitan values and interdependence in outer space politics on the other. The two approaches explored here provide contrasting perspectives and methodologies on where sovereignty has been in the past, how it can be understood in the present, and where it is and should be heading in the future. A reasonable interpretation would be to appreciate both understandings, considering the complicated and unique politics of outer space and the governance of the ISS. The next section will focus on the US-Russia outer space relations, how they have been defined so far, and will aim to contribute research on the causal interpretation of the US-Russia relationship under ISS governance.

2.2. US-Russia Outer Space Relations Literature

While defining the outer space relations between the US and Russia, I figured relations define through two facets. I phrased these facets as: Competition for security and Cooperation for security. As the bilateral relations discussed under various international relations theories, it was only after the Soviet Union (USSR)'s launch of the first-ever satellite, Sputnik-1 in 1957 that outer space became an ontological reality for policy interpretations as it paved the way for sovereignty-related international legal problem in outer space and prompted the Space Age (Sadeh, n.d; Mrazek, 1989; Sterner, 1993; McDougall, 1997; Sheehan, 2007, 2015 ; Mutschler, 2015; Lee, 2018; Robinson, 2018; Martinez, 2020; Dolman, 2020; Jackson, 2020; Antoni, 2020; Joe Pelton et al., 2020). In this framework, as Sheean (2007) argues, the analysis of different approaches and linking them to differing policy implications is worthwhile to realize how the various IR paradigms may affect the understandings of US-Russia outer space relations.

The successful launch of Sputnik-1 shattered the US confidence regarding the belief in their technological advancement compared to the USSR, causing a "national hysteria" and leading the development of an international space law regime (Sadeh, n.d). The USSR's capacity to launch a satellite into a specific orbit, despite being devastated during the Second World War, was proof of its power to reach and target any city on the globe (Dolman, 2020). This development was an opening salvo of the space race between the superpowers that lasted decades. The US government, as a reciprocity move in the Cold War context, concentrated on progressing and consolidating its space exploration programs. Eventually, it launched its first satellite, Explorer I, two years after the Sputnik. That summer in 1958, US Congress and President Eisenhower formed NASA (NASA, n.d). By the time, there was no doubt that, as McDougall (1997) emphasizes, "the Space Age would neither extend nor magnify human conflict, but only extend politics-as-usual to a new realm (pp.414)". However, the beginning of the rivalry between the two states ultimately evolved to unique cooperation and collaboration, separating from usual politics especially with the ISS (NASA, n.d). As I intend to understand the reasons for the US-Russia shift from the "politics-as-usual" with the ISS, I shall not overly focus on the outer space

competition between the states. I question why the two states decided to cooperate on the ISS. Yet from a chronological historical perspective, it is necessary for my research to check and correlate both stages which are competition and cooperation for security by also using theoretical contributions to evaluate dynamics of the relations that ultimately led to cooperation in the ISS. However, initially, it is essential to understand the concept of security for outer space politics in order to comprehend the two stages of the relations as; competition for security and cooperation for security.

2.2.1. Defining Outer Space Security

At a glance, I found out that any universal definition of outer space security has yet to be defined. Artificial intelligence (Al), the Internet of Things (IoT), mega-constellations, 5G, and advanced technologies have all contributed to the paradigm transformation and change of the outer space domain, leading to new significant difficulties and opportunities that transform the concept of outer space security (Antoni 2020; Sheehan 2015). Outer space security has changed throughout history as it has evolved since the Outer Space Treaty (OST) was signed in 1967. It became a more intricate, multifaceted, and broad notion. Moreover, it also began to gradually impact the agenda of the UN General Assembly Committees, including "the Committee on the Peaceful Uses of Outer Space (CUPOUS)" and its subcommittees (CUPOUS, 2022).

Outer space security implies access to and utilization of space for all states. Although it has historically been linked to military engagement due to the Cold War context, in recent years it has been associated with safety aspects. The initial worries about space security triggered the beginning of the space competition between the United States and the USSR in the 1960s. In this framework, the OST was signed in 1967, aiming to terminate the arms competition in outer space (UNOOSA, 1967). By underscoring the principle of peaceful purposes in conformity with the UN Charter and forbidding the militarization and weaponization of outer space, the treaty aimed to set boundaries for outer space security. The adoption of the OST was a remarkable effort to halt the tension surrounding the space race, maintain stability, and foster international cooperation (West, n.d.). As mentioned briefly in Section 2.1.1, the Outer Space Treaty (OST) points out that outer space is a global commons and cannot be appropriated by

any nation. After all, as Zarkan (n.d.) highlights, “outer space is a shared domain where individual actions have collective consequences”. Amid the Cold War context, the State Parties discussed the treaty and ultimately agreed that it is in the best interests of all humankind to commit to extensive international cooperation in the scientific and legal facets of space research and utilization for peaceful purposes (Antoni, 2020; Martinez, 2019).

The establishment of a treaty-based mechanism played a pivotal role in achieving outer space security, and conversely, the concept of space security entails that activities carried out in outer space contribute to stability and the peaceful utilization of this domain, even if not explicitly articulated. The explicit disparity between civil and military uses of space served to emphasize the interconnectedness between outer space security and stability (Antoni, 2020). Later on, the extent of space security altered and included economic, societal, technological, and environmental aspects aside from military features (Sheehan, 2015). In light of the increasing development of the space sector, which goes beyond the conventional constraints of space activities, these components are essential to outer space security, especially considering the increasing involvement of private actors, the conduct of international projects such as the ISS, the growing number of space-faring countries, and the emergence of the civil-military paradigm (Antoni, 2020). In terms of “safety”, “security”, and “defense” concepts, Antoni (2020) claims that they are intertwined and can be utilized interchangeably without division between spheres of action due to gray zones regarding the definition of their differences as follows:

> The understanding of space security has been redefined considering the new often blurred borders between safety—a clearly civilian area—and defense—a clearly military one. Security lies in between, and for some countries or regions it is closer to safety than defense. This debate extends to governance questions as to who has legitimacy to act in space security and for what type of actions (pp. 10).

Indeed, when particularly attempting to create a cooperative mode among various organizational actors for peaceful purposes, the lack of an internationally accepted definition of outer space security causes difficulties. The usage of “security” instead of the concepts “safety” or “defense”, or both, raises questions about the outer space security content and leads to obscurity on mutual principles and values. This poses the necessity of forming mechanisms, systems, regimes, etc. that encourage different types

of state cooperation in the space era. In this regard, below, the figure 2.1., received from Antoni (2020) displays the conceptual challenge for outer space security. The military aspect of outer space security, which is more on the "defense" side, is probably mostly affected by competition, whereas the "safety" side is responsible for maintaining global security and peace (Cesari, n.d.).

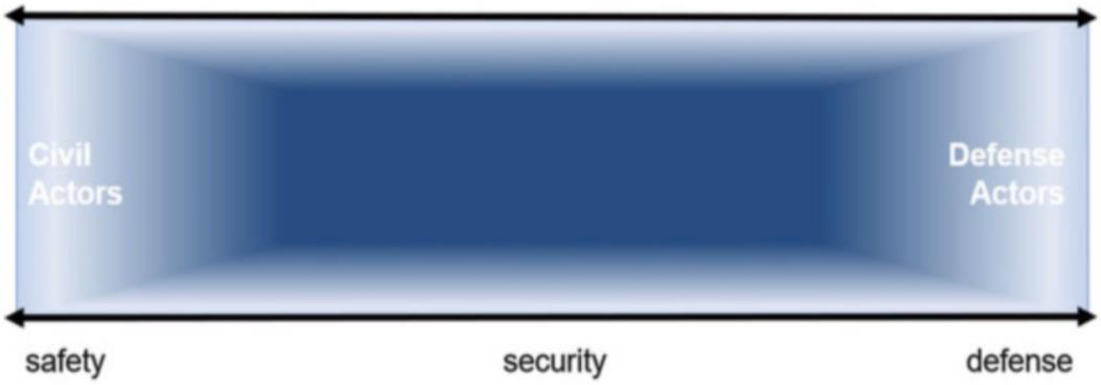

Figure 2.1. Outer Space Security as Concept
Source: Ntorina Antoni, Handbook of Space Security (2020), pp. 11

As discussed earlier, the launch of Sputnik-1 in the 1960s and the first manned space flights in the 1970s triggered a technological advancement competition between the USSR and the US. These developments significantly affected the need to find an outer space security definition leaning on the “safety” edge since the public hysteria increased due to the potential arms race and military-based usage of outer space that would contribute to the “defense” margin displayed in the above figure (Antoni, 2020; Dolman, 2020; Martinez, 2019). To prevent rivalry and competition's expansion into this new domain, the UN General Assembly approved Resolution 1348 (XIII) in 1958 on the “Question of the Peaceful Use of Outer Space (UNOOSA, 1958)”. “The United Nations Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies”, eventually incorporates the principles outlined in this resolution, along with those of the succeeding resolutions (1961 and 1962), with the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS) being the ultimate significant UN body involved in the formation of international space law (UNOOSA, 1967). Furthermore, the 1997 UNGA

Declaration on International Cooperation Clause IV provides more detail about the forms of cooperation that are deemed to be the most effective and appropriate, "including, inter alia, governmental and nongovernmental; commercial and noncommercial; global, multilateral, regional, or bilateral and international cooperation among countries in all levels of development (UNOOSA, 1996)".

Returning to the OST Treaty regarding cooperation for security, the treaty makes straightforward references to the relevance of international law and the UN Charter to outer space. In this context, Article III of the treaty specifies as follows:

> State Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding (UNOOSA, 1966).

Additionally, Article IV forbids the placement of objects in orbit near the Earth by saying, "Any objects carrying nuclear weapons or any other kinds of weapons of mass destruction", and adding that:

> The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations, and fortifications, the testing of any type of weapon, and the conduct of military maneuvers on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited (UNOOSA, 1966).

According to Antoni (2020), the limits of space security under the body of international space law are still in question, notwithstanding the presumption of peaceful intentions, the explicit ban on the weaponization and militarization of outer space, and the implementation of international law. The robust dual-use nature of space technology makes it difficult to draw a line between military and civilian uses of outer space. Hence, it is challenging to determine whether specific space technologies in the areas of navigation, satellite communications, location, timing, and space situational awareness are used for civilian uses and programs or for military and defense objectives. In fact, the United Nations Group of Governmental Experts (GGE), which sought to investigate legal frameworks that prohibit the deployment of weapons in space, was unable to settle on a comprehensive report in October 2019 due mostly to the dual-use problem. For instance, one of the delegates emphasized the fundamental

difficulty of clarifying an outer space weapon or comprehending and verifying the intentions behind some associated actions during the First Committee of the General Assembly's discussion of relevant draft resolutions (United Nations Meetings Coverage and Press Releases, 2019). The growing outer space commercialization and the emerging security paradigm of hybrid threats such as spoofing, cyberattacks, and dazzling, as well as hiding or moving assets, further deepen this gray line between civilian and military space usage (Antoni 2020, Robinson 2018).

Additionally, the growing involvement of private commercial actors in space security has given rise to some worries about the softer aspects of space security, such as space safety and the sustainability of extraterrestrial activities. Outer space safety encompasses the utilization of space technology and its applications, which bring advantages to society across various domains. These encompass a range of areas that extend beyond, but are not restricted to, water management, marine and coastal ecosystems, healthcare, climate change mitigation, disaster risk reduction, emergency response, energy generation, navigation systems, seismic monitoring, natural resource management, biodiversity conservation, agriculture, and the assurance of food security (Antoni, 2020; Joe Pelton et al., 2020). Therefore, space safety encompasses the security of space systems to ensure both security on Earth and sustainability in outer space (Antoni, 2020; Martinez, 2019).In this framework, based on the data discussed above, outer space security can be taken into account on a 3-dimensional basis suggested by Mayence (2010), Sheehan (2015), and Antoni (2020) as outer space for security, security from outer space, and security in outer space, while also considering the post-Cold War context specifically for the second and third aspects, respectively:

-Outer space for security refers to the utilization of outer space systems for security and defense.

-Security from outer space refers to protecting human life and the environment from natural hazards and risks.

-Security in outer space refers to safeguarding space systems and assets from hazards or threats posed by mankind or natural disasters and ensuring the endurable development of outer space operations.

The below figure demonstrates a precise outline of the outer space security content in three dimensions. Yet, it can be challenging to differentiate the many viewpoints as there are no obvious limits between “safety”, “security”, and “defense”.

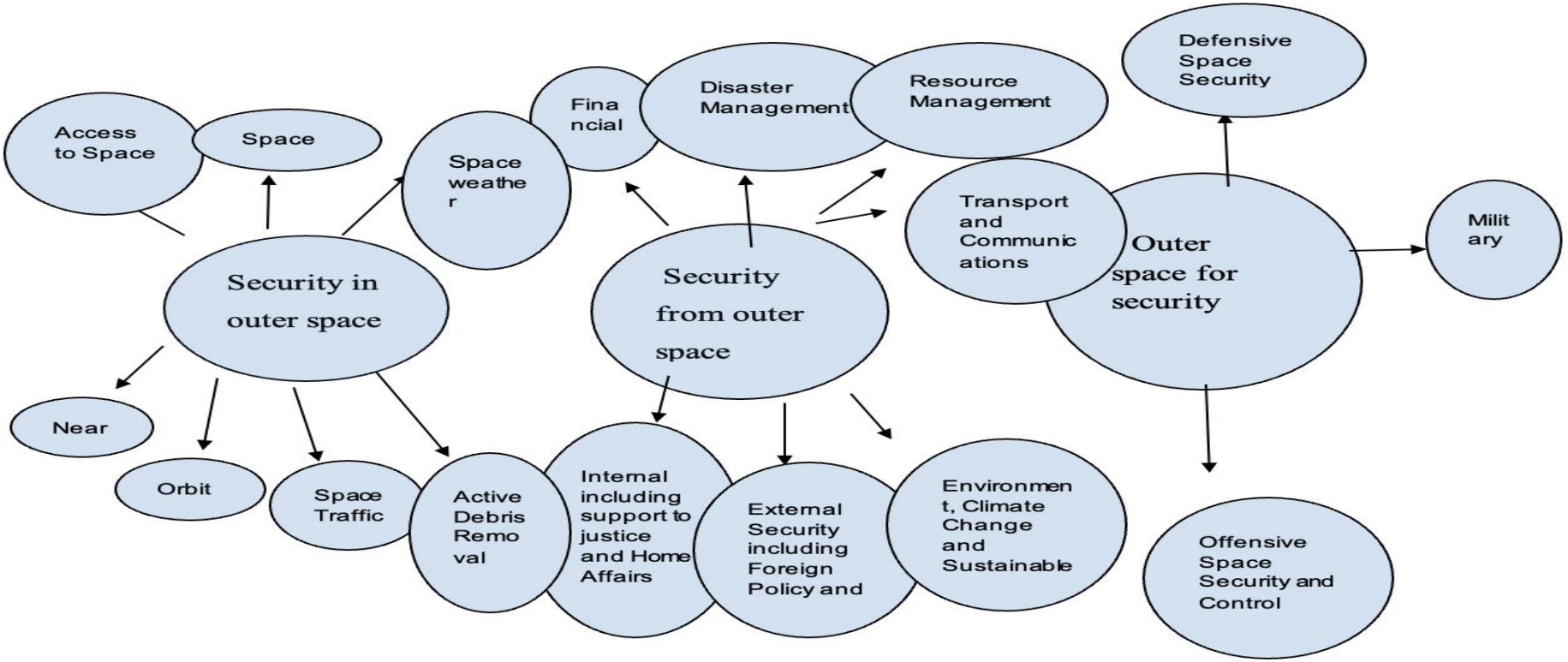

Figure 2.2. Three-Dimensional Basis for Outer Space Security

Source: Antoni N. (2020), "Handbook of Space Security"

Consequently, considering the information gathered in this literature review regarding outer space security, it appears that there are various explanations of space security according to the many viewpoints and no clear definition. For instance, according to the European Union, space security is "security from space, where space-based assets and systems are critical to ensuring security on Earth, and security of space, where these assets need to be protected in the difficult environment of outer space (Antoni, 2020; pp. 15)". For the Space Debris Mitigation Guidelines, it is "the protection of a space object, including its component parts, against the threat of intentional actions undertaken by external or unauthorized actors (Cesari, n.d.)". The Space Security Index (SSI) (n.d.) refers to space security as "the secure and sustainable access to and use of space and the freedom from space-based threats". According to the Handbook of Space Security (2020), since it will be challenging for states to agree on a mutual ground and any definition could become outdated given the quick evolution of space activities, it is essential to focus on limited general applicability and adaptable approaches. In this framework, the book describes outer space security as follows: "Space security" is the aggregate of all technical, regulatory, and political means that aim to achieve unhindered access and use of outer space from any interference as well as use space for achieving security on Earth (pp. 15)".

Ultimately, this definition gathers numerous explanations and covers all of the essential components. Conceivably, the latest definition will be efficient while discussing my argument on "Why the US and Russia decided to cooperate on the ISS?"

2.2.2. Competition for Security and Its Puzzle in US-Russia Outer Space Politics

Considering the height of the Cold War context during the Space Age, realism was dominating the academic discussions in international relations. The scholarly studies in this field mostly refer to realist elements while explaining the space race between the superpowers. Indeed, the history of national space programs has several factors that appear to support both classical realist and neorealist approaches to IR. Particularly the early superpower space programs evidently lend themselves to a realist understanding due to competition. According to realists like Waltz (1948) and Morgenthau (1979), politics is a power struggle for unilateral benefit in which maintaining the balance of power is crucial. The lack of a world government would

create international anarchy and a self-help system that would trigger a security dilemma. States' attempts to improve their own security would result in rising levels of insecurity as each state perceives its own defense measures as legitimate and non-hostile but considers other states' such actions as unnecessary and hostile. Similarly, the classical realist approach explains the space race through competition for power between the superpowers. Sheehan (2007) describes outer space power politics by stating:

> The "power' in question is a multifaceted amalgam of different forces ranging from tangible military capability to unquantifiable degrees of prestige. A space program could contribute to overall power by confirming or suggesting capabilities in a range of other areas, such as long-range missiles and technological expertise. In the classical-realist approach, domestic political explanations are also significant in a way that they are not in neorealism, and therefore the internal political dynamics of the American and Soviet political systems are also an important part of the equation (pp. 8).

As Sheenan (2007) points out, during that time, “the relationship between the US and USSR was understood in both countries as being competitive at best and conflictual at worst (pp. 8)”. The US and USSR found themselves acting in international anarchy, where the security dilemma and the obvious consequences of shared nuclear capacity were significant. In this context, the leadership of both states made “national security”, which is defined as military defense against the armed forces of the opposing superpower, their top priority. Hence, the investment in military capability, both in terms of missiles that are able to deliver nuclear bombs and satellites capable of safely conducting surveillance missions over the territory of opponents, served as the driving force behind both space programs. While the manned and unmanned rivalry programs received most of the public's attention, in reality, they were a component of the global and terrestrial competition between superpowers for international leadership at a time when conventional military conflict was becoming increasingly elusive (Sheehan, 2007).

Mearsheimer (2013) inclines to a structural realism perspective by emphasizing that states searching to tip the scales of power in their favor will seek opportunities in an insecure world created by international anarchy. States strive to ensure that no other state obtains power at their expense (pp. 79). In this frame, a superpower race in outer space can be regarded as an appealing alternative to a nuclear conflict regarding proving proximate power capacities. The rivalry for planetary hegemony among the

terrestrial superpowers, as well as the development of their respective space capabilities against one another, was a major driver of space policies (Sheehan, 2007; 9). Thus, after the USSR allocated the ideological challenge symbolized by the launch of Sputnik in 1957, the "neutral territory" of outer space did not remain out of the political agenda. Instead, it started to symbolize the same power dynamics that represented the interactions between the US and USSR following the launch of the US Explorer 1. A new standard for power and allocating status in the international community emerged with outer space policies and activities through competition for security. Starting in that year, access to the most cutting-edge technology is associated with both economic and political power, making it a key factor in the US-USSR competition to endow status and power (Jackson, 2020; Sheehan, 2007). Ultimately, as Sterner (1993) points out, the space race can be interpreted as a contest for prestige and influence between two nation-states, each of which championed contrasting ideologies that underscored the profound historical importance of competition between haves and have-nots.

Although realism considers state power more than solely the military aspect, the emphasis on military power is much more significant than other forms of power as it is viewed as a safeguard behind which all other tools of influence could be used, aside from its unique purposes in preventing attacks, assisting allies, obtaining resources, and so forth (Lee, 2018). Simultaneously, the military potential of outer space was recognized at the beginning of the space age as space activities gave rise to new military capabilities. The growing significance of satellites in strategy and foreign policy conduct reinforced the idea that conventional assumptions regarding political affairs were swiftly vanishing even before the post-Cold War structure of multipolarity (Mrazek, 1989). The enormous advancements in communications, monitoring, and navigation given by outer space grant it strategic importance. Satellite systems have developed to the point where they are regarded as vital for the major powers. As the increasing dependency on the great power strategy became evident, the satellites that enabled it also turned into military targets. In this context, outer space began to be viewed as an area in which the use of force on the ground might be assisted while each side attempted to utilize the military potential of space and prevent the adversary from using it. The argument is consistent with the realist theory of IR, and it is also a self-fulfilling prophecy to the extent that states act as if this is indeed the case. In contrast,

however, the history of space policy does not always support realist assumptions about the possibility of competition in international anarchy and is not solely about maximizing military power (Sheehan, 2007). Realists argue that due to the mutual insecurity among states as a result of the security dilemma, they are unlikely to cooperate. Weber (1990; pp. 58), for instance, emphasizes that any cooperation would be dubious, unstable, and restricted to issues of peripheral importance. Yet states have vigorously sought out chances for cooperation in space policy, separating from traditional behavior, and have frequently done so with the conscious intention of reducing the risks associated with a hostile relationship, such as the one that existed between the superpowers during the Cold War (Sheehan, 2007). Sheehan (2007) explains states' separation from traditional acts as follows:

> What was critical about the 1950s was that the superpowers' possession of nuclear weapons led them to believe that maintenance of the balance of power by traditional warfighting methods might prove suicidal, and therefore alternative conceptions of the balance and the way that it might be manipulated became crucial (pp. 8–9).

Indeed, beginning with Dwight D. Eisenhower's US presidency in 1953, every US administration has underlined international cooperation rather than competition, peaceful intent, and the development of outer space activities for the common good of all mankind (Dolman, 2020). Although that particular period was not the actual start of any discernible cooperation, Eisenhower's series of letters to the then Soviet leader Nikita Khrushchev and both countries' interaction about their respective attitudes over potential space cooperation enabled them to determine specific aspects that ultimately influenced Soviet/Russian-American cooperation in outer space, including the ISS (Sagdeev & Eisenhower, n.d.; Karash, 1999). The US actively moved forward with its international attempt to create a legal framework for peaceful space activity under the auspices of the UN. This eventually resulted in the formation of the UN Committee on the Peaceful Uses of Outer Space, known as, COPUOS in 1959 and the Outer Space Treaty (OST) in 1967, both of which the USSR joined. In the scientific community, the role of an international space science union was deemed necessary by the Committee on Space Research, with its unique charter granting a mandate to both superpowers to appoint vice presidents. Between American and Soviet space officials, this development provided a platform for formal and informal communication and meetings. The USSR's first representative on the Committee, Anatoli A. Blagonravov,

and his American counterpart, Hugh Dryden, worked closely to facilitate international cooperation on space projects at the peak of the Cold War (Sagdeev & Eisenhower, n.d.). Their efforts resulted in the Dryden-Blagonravov agreement in 1962, the same year as the Cuban Missile Crisis. The agreement involved cooperation on the exchange of data from weather satellites, joint tracking of the US' communication satellite called Echo 2, and monitoring of the Earth's magnetic field.

Consequently, the space race, which started with the reflection of the Cold War on space policies, gradually evolved towards cooperation in the Detente and Post-Cold War periods, changing the understanding of security. In this regard, realism and neorealism are often criticized for failing to respond to changing dynamics of security in the international system and due to their overestimation of "states seeking to maximize power" (Keohane, 1986; pp. 18).

As criticism for this assumption, Keohane (1986) contends that Waltz's theory falls short of adequately explaining the dynamics of change and the shift in states' security agendas in the post-Cold War period and suggests the need for a revised theory that incorporates Waltz's idea of structure while also seriously considering aspects of the international system that Waltz's constrained conception of structure does not include. Such a theory would underline the value of, for instance, economic processes and international political institutions. Keohane (1986) suggests "systemic theories that retain some of the parsimony of structural realism but that are able to deal better with differences between issue areas, with institutions, and with change (pp. 18)" that adequately refer to the behavior of actors and their capability to cooperate with one another. Keohane's main argument is that once power is regarded as non-fungible, the international system is formed through various structures, each of which corresponds to a particular issue area. As he emphasizes, through enhanced communications and an increased role of international institutions, the post-Cold War era has witnessed numerous changes. Hence, Keohane and Nye (1977) challenge structural realism's security understanding as they successfully foresee and explain these changes in world politics through the theory of complex interdependence. As discussed earlier, Waltz's structural realism assumes that military power is fungible and rules the hierarchy. Therefore, according to Waltz, each international system has a single structure since military power is efficient and useful for a wide range of objectives. However,

Keohane and Nye (1977) posit the idea that power is not fungible and states and state relations are dependent on issue areas rather than one single structure. This suggests that the international system includes a variety of structures that vary depending on each issue area and that outcomes may be impacted by how resources are allocated. If power is supposed to be absolutely fungible, when issues arise between great powers and smaller ones, the great powers should always succeed. However, the US's Vietnam failure and the USSR's Afghanistan experience are two examples of the contradiction in this assumption (Keohane and Nye, 1977; Khalilzad, 1988). The states that are weaker overall yet in the relevant issue areas have more power resources than their stronger counterparts, which could be the explanation for why great powers are unable to control smaller ones. And it is challenging to use power gained from one area of activity to affect outcomes in another. Eventually, it makes sense to relax the fungibility assumption, and given the increasing costs of using military force, it can be argued that the issue-based structure model and consequently complex interdependence offer a better perspective of IR concerning security (Keohane & Nye, 1977). Yet, it should be noted that complex interdependence builds upon realist assumptions rather than solely rejects them. After all, as Keohane and Nye (1977) state:

> Sometimes, realist assumptions will be accurate or largely accurate, but frequently complex interdependence will provide a better portrayal of reality. Before one decides what explanatory model to apply to a situation or problem, one will need to understand the degree to which realist or complex interdependence assumptions correspond to the situation (pp.20).

The issue-structure model does not imply that structure is insignificant but rather that various structures form the international system. As a result, complex interdependence has an advantage over Kenneth Waltz's structural realism due to its capacity to alter viewpoints on security-related matters. Up until the end of the Cold War, military security concerns monopolized decision-making, foreign policy conduct, and international political cooperation. As G. W. Rees (1993) points out, "The Cold War period was so dominated by the issue of military security that other important issues were relatively neglected (pp. 8)". Since the post-Cold War, security concerns have shifted to a wide range of issues, such as economic security for both individuals and societies, human rights, international terrorism, illicit drug and arms trade, culture and

identity matters, health issues, climate problems, and outer space politics (Baldwin, 1997; Paris, 2001; Antoni, 2020).

Table 2.1. Security Scope Matrix

	Military	**Military, Nonmilitary, or Both**
States	**Cell 1** **National security** **(conventional realist approach to security studies)**	**Cell 2** **Redefined security** **(e.g. environmental, economic security)**
Security for Whom?		
Societies, Groups, and Individual	**Cell 3** **Interstate security** **(e.g civil war, ethnic conflict and democide)**	**Cell 4** **Human security** **(e.g environmental, and economic threats to the survival of societies, groups and individuals)**

Source: Paris R. (2001), Human Security: Paradigm Shift or Hot Air?, 'matrix of security studies' (p. 98)

The matrix table 2.1 above displays such shifts on security scope. Cells 1 and 3 represent "conventional" security concerns which deal with both domestic and international security. The non-traditional security issues include the more recent expansion of security definition regarded as "redefined security" and "human security" depicted by Cells 2 and 4. Conceivably, the most significant change at the end of the 20th century and the starting of the 21st century has been the transformation in emphasis from state security and military power to "human" and "redefined security", which is considered a necessity for underlining certain vulnerabilities and the issue-based structure model of IR (Amanson, 2018).

The division of power in international politics as a result of increasing independence, advancements in technology, and newly emerging issues shouldn't come as a surprise. Waltz and structural realism are often criticized for failing to explain the changing aspects of security. Keohane and Nye's approach on the other hand, might be considered as a an answer to the evolving nature of security. Consequently, the overall-structure model evolved into the issue-structure model both differentiating between activities taking place inside a regime and activities aiming to change the regime with the transformation of security understanding (Işıksal, 2004). Keohane and Nye (1977) were able to shift the power source for security issues from military power to the nonfungibility of military power per issue-areas by recognising this differentiation and transformation. Hence, they effectively illustrate how security is developing through changes within the significant link with issues.

So far, the literature on outer space security and US-Russia outer space competition for security displays that over time, there has been a change in the "hard/military" outer space security understanding, and transformation on the bilateral outer space relations with the IR security alteration especially in the post-Cold War period. It may be indicate that there is a correlation between the changing dynamics of the international system and transformation of security. In this sense, the incapability of realist approaches to respond to these dynamics and too much focus on the single-structure model provide puzzle on describing the US-Russia outer space politics. This paved the way for checking an alternative theory base called "Complex interdependence" while researching. This is important since I will attempt to explain the root causes of ISS cooperation through this theory in chapter 3. But before that, I

particularly wonder about the studies on the progress of Russia-US relations in coordination with the ever-changing understanding of outer space security. Since the relations was also carried out through cooperation as mentioned briefly above, it requires focusing on the studies on bilateral cooperation for security to see a) what happened and why, b) how they were explained so far.

I'm aware that this thesis's main objective is the US-Russia cooperation in the ISS. I could have only focused on the ISS literature and its current explanations. Yet the historical literature on bilateral cooperation phases should be explored to display to the reader that first, outer space cooperation between the US and Russia did happen in various aspects even during the tense relations which poses a precise puzzle for my research question and second, there are many developments that resulted in the evolution of this collaboration to the ISS. Therefore, the following section explores the literature on the two nations, US-Russia's, that are known to be rivals, cooperation mode of outer space relations.

2.2.3. Cooperation for Security in the Outer Space: The US-Russia

Security cooperation refers to cooperation between conflicting parties (Mutschler, 2015). According to Mutschler, this definition is quite broad and encompasses a variety of phenomena, including relations between former adversaries within the context of a postwar settlement, arms control and nonproliferation, or a system of collective security as it is institutionalized in the UN Charter and represented by the UN Security Council. In this regard, security cooperation entails relying on the resources, intentions, and activities of other states for an essential purpose, national survival, which is difficult to reconcile with the assumption that security is solely assured by a self-help system (Mutschler, 2015). Hence, one of the hurdles regarding some IR realist theories that I mentioned above is the lack of reflection on the mode of security cooperation among states through various understandings and practices of security. Undoubtedly, as Sheehan (2007) highlights, international cooperation has been one of the predominant issues in outer space, especially with the ISS being the most dramatic symbol and initiative of this endeavor. When examining the Cold War experiences of the great powers, Moltz (2014) summarizes the approach formed amid the Cold War within the context of outer space security as follows: "If there is a single

lesson from the Cold War in space, it is that both sides eventually learned that unrestricted military behavior risked uncontrollable conflict and the possible ruination of the near-Earth space environment, thereby worsening their individual and mutual security (2).”

Because of this, Moltz (2014) argues that Washington and Moscow demonstrated remarkable restraint even during the most rivalry years of the space race, negotiated agreements to prevent interference, “and never fired shots in anger in space (pp.2)”. As disposable orbits are becoming more engaged than ever, reaching a peaceful and sustainable international practice in outer space will mandate an even stronger dedication to trustworthy conduct among today's growing outer space countries. Each nation or other spacefaring entity has the ability to impact others. In this framework, Moltz (2014) categorizes the perspective on outer space cooperation into three aspects. From non-cooperative to most cooperative, respectively, the first one is based on the belief that outer space will inevitably become a struggle for military hegemony by one nation or a group of nations due to the space combat threat. Moreover, the likelihood of global mistrust despite growing economic globalization and the extent of online data sharing will also end up in space warfare. Secondly, there are many who think that destructive space conflicts could be prevented by some structure of global engagement. Although there may be risky actions, eventually, nations would likely exercise sufficient restraint out of self-interest to avoid completely destroying outer space. Finally, there are the ones that predict the possibility of international space management through new global organizations. Their belief is that the need for more thorough space organizations and formalized forms of cooperation will be high due to the current environment of rising international space activity, increasing costs for national programs, and enhanced communications (Moltz, 2014, pp. 3).

According to Sadeh (2004), this entire spectrum of cooperation can be characterized by the 1957–58 International Geophysical Year (IGY), which initiated international cooperation between space scientists for data and knowledge sharing after the announcement by the USSR and the US during the escalated period of the Cold War in the 1950s. IGY coordinated transnational scientific cooperation among 60.000 scientists and technicians from 66 states to study and evaluate the spatial environment of the Earth from low Earth orbit (LEO) within the International Council of Scientific

Unions (ICSU). Thanks to the IGY experience that led to transparently exchanging scientific knowledge and Cold War foreign policy considerations, the US National Aeronautics and Space Act of 1958, which also resulted in the creation of NASA, included international cooperation in its statement of policy and purpose as follows, "Cooperation by the United States with other nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results thereof should be conducted and be pursuant to the agreements made by the President with the advice and consent of the Senate (pp. 281)".

The Act involves creating and constructing spacecraft that can transport supplies and living things into space, enhancing the safety and effectiveness of aircraft and spacecraft, and, last but not least, increasing human knowledge of outer space (National Archives, n.d.). Therefore, it provides a wide perspective on the range of international cooperation. In light of these developments, international outer space cooperation can be considered in five chronologic stages, as emphasized by Sadeh (2004, pp. 294), within the framework of US-Russia bilateral relations: "1957 to 1971; 1971 to 1979; 1980 to 1987; 1987 to 1991; and 1992 to the present." The first period, 1957–1971, is characterized by scientific collaboration and the space race. Similarly, Karash (1999) discusses US-Russia outer space cooperation in three periods: 1) from the late 1950s to the mid-1960s; 2) from the late 1960s to 1985; and 3) from 1985 to early 1999. In order to avoid scholarly studies not related to my research question, I briefly touch upon the previous stages of US-Russia cooperation in outer space but mostly focus on the ISS part of the subject to explore how ISS cooperation has been defined so far.

Sheehan (2007) signifies that the space powers sought to use non-military considerations like economic growth, technological advancement, communications improvements, and environmental surveillance to justify their programs during the Cold War period. Hence, the usage of outer space has taken on a distinctly mixed character. Yet it is still possible to assume that traditional power variables existed. According to Sheehan (2007), outer space demonstrated that the use of non-military aspects of power, which can occasionally be highly advantageous, is possible. Thus, as discussed earlier, the necessity of an approach that will develop the traditional security and power understandings and reshape them according to the conditions has

been revealed. After all, as Keohane and Nye (1977) underline, realist assumptions cannot be denied but must be better expressed according to the changing nature of these concepts. In this regard, Sheehan (2007) explains the shift of outer space competition during the Cold War precisely by pointing out that, “In the utilization of space, we have witnessed a trend away from competition for prestige, with ulterior motives of a markedly military nature, to a scientific and economic competition, coupled with a military reality (pp. 13)”.

Considering the cooperation aspects within this context, a series of letters that US President Dwight D. Eisenhower wrote to the Soviet leadership in 1957 and 1958, first to Prime Minister Nikolai Bulganin and subsequently to Premier Nikita Khrushchev, started the early U.S.-Soviet cooperative space endeavors (Sagdeev & Eisenhower, n.d.). According to Karash (1999), this period is noteworthy because the US and the USSR were each developing their own space strategies and experimenting with their separate approaches to interplanetary cooperation. In his letters, Eisenhower proposed starting a process to reserve space for peaceful purposes. Khrushchev, however, refused this since he was celebrating the 1957 launch of Sputnik and due to the high reputation of the USSR Academy of Sciences as "a state within a state" for the implementation of Russian scientific policy and the ability of science to influence politics through its large expert community (Karash, 1999; pp. 12). Moreover, for Khrushchev, any cooperation should happen only under one condition: disarmament. Considering all the aspects, Khrushchev was confident that his nation had far superior rocket technology and space launch capabilities than the United States. Yet, when asked about potential satellite collaboration with the US at a reception, he responded positively if it were in fact in the interest of mankind but underlined his condition of disarmament for the cooperation. After this statement, Lenoid L. Sedov, the head of the Soviet Commission on Interplanetary Communication, said that cooperation between the US and the USSR was “quite possible” for launching a satellite that would orbit the Earth while also adding that the USSR would launch the first artificial satellite before the US in two years and that it would be larger than the US satellite (Karash, 1999). In the meantime, the US actively pursued its multinational drive to form a legal framework for peaceful space activities and to establish the legitimacy of using satellites for military but non-aggressive reasons under the auspices of the UN. This

ultimately resulted in the founding of the COPUOS and the OST in 1967, both of which were subsequently attended by the USSR (The United Nations, n.d.).

According to Sagdeev and the then US President Dwight D. Eisenhower's granddaughter, Susan Eisenhower, the different characteristics and dynamics of both states' outer space programs and dynamics display that initially, the structure and civilian nature of NASA allowed American researchers to share and collaborate on scientific advancements with researchers from other countries, while the Soviet aerospace industry was completely dependent on domestic hardware, right down to the smallest individual micro-components, due to the USSR's vital reliance on the military (Catchpole, 2008). Hence, the USSR developed a technology culture that was isolated on a global scale and that eventually would have posed significant obstacles to collaboration (Sagdeev & Eisenhower, n.d.). In this context, Karash (1999) splits the Eisenhower era into two stages in terms of the US's concerns for collaboration in space, including with the USSR. The US focused primarily on the development of an international legal framework for the unrestricted use of reconnaissance satellites from the middle of the 1950s to the end of 1956. Starting in January 1957, the second period was driven by several factors. The initial driving force was the US's growing concern over the US-USSR ballistic missile competition, which could have been pushed even more by a new one, reaching an ability to operate via artificial Earth satellites or space platforms in outer space itself. Hence, the US began pursuing a dual course of action: an agreement to assure that space is only used for peaceful purposes, along with initiatives to foster international cooperation in such uses. Yet, as Karash (1999) emphasizes, the launch of Sputnik damaged the US's credibility as a superpower and required a reciprocal response that would escalate prolonged competition. In order to ease the kind of impact that space competition could have had on security and American society, it was necessary to moderate competition through cooperation. Such evaluations resulted in creating ways and starting negotiations to cooperate. One of the outcomes of such attempts was the establishment of the Permanent Committee on the Peaceful Uses of Outer Space (COPUOS). Even though the USSR had accepted the committee's membership, organizational and procedural issues remained problematic during negotiations, preventing any efficient result. According to Karash (1999), their belief was that exposing their space accomplishments to other nations would simply eliminate the Soviet edge, which could otherwise be utilized as a trump

card in negotiations with the US about a number of issues pertaining to outer space policy, including their objective for disarmament. Nevertheless, this period was a basis for exploring ways of cooperation, which eventually led to the Dryden-Blagonravov bilateral agreement in 1962, consisting of, inter alia, 5 diplomatic/expert meetings on exchanging data and Khrushcev-Kennedy interactions regarding outer space issues amid escalated Cold War due to the Cuban Missile Crisis.

During the early years of his presidency, John F. Kennedy, similarly, tried to persuade the USSR to cooperate in outer space (Roald Sagdeev and Susan Eisenhower, n.d.; Karash, 1999; Sager, 2004). In his 1961 inaugural speech, Kennedy highlighted the importance of working together in outer space, assuming that the best way to defuse Cold War tensions was to forge common ground with the USSR (Roald Sagdeev and Susan Eisenhower, n.d.; Karash, 1999; Sadeh, 2004). Karash (1999) implies that Kennedy had a similar but somehow also different perspective on space exploration and its part in the IR than Eisenhower did. He considered it a tool for regaining American pride and reputation that had been harmed by Soviet space achievements like the launch of Sputnik and the Russian Yuri Gagarin, the first person to flee Earth's gravity. But most importantly, as a potential area of mutual interest with the USSR within the framework of cooperation over competition in outer space, Yet, as Sagdeev and Eisenhower (n.d.) underline, Khrushchev's belief that the Soviet space program would always be superior remained unchanged, especially after Yuri Gagarin. After his smooth flight, the Soviet space program's piloted component quickly expanded to dominate all other types of space activities. Sagdeev and Eisenhower (n.d.) argue that during that time, every orbital event was the central focus in the USSR and among the general public.

As a result, Khrushchev continued to emphasize the requirement for disarmament. In return, Kennedy stated that collaboration would be conditioned on good relations. As per Karash (1999), the Joint NASA-Science President's Advisory Committee-Department of State Panel, which aimed to carry out a preliminary analysis of the possible options for international cooperation in 1961, played a significant role in the Kennedy administration's stance towards cooperation in space with the Soviet Union. Karash (1999) emphasizes that the initial observation was related to the diligently maintained avoidance of any military implications of joint or cooperative possibilities.

The second assumption stressed the necessity to pinpoint the size of any possible joint initiative in order to get over the political and technological hurdles that stand in the way of US-Soviet relations. The third conclusion recommended that since the Soviet Union and the United States are currently the only two countries capable of launching spacecraft, they should work together.

Amid the troubled relations over the Berlin crisis during the 1960s, Kennedy did not make outer space cooperation contingent on the advancement of bilateral relations over regional issues. Hence, his suggestion to Kruschev was to go to the moon together. Although Khrushchev's initial response appeared to be supportive, he reiterated the disarmament requirement. The US' further outer space cooperation initiatives were not in parallel with the overall context of the Berlin crisis-affected Soviet-American relations. In this framework, the old perspective through the UN involved brand new ideas within COPUOS by the US, such as consensus on the link between disarmament and outer space cooperation, a proposal aspiring to create a global network of communication satellites in addition to conserving space for benign uses, and finally, the Kennedy administration's emphasis on a specific role played by the USSR and the US in international collaboration in outer space and space operations, albeit working through the UN (Karash, 1999; pp. 31). From the Soviet side, Karash (1999) argues that the USSR's support for this resolution seemed to be a sign of a new Soviet attitude toward outer space cooperation, especially with the US, as it followed the US initiative and consented to keep disarmament concerns apart from international collaboration in space. Additionally, it agreed to the resolution affirming joint action in outer space in fields where the US, but not the USSR, was already qualified to play a leading role, such as the use of satellites in the establishment of international communications and meteorological systems. During that time, in other crucial spheres of space technology other than the launch of the Sputnik satellite and sending the first human to outer space, the Soviet Union began to fall considerably behind. After John Glenn aacomplished to become the first American to be on orbit Earth on February 20, 1962, Khrushchev wrote to Kennedy again, proposing the potential of space cooperation despite the ongoing race between the US and USSR in outer space (Roald Sagdeev and Susan Eisenhower). That prompted two sets of discussions of the Blagonravov-Dryden Agreement in 1962, which led to cooperation

in three areas where the US has the upper hand, which were briefly mentioned above in this paper (see Section 2.2.3).

The US' rationale to cooperate with the USSR, as mentioned briefly above, was motivated highly by military-connotation-free mutual security interests in outer space, as was also the case for the USSR within the changing dynamics of security understanding (Sagdeev& Eisenhower, n.d.). But most importantly, the US' purpose was to lead any cooperative initiative to consolidate its technological and political leadership (Karash, 1999). In this sense, the calculation of both countries seems to be shaping toward finding a win-win compromise through cooperation to eliminate zero-sum or lose-lose scenarios. Such a possible transformation should be taken into account while exploring the causation of the ISS collaboration.

Indirect contact with the Kremlin was made during the then-US President Lyndon B. Johnson era. The US-launched Apollo 8 orbited the moon in December 1968; just a few weeks later, Richard Nixon was elected, and Apollo 11 made a successful lunar landing in July 1969 (Karash, 1999). In the meantime, the USSR's manned lunar program had numerous setbacks. The chance to use significant outer space cooperation initiatives to lessen the Cold War rivalry between the US and the USSR had already passed (Roald Sagdeev and Susan Eisenhower, n.d). The Soviet leadership had to accept the fact that their nation's superiority in powerful rocket-launching technology was over and that outer space cooperation would have to be on a smaller scale. As Sagdeev and Eisenhower (n.d.) emphasize, simply put, the Soviet Union was not able to compete with such extensive US initiatives. Additionally, the Soviets lacked a NASA-like institutional mechanism that might have managed a transparent and open Apollo program.

During the Détente period in the early 1970s, the US administration under Nixon attempted to mitigate tensions between the US and the USSR by undertaking significant initiatives to achieve a breakthrough in strategic arms control and outer space cooperation (Sadeh, 2004; Dupas, 2009; Sahdeev and Eisenhower, n.d.). According to Sadeh (2004), international outer space cooperation is a manifestation of foreign policy and operational decisions for research, technology, and economic policy. In this regard, the US and the USSR's détente phase was the result of symbolic

foreign policy decisions that were meant to ease Cold War tensions. The IGA, "Concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes", is the product of détente. Sheehan (2007) characterizes the Detente period as a shift from a realist to a liberal interpretation of outer space. Indeed, the growing assets of the two states' space programs demonstrated the desire to investigate possible cooperation areas that this period offered. In this respect, Sheehan (2007) stresses that, instead of being strictly realist, such developments allow interpretation from a mixed standpoint.

The USSR space program improved by analyzing, studying, and adapting American technological advancements. Soviet scientists had the chance to carve out a place for themselves with practical projects that would have a scientific influence and lead to avoiding direct rivalry due to what Sagdeev and Eisenhower (n.d.) call the transparent and anticipated essence of the American space program. In the 1970s, cooperation between the US and the USSR in health and biological sciences also began to flourish. The Soviet Cosmos 936 mission transported seven American biological experiments and medical gadgets in 1977. Additionally, on May 6, 1979, the USSR and the US reached an agreement to establish an international network of satellites equipped with audible alarm receivers (Sagdeev and Eisenhower, n.d.). Yet Cold War hostilities were on the rise in 1981, the year that Ronald Reagan took over the office as US President. The period was turbulent due to the declaration of martial law in Poland, the Soviet occupation of Afghanistan, and NATO's deployment of Pershing rockets and cruise missiles in Europe, which the USSR swiftly responded to by deploying SS-20 medium-range nuclear missiles (NATO, 2009). Yet the outer space cooperation efforts continued. The White House approved low-profile cooperation on a case-by-case basis in the absence of a formal intergovernmental agreement and tense relations. The satellite-based search and rescue operations, which relied on the synchronized use of the Soviet COSPAS and the US to find aircraft or ships in distress, were among the activities that proceeded. At least 400 lives had been saved by such operations. Additionally, NASA was permitted to carry on its cooperation with the USSR in space biology and the medical field. The Soviet academics Oleg Gazenko and Anatoly Grigoriev and NASA's Dr. Arnauld Nicogossian's covert communication for such cooperation would later serve as a model for future collaboration between the Russian

space station Mir and the space shuttle programs as well as on the ISS. Meanwhile, the planetary data exchanges continued (Sagdeev and Eisenhower, n.d.; Karash, 1999).

Along with these collaborative efforts, Reagan's decision to implement the Strategic Defense Initiative (SDI) was a crucial move in urging the Soviets to enhance the overall backdrop of bilateral ties and avert the militarization of outer space amid what many would deem the coldest phase of bilateral relations in the early 1980s (Karash, 1999). Yet, initially, SDI brought controversy since it was perceived as paving the way for an offensive arms race rather than acting as a "Peace Shield (Washington Post, 1987)". A month after Reagan declared the SDI, Sovetskaya Rossiya, one of the official documents of the Communist Party and the Soviet government, announced in April 1983 the importance of cooperation (Karash, 1999).

As Sagdeev and Eisenhower (n.d.) discuss, despite the two nations' tense relationship due to regional conflicts, these accomplishments were made. The efforts of various private groups, such as the Planetary Society and the Association of Space Explorers, established by people who had been in outer space or were experts on the subject, would act as a potent spur to maintain Soviet-American space collaboration. Soon after Ronald Reagan was elected US President, NASA encouraged him to consider building a space station to compete with the USSR's station program. Later on, Reagan declared he was ordering NASA to create a permanently staffed space station and inviting other nations to join in 1984. Freedom was initially projected to cost around $8 billion and was considered the beginning of the path for the ISS project (Karash, 1999). Since then, the impetus for collaboration in space has been extending since the start of the Reagan era.

The warnings regarding the hazards of weaponizing outer space and the call for an internationally established space station as an alternative from the Senate resulted in the adoption of Joint Resolution 236 on October 10, 1984. The resolution was signed on October 30 by President Reagan, who noted that the United States was prepared to cooperate with the Soviets on collaboration in outer space in mutually beneficial programs (Sagdeev and Eisenhower, n.d.). As Karash (1999) signifies, in the late 1970s and early 1980s, the valuable experience from the ASTP, human spaceflight, and both countries' overall intentions to explore the possibility of future joint outer

space missions produced outcomes that were concrete enough to be mutually beneficial. The central goal of the efforts of the Soviet and American leadership was to exploit outer space cooperation to boost US-Soviet relations (Sadeh, 2004; Karash, 1999).

While I agree with this approach to some extent, I do not completely agree with the idea that cooperation in space is solely aimed at promoting US-Russian cooperation in the Cold War context. Regarding ASTP, as discussed briefly above, the desire for such an initiative included reciprocal assessment of space programs to see how far they developed, testing the efficacy of an international space rescue operation, the functionality of rendezvous and docking technologies, and a productive contribution for the sake of mankind (Sheehan, 2007; Sadeh, 2004; Karash, 1999). Particularly considering the ISS, I argue that US-Russia relations have also improved as a result of the ISS's cooperation. Considering the cause and effect, I claim that cooperation on the ISS is not merely a causal factor in improving Russian-US relations. Rather, the ISS cooperation itself has consequently affected Russian-American relations in an exemplary direction, even during tense relations. Then this paves the way for the question of "why the US and Russia decided to cooperate on the ISS?". Before answering this, I should check out the studies focusing on Russia-US cooperation on the ISS.

2.2.4. The US-Russia Outer Space Cooperation: The International Space Station (ISS)

The cooperation dimensions that I discussed above contributed to the research on how to understand outer space bilateral relations and their outcomes until the ISS. Thus, as I further explore the processes that created the ISS collaboration, the above literature provides an opportunity to understand previous developments and to grasp the links between previous developments and ISS cooperation. In this context, I will be able to analyze my findings easily. By critically observing how the scholarly studies discuss the ISS process so far, in this section: 1) I shall have the opportunity to test the value of this study's argument for continuing to research; 2) I shall be able to evaluate this thesis' projected argument; and 3) I shall be able to draw a framework in terms of methodology and theory. For this reason, I aim to comprehend how the Russian-

American ISS cooperation is reflected in scholarly studies rather than focusing on the historical chronology of the ISS.

While glancing at the studies regarding the ISS, I first noticed that there are two types of studies: the first type of studies explain the technical, management, and operating functions of the ISS (Ruttley and Robinson, 2017; Billings, 2012; International Space Station, 2005; Hornyak, n.d.; Dempsey, n.d.; United Nations, 2008). The others mention the ISS while discussing the overall transatlantic outer space policies (Strategic Comments, 1997; Karash, 1999; Cline and Gibbs, 2001; Sadeh, 2004a; Sadeh, 2004b; Dupas, 2007; Catchpole, 2008; Wang, 2013; Moltz, 2014). Yet, it is likely to emphasize that there are few causal interpretation references to the particular US-Russia cooperation in the ISS in both types of studies (Strategic Comments, 1997; Karash, 1999; Sadeh, 2004a; Sadeh, 2004b; Catchpole, 2008; Billings, 2012; Wang, 2013). For this part, I intend to explore the explanations of the ISS cooperation between the US and Russia. Hence, I shall not focus on the technical operating part of the ISS if the first type of studies do not provide any direct causal evidence on the two nations' partnership. The technical side will be explained as part of this thesis' causal methodological framework regarding work-sharing strategies.

Scholarly studies first attempted to define the ISS in general. Around 250 miles above the surface of the Earth, the ISS is a research facility that enables international scientists and astronauts to fulfill unique scientific and technological inquiries regarding outer space. It also paves the way for sending unique experiments and receiving data. Researchers, taxpayers, and program managers from several agencies are just a few of the many interested stakeholders in the ISS. (Ruttley and Robinson, 2017; International Space Station, 2005; Hornyak, n.d.). Each participant has their own objective for the program and has played a significant part in the development of the station from design to utilization (Ruttley and Robinson, 2017).

Hornyak (n.d.) elaborates that the ISS Program's goals are to advance scientific and technological research, develop human knowledge, motivate and educate the next generation, encourage commercial space development, and show off capabilities that will enable interplanetary missions beyond low Earth orbit (LEO) in the long term. The ISS program utilizes the space station to carry out this objective, specifically to

enhance space technology. As Wang (2013) emphasizes, despite the lack of a precise definition of its tasks, preparing for extended human spaceflight into deep outer space is one of the ISS's primary functions as it offers a long-term international manned residence in outer space. In this frame, outer space missions, including those to the Moon and Mars, also benefit from the knowledge and information gathered by the ISS. Hence, the ISS is "viewed as a litmus test of international space cooperation", particularly for technological advancements (Sadeh, 2004b, p. 171; Hornyak, n.d.). Indeed, the ISS can be regarded as a litmus test since it is the most dramatic symbol of US-Russian outer space cooperation efforts. In this regard, as Karash (1999) points out first, it is the largest and most obvious indication of the changed relationship between space activities and overall bilateral relations. Secondly, as cooperation in human space flights is more susceptible to political shifts in bilateral ties and due to the space station's high exposure in the overall political relationship, the ISS was more politically contentious than any other collaborative space project. Yet, the project was protected from short-lived political tensions because of the Clinton Administration's firm commitment (Catchpole, 2008). And finally, if this largest joint space project among these two nations had failed, it would have had a severe impact on their future joint space endeavors. Although the ISS program also includes Canada, the European Space Agency (ESA), Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, the UK, and Japan, the station is divided into two major sections. One is the Russian Orbital Segment (ROS), which is operated by Russia; the other is the United States Orbital Segment (USOS), which is run by the US and the other states mentioned above (Dempsey, n.d.; Catchpole, 2008). The program was established with 16 modules, while the major module numbers come from both Russia and the US. It has six Russian modules, Zarya, Zvezda, Poisk, Rassvet, Nauka, and Prichal; eight US modules, BEAM, Leonardo, Harmony, Quest, Tranquility, Unity, Cupola, and Destiny; one Japanese module, Kib; one European module, Columbus; and one Canadian module, Canadarm 2 (Hornyak, n.d.; Dempsey, n.d.; Catchpole, 2008; Moltz, 2014;

In scholarly studies of outer space, I've found that epistemologically, the ISS program covers one part of each study overall (Karash, 1999; Sadeh, 2004a; Dupas, 2007; Billings, 2012; Wang, 2013; Moltz, 2014). In this context, studies include descriptive articles on how the ISS was realized and developed (Sadeh, 2004a; Dupas, 2007;

Moltz, 2014), details of how the member states contribute to the program with modules (Catchpole, 2008), the US' efforts on the program, particularly within human spaceflight (Billings, 2012), the way NASA operates the ISS with its technical, organizational, and political dynamics (Sadeh, 2004b), the explanation of Russia's involvement and its contributions (Strategic Comments 1997), and the discussions and development process of management provisions on ISS agreements known as IGAs and MOUs (Cline and Gibbs, 2001). I noticed that causal interpretations of the particular Russia-US dynamics are few and shallow in studies that include the ISS program (Sadeh, 2004a; Sadeh, 2004b; Catchpole, 2008; Billings, 2012). However, among these examinations, three studies relatively stand out by dealing with bilateral relations with the ISS in more detail (Strategic Comments, 1997; Karash, 1999; Wang, 2013).

Most of the studies highlight the international system context while discussing ISS cooperation (Karash, 1999; Saadeh, 2004b; Catchpole, 2008; Wang, 2013). According to Wang (2013), the US goal of constructing a long-term manned space station was fostered by the Cold War system. In order to maintain its alliance leadership and avoid falling behind the USSR in the space competition, the US needed to advance the space station program. Consequently, the ISS program was deeply ingrained in terrestrial politics and predicated on logical negotiations, mostly carried out by sovereign governments (Wang, 2013; Stuart 2009, p. 18). In this framework, per Catchpole (2008) and Karash (1999), the initial goal of the Space Station project was to demonstrate American technological superiority over Russian technology. The development of the ISS was systematically affected by the international security and political interactions that occurred between the US and the USSR during the Cold War and between the US and Russia during the post-Cold War era (Wang, 2013). An article (Saadeh, 2004b) mentions that the post-Cold War era and US-Russian cooperative ties in that period were linked to ISS cooperation. Consequently, the dissolution of the USSR in 1992 directed a convergence of norms between the US and Russia that are symbolic of the post-Cold War era and resulted in cooperation. Moreover, considering Russia's goal in getting involved was to demonstrate that it could compete with the US space program, it sought to become NASA's equal partner.

In this framework, it wanted the conditions in the IGA and MOU agreements regarding ISS, the establishment, and the design processes to be arranged accordingly as a perceived equal partner. Russia's resistance to becoming an equal partner resulted in modifications to the decision-making processes of management to boost its participation as a co-equal with respect to NASA. Substantially, NASA's more traditional role in cooperative space endeavors was changed by the acceptance of Russia's emergence as a critical partner, which was differentiated by intensification to one characteristic of bilateral binding encompassing a greater degree of multi-lateralization in all aspects of technology, decision-making, and management (Saadeh, 2004b). Contrary to this argument, Wang (2013) underlines that the US adopted a traditional sovereign approach for the ISS, meaning delegating authority to each partner, to prevent technology transfer amid collaboration among and within the foreign partners. Thus, the US kept the space station atomistic by granting authority over individual modules, preserving its own strategic objectives in the process, and preventing political interdependence (Wang, 2013).

While the Strategic Comments (1997) article does not necessarily concentrate on the reasons for the joint cooperation on the ISS, it outlines three main arguments for why the US insists on Russia's involvement in the initiative. Similarly, Karash (1999), Billings (2012), and Wang (2013) also highlight these arguments. The first is to benefit from Russia's significant space exploration expertise acquired aboard the Mir space station since 1986. Additionally, Russia's massive launchers provide a less expensive way to place payloads in orbit. These capabilities promise to increase ISS productivity and security while assisting in keeping costs from sharply rising. Secondly, to minimize a “brain drain” of scientists to potential nations that proliferate weapons and to offer the former Soviet aerospace industries a credible alternative to military endeavors. The final one is to provide the project with the much-needed political push it required in Congress as it became more crucial in international policy, offsetting objections to its scientific merits and rising costs since a 1993 Congressional amendment to stop funding the ISS was rejected by only one vote. Due in great part to the program's justification in foreign policy, it has become easier for it to stave off Congressional criticism. In this context, Saadeh (2004a; 2004b) underlines that international collaboration was also affected by domestic policy preferences as a result of the incremental fiscal politics of the US Congress. Without involving its partners

directly in the decision-making process, Congress's appropriators compelled NASA to modify and re-design the space station multiple times between 1986 and 1993 due to increasing expenses and fewer funds than anticipated. Hence, Saadeh (2004a) argues that the domestic financial restrictions constrained NASA, which limited the degree to which NASA was able to complete the station independently of its international partners. Additionally, as Billings (2012) emphasizes, NASA's new policy with the new NASA Administrator Daniel Goldin, “Faster, Better, Cheaper”, was in line with President Clinton's purpose to stretch the federal budget. This, in turn, paved the way for international cooperation. Moreover, Karash (1999) and Catchpole (2008) mention that the US was worried that its rivals would become more competitive by having access to sophisticated and affordable Russian space technology.

Karash (1999) also discusses Russia’s cooperation decision by arguing that the Soviet program was harshly impacted by the defeat of a competitive rationale. Many Soviets believed that the only purpose of the former Russian space program Mir was to surpass the Americans in space. When this objective was lost, a sizable part of Soviet society began to view the program as a burden on the faltering economy of the nation. Thus, the Kremlin started opening its space program to the West to become engaged in space collaboration with Western countries. The Kremlin would split the expenses of the key space projects in this way. Additionally, according to Karash (1999), another motivation was triggered by the idea that renewing cooperation in space would become a symbol of a new era in US-USSR ties, just like ASTP in 1975.

When peeking at studies on the ISS, I paid attention to checking the discussions that were related to my research topic. For this reason, I narrowed the ISS literature and explored studies focusing on how ISS cooperation is explained within the Russia-US framework. I comprehended that the general function of the ISS is to provide long-term international manned residence in outer space in order to carry out scientific research, including interplanetary missions and research of resources, and to contribute to space technology improvement. Hence, it also aims to provide manned space flights. Considering the traditional and historical rivalry between Russia and the US, the cooperation realized on the ISS can be observed as a controversial case and a significant symbol of these efforts. Since bilateral relations between Russia and the US are sensitive to political dynamics and instability, discussing the reasons for their

cooperation in outer space is a natural outcome. The protection of this cooperation model against political tensions also makes it more crucial to investigate causality for engaging in this cooperation.

2.2.5. Analytical Conclusion

While examining US-Russia outer space relations, I realized that according to academic studies, they are defined in two ways: competition for security and cooperation for security. First, I focused on studies to understand how the security concept is considered in the outer space framework. As a concept, outer space security is still ambiguous, similar to concepts related to the subject such as sovereignty, territory, and state mentioned earlier. In this sense, the OST and Moon Agreements contribute to conceptual developments by attempting to clarify concepts through notions of peaceful purposes and the global use of outer space for all human beings. Outer space security has been triggered by the US and Soviet Union's competition. Although outer space was initially considered a potential for defense and military power within the scope of the Cold War, it has also begun to be addressed on a safety level with the changing security understandings within the changing context. A safety edge was a necessary approach to thwart the hostile and competition-oriented security understanding that could expand into this new domain and wreak havoc. In this frame, the ISS cooperation is an outcome of safety-edge security cooperation. The issue of security competition started gradually to lose its military engagement-oriented importance in the Detente and Post-Cold War periods, changing the security interpretation in a mixed manner.

One of the points I find problematic here is that too much importance has been given to the system-level context for conceptual definitions and bilateral relations explanations in scholarly studies. Indeed, there have been differences in competition-related relations during the Detente and Post-Cold War periods; however, historical developments have revealed that many attempts were made to cooperate in outer space between the two superpowers during the Cold War as well. Therefore, considering the Cold War context, both states have actually shifted away from traditional policies and actions when it comes to outer space issues. In this logic, realist assumptions, as discussed previously, emerge as a puzzle. As mentioned above, the most noteworthy

examples of this are the correspondence of the US-Russia leaders in the 1950s to treat space as the common good for all mankind, their discussion of potential cooperation areas, their joint participation in COPUOS and OST agreements, and the appointments of two states' vice presidents at the Committee on Space Research. Moreover, the signing of the Dryden-Blagonravov agreement for joint data exchange and other outer space research during the Cuban Crisis and its impact on accelerating cooperation efforts are reflections of cooperation between the superpowers during that tense period. Similarly, outer space relations were not dependent on regional issues in the Berlin crisis of the 1960s.

These developments did not occur during Detente or the post-Cold War era. For this reason, it can be underlined that realist and neorealist explanations are not enough to explain US-Russia outer space relations. In this framework, an updated theory understanding is important following the changing dynamics and relations due to occurring changes in issue areas within the security agenda. At this point, it can be emphasized that within Keohane & Nye's approach, which reveals the necessity of an issue-based security understanding other than structure-based, the impact of military security understanding has decreased, making it possible to respond to the current issues, including cooperation models of economic processes, institutions, and interaction-based interdependence. Consequently, complex interdependence theory will provide a basis for this study to explain the changing nature of the security concept and its transformation into an issue-based concept to explain why states shift to ISS cooperation due to interdependencies. Since complex interdependence does not completely reject realist arguments but finds them insufficient against changing dynamics, it will provide a solid ground for the establishment of ISS by building its explanations on those arguments.

Even in the tensest period of relations, Washington and Moscow's prudent approach to outer space issues brought various cooperation efforts and options. While it should be considered that the steps of cooperation are made with a rational calculation to protect unilateral interests in the Russia-US space competition, it also should be noted that both countries seek to find win-win models as much as possible to avoid any mutually catastrophic outcome due to different views and tensions on political issues in the process leading to the ISS. With the acceleration of these breakthroughs in

cooperation during the Detente period, cooperation activities such as IGA for ASTP became an important turning point for outer space cooperation. With the ASTP, outer space activities between the two countries gained momentum and mutual interests were established. In the 1980s, although the relations resembled those of the Cold War period due to the tensions over regional issues, efforts for outer space cooperation still continued. The strategic importance of both countries cooperation in outer space has led to the successful outcomes of joint work on initiatives such as Halley Armada, mentioned above. Similarly, the many steps of cooperation with mutual benefit and common understanding mentioned above show that even though there are tensions in world affairs, efforts are made to ensure that cooperation in outer space is not interrupted. In fact, many important steps have been taken that have paved the way for ISS cooperation. Some scholars claim that efforts in outer space cooperation were made to improve US-Soviet relations within the context of the Cold War. While this may be true, I doubt that this was the sole purpose in the Cold War context.

It is true that both states rationally tend to cooperate in calculations, but as I mentioned above, these calculations have both unilateral and common interests independent from regional affairs, such as observing how much each space program has developed, serving the common benefit with joint activities, preventing any race from being carried to outer space, and transforming it into a warfare domain that would result in mutual havoc. Thus, I argue that the outer space issue involves more than just fixing the relations between the two major spacefaring states that are strained by world affairs. That is the reason why I examine outer space definition and outer space security understanding in this literature review to comprehend and correlate possible rational calculations of countries according to outer space dynamics.

As mentioned above, certain issue areas that are inherently transnational (such as outer space) can come to be governed through regimes. ISS seems to be an appropriate example of this approach. In this sense, the examination of international organizations and space-related regimes can clearly benefit from a neoliberal perspective. The proven fact that “levels of international cooperation were far higher than could be justified by neorealist theory” was a key factor in the development of neoliberal theory (Sheehan, 2007). Neoliberals assert that international organizations are essential to the functioning of international regimes, which they characterized as “systems of

principles, norms, rules, and decision-making procedures", yet in the meantime, they still acknowledge that states are the primary actors in IR. While "political results continue to be substantially influenced by power politics", the neoliberal-neorealism reunion generated a perspective on international relations in which states tried to establish and uphold international regimes based on rules and law (Sheehan, 2007). In outer space politics, particularly, this approach can be seen vividly through states' cooperation and joint programs.

The ISS, as an international organization, plays a vital role in the development of US-Russian outer space cooperation relations. The first point I noticed in academic studies related to the ISS was that there was no mere study on Russia-US cooperation on the ISS. Most of the studies have focused on ISS cooperation with a holistic approach, focusing either on its technical parts or on a narrative with all participating countries. In fact, apart from Karash, which also deals with overall Russia-US space relations, there are not many studies focusing on this particular case. Additionally, it should be mentioned that although Karash's research (1999) supports this study with sound arguments, he only included the ISS as one part of his study. Although the studies discussed here have touched upon the changing dynamics of the ISS with Russian involvement, both parties' reasons for such an endeavor had little place within the studies. In fact, I find that there was very little work on Russia's ISS cooperation decision. Overall, I have noticed that there is not much comprehensive study, or rather, very little causal analysis, on the reasons why Russia and the US decided on this cooperation.

Apart from qualitative data for ISS collaboration explanations in academic studies, the lack or little amount of quantitative data analysis, especially for explaining economic reasons, is also one of the problematic points in the ISS literature. Based on what data were the economic inferences determined? This needs to be checked. At the same time, considering that the ISS is a technical structure, I have not come across a study that focuses on the US and Russia's technical function in the ISS to explain why their function in the ISS necessitated such cooperation for both parties. Furthermore, similar to Russia-US outer space relations in general, the important point that can be criticized for the studies was too much emphasis on the international system context. The post-Cold War international structure certainly has an impact on ISS cooperation, but I

question why it is given too much importance. I assume that the two countries have mixed motivations for ISS cooperation aside from structural context. This means that Russia and the US possess common interests or compatible policy goals in a given space application field, but they also possess some contradictory interests. In this framework, for ideal cooperation at ISS, what are the certain shortcomings of the two parties? Are there certain strengths of each state? The points where they can mutually contribute to each other (such as technological and financial), and what are mutually contradictory interests if there are any? What is the tendency to ensure mutual security and do good for humanity? Such matters are seldom mentioned.

A study to be carried in this sense may refute, for instance, Wang (2013)'s thesis mentioned above that the US pursues the traditional understanding of sovereignty in the ISS to prevent technological transfers with a counterargument that one of the main purposes of the ISS is actually to benefit from mutual technical advantages, encouraging technological transfers. Additionally, the argument on the attempts to prevent political interdependence may contradict the aim and understanding of ISS cooperation to maintain cooperation despite political tensions. Maybe the ISS was built to prevent two states from taking a step that could be a security threat by ensuring political interdependence? In this regard, I assume that this study can fill an important gap in answering such assumptions. Meanwhile, the fact that the scholarly studies that are examined here have a little theoretical framework for ISS collaboration makes this study more significant.

Nevertheless, it can be stated that it is important to test whether the studies discussing the causal relationship between Russia and the US within the ISS provide reliable data by only focusing on the ISS aspect of bilateral cooperation. This paper intends to respond the question of "Why the US and Russia decided to cooperate on the ISS?" by supporting its argument with a theoretical framework and using qualitative data with a causal approach.

CHAPTER III

THEORETICAL FRAMEWORK

After evaluating the literature review in the previous chapter, to construct an applicable research framework for this study, in this chapter, I first introduce Parsons' (2007) explanatory logics that are discussed under the “logic-of-interpretation” and “logic-of-position” headings and their possible approach to explaining the US-Russia decision for the ISS cooperation. After summarizing the logics, I attempt to examine which logic is relevant to the research question: “Why did the US and Russia decided to cooperate on the ISS?” by making a critical evaluation, finding that the intuitionalist typology is the proper general framework for this study. In the second section, I present Keohane & Nye (2012)'s complex interdependence theory as a practical process-based map to explore the conditions that led to the two states' cooperation on the ISS. As I aim to explain the research question with a practical map through Parsons' (2007) institutionalist logic general framework, this leads to dividing the practical method into two processes, offering the study of the International Organization Model, which is associated with complex interdependence. The final section details the process methods to display how to deal with the variables to answer the research question. I indicate that the research utilizes qualitative methodology linked to Mahoney's (2015) historical process tracing to conduct hoop tests to verify the presented hypotheses.

3.1. Explaining the ISS Cooperation

Parsons' (2007) explanatory inquiry basically discusses the logic of "what causes what" as follows:

> There are many other things we would want to know about an argument to fully understand it—the phenomena it addresses, the methods it employs, its level of analysis—but they are less important as a first cut than grasping its basic view of what causes what (12).

In a similar way, I aim to find out what has caused the cooperation between the two states on the ISS. Hence, in this section, I examine Parsons' various explanatory logics through four typologies, intending to strengthen my causal interpretation by finding a suitable explanatory typology for my research question, which is “Why the US and Russia decided to cooperate in the ISS?” Parsons (2007)’ four logical explanations for mapping arguments are: structural, institutional, ideational, and psychological.

3.1.1. Four Typologies

Briefly, Parsons (2007, pp. 12) indicates that structural arguments focus on explaining how people act vis-à-vis externally provided “material” structures like the international system, geography, wealth distribution, or physical power distribution. Humans behave differently depending on where they are in a specific material landscape. Institutional claims describe what people do in relation to the function of their position in man-made organizations and norms (as well as within the 'path-dependent' process implied by man-made limitations: people's choices at time t modify their own restrictions at time t + 1). Ideational assertions view the cognitive and/or affective components that structure people's thoughts as having been produced by certain historical groups of individuals, and they explain behavior in terms of these components. According to the psychological perspective, people's actions are a result of the cognitive, affective, or instinctive components that structure their thinking; yet, these components are seen as universal to all human beings and as hard-wired components of “how humans think”. Parsons (2007) divides the typologies into two groups: “logic-of-position” and “logic-of-interpretation”, each of which leads to a distinct line of an explanatory framework. For Parsons (2007), the logic of position refers to structural and institutional arguments that explain the environment in which a subject takes particular actions due to a series of material or man-made obstacles as well as incentives. Microfoundations in objective rationality are necessary for such claims. It only makes sense to attribute actions to external limitations if people are responding to them consistently and rationally. Conversely, all justifications that presuppose objective rationality rely on institutional or structural factors to characterize specific behaviors as rational. Hence, according to Parsons (2007), all “rationalist” approaches can be categorized under institutional or structural typologies.

As discussed briefly above, Parsons (2007)' structural explanation focuses on the "material" landscape, narrowing the term by de-linking it from other claims that do not refer to such main causes. In this sense, Parsons (2007) adopts Karl Marx's structure understanding, who perceives "all aspects of human life—even "spiritual"—coalesce in direct reaction to an objective, physical, "material" landscape (51)". The structural explanatory perspective depicts individuals' reactions to their "material" surroundings in predictable, straightforward ways. By demonstrating how people are situated differently within the "material" environment or, over time, by highlighting external changes in the "material" landscape that drive people toward new activities, such logic explains variance in action. Yet Parsons (2007) indicates that while considering the term "material", it should be noted that even though a structural claim portrays the components it utilizes to explain action as physical, externally provided environments that exist "independent of the will" of humans, alternative explanations can depict some of the same components as man-made institutional or ideational constructs (pp. 51). Additionally, structural thinkers may also acknowledge this possibility with a few qualifications or subtleties. To be more clear, if we consider, say, Marx's emphasis on the "economic structure of society", it includes various types of property rights, political power, and other variables that may display that individuals could have reacted aside from structural claims' most obvious casual form as a physical and exogenously given environment. This means that even though the fundamental explanatory components might actually involve "material" things, they may contain man-made institutional or ideational components. Yet from Parsons' perspective, structural claims treat these components as givens throughout their explanations, treating them as though they were natural or physical (Parsons, 2007; pp. 52). Individuals act based on items that are acknowledged as material resources and restrictions. In this regard, the "objective rationality" assumption, which holds that all people respond rationally based on their "individual preferences" and naturally given "environmental conditions", is the most important premise in the structural claims (Parsons, 2007; pp. 52–53). Consequently, even though the actors are part of the same framework, the material patterns can result in different individual preferences. Using IR theories as an illustration tool, Parsons (2007) in this sense claims that while all three theories, Marxism, Realism, and Liberalism, hold that rational individuals are guided through material structures, they each describe different structural patterns and dynamics. Considering the "security" issue, for instance,

according to realists, it is more basic than the scarcity that concerns liberals and Marxists. For realists, the majority of behavior consists of deliberate attempts to increase the types of power that enable control over the tools of violence. The allocation of resources that relate to physical power—most obviously, military and material—as well as underlying factors like geographic positioning or demographics drive the main restrictions that determine individuals' rational strategies for security (Parsons, 2007).Therefore, practically endless assertions and theories can be included in structural logic. All of them propose that rational beings are guided by material structures, although they each describe different structural patterns and dynamics. Even though people may choose their strategies as a cultivated function of others' strategies, the games that individuals play are explained as being drawn from their material environment (Parsons, 2007; pp. 54).

The institutional logic also acknowledges that actions under man-made institutions might change due to changing structural patterns (Parsons, 2007). The notion of contingency, however, sets the institutional explanation apart from the structural one. Parsons (2007) implies that an institution is any permanent pattern of behavior among a group of people, according to mainstream social science terminology. These patterns can occasionally take the form of formal organizations, emerging as structures, resources, and social groups that adhere to particular rules. Similarly, Parsons (2007) indicates that states, militaries, academic institutions, and other formal groups are frequently referred to as institutions. There are times when patterns do not result in formal organizations, leaving rules as their only other form of expression. As a result, the institutional framework is frequently described by researchers as including explicit commitments like laws, treaties, or norms. These standards are occasionally not even stated, existing solely in unwritten conventions or obligations like the handshake. Within this frame, it can be said that the concept of an institution encompasses all phenomena, ranging from tangible organizational actors to intangible norms or practices. To define an institution in this context, Parsons (2007) argues that there should be an arrangement on what form of causal claim is most appropriately referred to as institutionalist since not all arguments on institutions are actually institutionalist arguments (pp.66). According to Parsons (2007)' understanding, institutions should not simply be used as dependent variables or byproducts of structural or ideational causal processes by saying that: "We should also reserve the

institutionalist label for claims in which institutions cause something— in which the configuration of formal or informal organizations, rules, or norms around someone causes her to act in certain ways (pp.67)". Hence, a more limited label application increases its value by connecting it to a certain causal logic. Parsons (2007) proposes that a distinctively institutionalist claim is that the establishment of specific intersubjectively present institutions (time t) unintentionally guides people in particular directions at a later time (time t +1). Actors face clear constraints that direct their behavior due to the institutional obstacle course they have inherited. Consequently, Parsons (2007) suggests that the institutions should also be regarded as independent variables that determine one's actions or direct one's conduct. Parsons (2007) explains how this understanding is different from structural logic within the concept of path-dependence as follows:

> This differs from structural claims in two fundamental ways. First, it explains action as a reaction to positioning vis-à-vis man-made organizations, rules, or conventions, not vis-à-vis nonmanipulable, given material structures. Second, an implication of focusing on man-made constraints is that people can affect their own constraints to some degree (at least at certain historical junctures). Thus, institutionalist explanatory segments incorporate feedback between action and constraints within the temporal scope of their causal claims. This is commonly known as 'path dependence' (67–68).

In this regard, what is crucial is that the decision made about institutions at one time had the unintended effect of directing later events along a specific historical course. Parsons (2007)' assertion is that some rationalist institutionalists do not give institutions a clear causal significance. When they refer to an action pattern as "institutionalized", they actually simply mean that persistent structural restrictions hinder rational actors from departing from that pattern. Hence, they lean more on structural logic instead of institutional typology. Some rationalist institutionalists use the institutionalist logic's first component by explaining actors' decisions as a function of their place in man-made institutions, but they do not highlight the second component's distinctive causal mechanism meaning: feedback, unintended consequences, and path dependence. Hence, they overlook Parsons (2007)' overall institutional explanation argument. In this context, the central argument is that the institutionalists should restrict their arguments to those that, unlike structural arguments, emphasize path dependence and man-made limits while invoking objective rationality.

The concept of objective rationality for casual work that is discussed while explaining structural logic is important to prevent the institutionalist argument from getting intertwined with psychological or ideational typologies. For Parsons (2007), institutional logic should be viewed as having the same rationalist micro-foundations as structural causal segments. The fundamental objective of institutionalist and structuralist arguments is to interpret action by emphasizing the characteristics of a clear external context that exists independently of any particular individual (pp.70). In this sense, in order to maintain consistency in preferences and decision-making, structural logic depends on rationality. As a result, variations in behavior can be directly attributed to structural positioning, whereas the same presumptions enable us to identify the position's most obvious causal factor within institutional incentives and limitations.

From this viewpoint, as Parsons (2007) emphasizes, the main distinction between structural and institutional logics is that they both use a model of objective rationality to direct our attention to various types of limitations: external, non-manipulative constraints on the one hand and man-made agreements, rules, and organizations on the other. Then, the key step in separating institutionalist assertions from structural ones is to demonstrate that man-made constraints are somehow different and autonomous from the material landscape by assuming that objective rationality presumptions allow us to argue that institutions themselves form action instead of just interpretations or misperceptions. This approach requires an assertion about indeterminacy, unpredictability, or both in the structural context as a point of departure (pp.71). In order to establish an institutionalist claim on structural indeterminacy, Parsons (2007) contends that loose structural contexts leave rational individuals without clear indications about how to behave in multiple situations. Despite the fact that others would have been equally rational under these ambiguous conditions, they chose to build one set of institutions. Then the decision restricts them to particular actions within the previously accessible scope of alternatives. As an example of structural indeterminacy, Parsons (2007) presents the case of a company's consideration of starting production in China or Indonesia, which have nearly similar costs and advantages. The company joins the Indonesian market for minor factors, such as the CEO's admiration for Indonesia compared to China, and starts to provide managers with training in Indonesian culture and language. Hence, import/export relations,

including supplier and shipper relationships, expand, and management gains expertise in Indonesian politics. The company's relationship with Indonesia quickly becomes institutionalized through many commitments, established knowledge, and a specific resource organization. Consequently, the company decided to focus its future investments in Indonesia in the Asian region since it has well-developed institutional assets there and due to the expensive cost of switching to China (pp. 71). In this context, rational individuals have created a path of institutional restraints and incentives for their conduct in the face of relatively loose structural conditions. For structural unpredictability, Parsons (2007) would first contend that structural constraints dictated a pattern of action as rational in order to make an institutionalist argument on structural unpredictability. Yet, people find that man-made institutions discourage them from rationally adapting to new structural incentives when structural conditions change in unexpected ways. In this case, at first, the company determines that Indonesia is the more profitable region and makes investments there. However, when, say, a natural disaster causes serious harm to crucial suppliers and marketplaces and fuels political unrest in Indonesia, China emerges as a more convenient country to invest in and produce in. Nonetheless, the company remains in Indonesia due to the established organizational capabilities there and the significant expense of moving, including learning how to operate in China, forging new connections there, etc. (p. 72).

In this sense, rational people's decisions favor a man-made institutional path over shifting structural conditions. Eventually, it is man-made institutions, as opposed to structural factors, that cause the company's later decisions to choose Indonesia over China in either case. According to Parsons (2007), early contingent decisions produce a pattern of links that unintentionally nourish back to alter the restrictions and incentives for later choices. In this regard, this approach, known as "path dependence", indicates that as an individual makes a step along a certain path, he creates obligations, anticipations, and sunk costs that engender other moves in the same direction. As Parsons (2007) states, the institutionalist emphasis on man-made limitations and resources results in a fundamentally different mechanism in which past decisions interact with the environment to shape the context for future decisions. Because "we can only see how the creation of certain institutions matters if we follow their effects on later action (pp. 74)". Furthermore, Parsons (2007) implies that we must distinguish the effects of the institutions from an analysis of the external environment to make a

clear argument that the institutions themselves become the driving force behind individuals' decisions. This entails separating the effects of institutions from the foresight or structure that existed before those institutions, either by claiming that the circumstances that existed before those institutions were obscure or that those circumstances changed unexpectedly and caused people to become trapped in "difficult to change" institutions. Parsons (2007) claims that we require two types of evidence to support institutionalist causal logic. First, we must establish how and to what extent behaviors are directly influenced by institutional conditions in a temporally and conceptually close sense. The actions that support a structural claim are akin to this endeavor. Secondly, to demonstrate that the pattern of action coincides with the institutional patterns and (since this is a rationalist logic) provide at least some indication that actors displayed broadly rational decision-making and actually followed the logic we have posited, it is necessary to document the pattern of institutional constraints or incentives present at the time of the action. The additional set of steps for an institutionalist argument reflects this kind of cause's particularistic, man-made origin. As stressed, institutions are the results of prior activities. Even after establishing their apparent proximate causal significance in an action pattern, their impacts only become institutional to the extent that we can demonstrate that they are not reducible to other factors. In this framework, to construct or preserve the institutional pattern of activity instead of a variety of alternatives, we must demonstrate that extra-institutional prerequisites were inadequate at some point in the past. Meaning, we need to document the contingency that institutional path dependence's particularistic logic handled. Only with this understanding of historical options can we support and define an institutionalist causal assertion (pp. 91–92). In this regard, the notion of contingency distinguishes the institutional claim from the structural one. Because all structures and their corresponding patterns are obvious, there are almost no doubts when attempting to describe an action in a structural argument. Uncertainty can only be explained by the irrationality of human actors, which is implausible unless the actor is unable to use logic for his or her well-being. On the contrary, an institutional approach embraces both the concepts of contingency and objective rationality. The idea of contingency is thought to be applied in uncertain or unpredictable circumstances driven by alterations to an already-existing structure. According to Parsons (2007), a human actor has a choice of alternatives to choose from when a prior institution becomes unmaintainable because of a shift in a preexisting

structure. As contingency implies that a modification in a prior structure does not directly trigger an action but rather gives a variety of institutional options, the institutions selected from a variety of alternatives serve as the causal framework. In this context, as Parsons (2007) highlights: “To separate institutionalist claims from structural causality, these constraints must be unintended legacies of past choices made amid structural ambiguity or unpredictability, not intentional solutions or adaptations to structural conditions (pp. 92)”. Consequently, according to logic-of-position reasoning, both naturally occurring materialistic structures and manmade institutions are causal based on objective rationality. However, the institutional approach takes contingencies into account, while the former does not.

The ideational and psychological typologies are part of the “logic of interpretation”, which emphasizes human agency over everything. According to Parsons (2007), human agency believes that men's rationality or irrationality is independent of structural and institutional shifts, in contrast to the objective rationality understanding of the two logics above. As Parsons (2007) emphasizes, models, beliefs, sets of practices, symbols, norms, and identities serve as the foundation for the ideational logic. The ideational method also embraces the concept of contingency, like the institutional claim, but takes into account human agency with contingency (pp. 131–132). In this sense, contingency is not the ambiguity of what institutional options were developed but rather the intricate pattern of how a human agent selected an ideational alternative from a range of possibilities. The human agents who confronted the variety of alternatives brought on by alterations in prior conditions are where the ideational claim begins to provide an explanation for the action.

The ideational logic, in contrast to the institutional claim, believes that changes in both prior structures and prior institutions provide a variety of options from which a human agent might select. Additionally, what is contingent isn't the variety of contingent options, but rather the way that human agents think. For Parsons (2007), the initial step is to determine ideational aspects, such as cultures, norms, and ideas that preceded the action in inquiry. This stage demonstrates the relationship between the action and the conceptual components that motivated the action. The detected ideational components are examined in the second stage to determine which human agents selected them in the context of contingency. Then, by assessing the efficiency of the action regarding

other structural and institutional aspects, this allays concerns about the autonomy of conceptual elements. In contrast to the foregoing structural and institutional settings and their range of choices, this second stage stresses the autonomy of the ideational components of the human actor. While ideational elements dominate the majority of the components in this logic, Parsons (2007) makes it clear that non-ideational aspects must also be analyzed in the first and second stages of the ideational method. Parsons (2007) asserts that no human agent can make fully subjective interpretations without taking external circumstances surrounding the actor into account. The two stages of ideational argument cannot be fulfilled without being aware of the institutional and structural framework that produced the variety of possibilities available to a human agent. The historical (structural and institutional) framework is investigated in the course of tracing the elements in both stages to comprehend the agent's decision.

The psychological perspective views human agency in a more robust and constrained manner. Parsons (2007) emphasizes that psychological explanations merely focus on an individual's innate tendencies rather than constructing an argument in a historical context. According to psychological logic, humans are immune to outside elements because of their irrationality; hence, it only takes personal choices into account. Thus, as Parsons (2007) highlights, psychological perspectives often generalize human action resulting from irrational biases, misperceptions, impulses, or impacts, in contrast to the ideational approach. Nevertheless, given the focus on human cognitive processes, psychological assertions are strongly entangled with ideational reasoning. Also, they use comparable conceived criteria to separate various hypotheses within their argument. In this sense, psychological and ideational methods are regarded as belonging to the logic-of-interpretation category.

3.1.2. Selection of a Typology

In general, there is no ultimate answer on which typology is better than the other. After all, each logic concentrates on a different aspect of the causal process and stages to explain an action. Consequently, the purpose of these logics is not to compete but to effectively classify causal roots. In this framework, I intend to find the best explanatory logic for my research question “Why the US-Russia decided to cooperate on the ISS?”. I need to find a convenient option by keeping in mind the determined questionable

arguments in the literature review and considering this study's predicted arguments and research framework. At this point, while determining my research framework, I consider the period between 1984 (when the origin of the ISS was first announced), and 1993 (when Russia was included in the space station program).

In this framework, considering the periodic process mentioned above, I question making an explanation within the framework of structural logic, which I also approached critically in Chapter 2. I find explaining the causality by taking the Cold War structure as the primary independent variable and the ISS cooperation between the two states as the dependent variable inconvenient. By restricting the motivations that pushed the US and Russia to ISS cooperation in the relevant period through a structural causality, it seems to be difficult to explain these cooperation steps only with the exogenous environment that reminisces the Cold War era during the Post-detente atmosphere. In this sense, it is insufficient to argue that the two states cooperated on the ISS only as a reaction to material surroundings. Ultimately, as Parsons (2007) points out, many elements within a structure can show that individuals or states do not take action solely for structural and external reasons (pp. 51). But structural claims treat these elements as "natural givens" (Parsons, 2007; pp. 52). Considering such components as natural seems to be a puzzle for this research.

Consequently, I find it problematic to explain the ISS cooperation as a reason for de-escalating the bilateral relations that escalated after the Detente structure by perceiving other components as naturally there, hence not considering their causal effect. In this regard, as Keohane & Nye (2012) highlight: "another problem with both structural explanations is their exclusive focus on the power capabilities of states; they ignore domestic and transnational political actors (pp. 44)". The structural claim creates a puzzle in addressing why the two countries chose to cooperate on the ISS by not considering certain relational or mutual processes, meaning path-dependence. I assume that the historical process such as the agreements, institutional data, mutual statements, initiatives, and the motivations of the two states for the ISS initiative should be examined. Otherwise, we would argue that within the structural system, the states like the US and Russia are simply actors that cooperate on the ISS as a rational reaction to the given material environment and naturally given components, which is not suitable for my research question and argument. Considering that my research

question deals with a collaboration on the ISS, it should be stated that it falls apart from the understanding of causal explanation in an environment that is "independent of will" that Parsons (2007; pp. 51) emphasized in the structural claim. Ultimately, this research assumes that the ISS is a man-made station and the two states' decision factors to cooperate within this station willingly despite tense relations due to the Cold War structure are primary explanatory factors. Hence, to explain the reasons for this cooperation in terms of the naturally existing external environment is to neglect other issues and restrict causality.

The combinations of concepts, standards, behaviors, and beliefs about human agency are given priority in the ideational argument. Considering the US-Russia cooperation on the ISS, this logic concentrates on two questions. The first is, what ideational components resulted in the US-Russia cooperation on the ISS? The purpose is to track the values, ideas, and cultural contexts that led to the two states' cooperation on the ISS. Second one is how did human actors like US President Ronald Reagan and Soviet leader Konstantin Chernenko or President Reagan and USSR leader Michael Gorbachev establish the ideational components that led to the ISS cooperation. The second question indicates that, from a variety of alternative ideational options generated by the preexisting structure or institutions, the ideational components from the first question were autonomously viewed by human actors, such as state leaders. The ideational logic should next check whether human actors are ideationally rational (a loose assessment of the ambiguous objective reality), or ideationally irrational similar to psychological explanation. To do this, the ideational components of the agent are categorized as coherent or incoherent, emotive or cognitive, ends- or means-based, strict and consensual or loose and contested. In this context, although the ideational logic seems to present an appropriate theoretical framework, it has several weaknesses. Before starting with the fundamental problems of this logic, it should be noted that this study focuses on explaining the state-centric dynamics that led to ISS cooperation. Although ideational logic paves the way for approaching these dynamics of cooperation through human agents, this study concentrates on state institutions and ISS rather than simply focusing on human actors as major variables.

This study acknowledges the role of human-actors but the human-actors are not major determinants of the cooperation mode of bilateral relations. In this sense, this study

argues that human-agents may unintentionally construct an action through rational thinking under state-institutions and calculations rather than solely lean on their values, ideas and norms. It is essential to explore the human actors for the research question.

However, this research does not give a primary role to human actors. Hence, I need a more holistic logic that also takes human actors into account while dealing with the explanation of why the US-Russia decided to cooperate on the ISS. Coming to fundamental difficulties, foremost, instruments to evaluate and comprehend ideational functioning in human actors are lacking. To characterize a human agent as either irrational or rational, Parsons (2007) presents parameters to categorize the agent's ideational approach. Nevertheless, no precise, useful instruments were provided to assess the agent's ideational inclination. Meaning these characteristics were only stated without any practical tool to evaluate them. To simply put, how does an agent, like Reagan, Chernenko, or Gorbachev decide which exact ideational element to use out of a wide range of alternatives that were made possible by earlier positioning conditions? Answering this question requires a practical tool for evaluation. Yet still difficult to adjust as it may pose some difficulties in finding reliable and valid data. Second, theoretical research on adding non-ideational components into the ideational approach is lacking. The non-ideal components are also regarded as being a part of the causal process of ideational logic despite the logic prioritizing human beings' values, norms and ideas. Yet, finding and elucidating the non-ideational components that contribute to an action but are not its major cause is a challenge. Although acknowledging the significance of non-ideational components, Parsons (2007) does not propose theoretical models to show how structural and institutional aspects function when a particular set of values, ideas, norms and beliefs are chosen. Parsons (2007) simply introduces the concept of contingency, the “objective ambiguity or irrationality” of a human agent's decision-making process when faced with an unknowable range of options supplied by preexisting positional circumstances (pp.110). To understand how the previous non-ideational factors led to the modification and continuation of ideational elements and their causality to a given action, a conceptual framework for this contingency must be presented. Regarding my research case specifically, considering that the ISS emerges as a reflection of certain bilateral past processes, unintended decisions that even impact the future of both US-Russia relations, and rational decisions made between two states; it is even more obvious that the lack of a

practical framework or clear indication to establish an explanation through the concept of contingency is indeed a problem.

Similar to ideational logic, psychological logic primarily focuses on human agents though in a more in-depth way which is why it is initially out of the scope of this research. The psychological logic seeks to identify the related human agents', such as Reagan's hard-wired cognitive processes that do not correspond to evident risks, advantages, and possibilities via objective rationality. Meaning the US and Russian leaders' decision to cooperate on the ISS requires conformity to certain human psychology that asserts a universal model of rationality or irrationality.

The leaders' cognitive paradigm, emotional reactions, biased facts input, and misperceptions that motivated them to cooperate on the ISS would be included in the empirical data in this case. However, psychological logic has its own weaknesses as well, specifically considering my research purpose. As Parsons (2007) emphasizes, when compared to various modes of structural positions in markets or military competition, complex challenge courses of man-made institutions, or the frequently bizarre eccentricities of cultural practices, the causal material that psychological arguments establish on action is essentially less varied and rich. The harsh implications of a structural war threat, institutional constraints to maintain a bureaucratic expenditure, or particular ideologies or rituals appear to be far from the real political acts when compared to psychological tendencies (pp. 135). In light of this approach, it will not be possible to establish causality from a psychological perspective, considering that I will focus on the qualitative data such as statements, graphics to address matters such as the financial budget, and some technical points while glancing at the ISS cooperation motivations of the two states instead of concentrating solely on particular leaders' decision-making processes.

The institutional logic focuses on two steps. In order to differentiate this logic from ideational or psychological approaches, one should deal with the intersubjectively existing rules, man-made organizations, laws, or conventions that rational individuals confront either in a written or unwritten way (Parsons, 2007; pp. 92). In fact, noted above, even a handshake such as the US-Russia cooperation on the Apollo-Soyuz Test Project which is also known as Apollo-Soyuz handshake in outer space can be

considered in the institutional framework (NASA History, 2020). As discussed earlier, states, militaries, academic institutions, and other formal groups frequently are referred to as institutions. In this regard, an institution contains all phenomena, varying from tangible organizational actors to intangible norms or practices (Parsons, 2007; pp. 66). Hence, for an institutionalist claim, what I need to examine here is the interaction of the two states' institutions that cause the ISS cooperation, the given data of the institutions for this cooperation, the agreements, the rules and the related remarks/statements, again, for the US-Russia ISS cooperation. Secondly, in order to differentiate institutionalist logic from structuralist one, "these constraints must be unintended legacies of past choices made amid structural ambiguity or unpredictability, not intentional solutions or adaptations to structural conditions" that created the institutionalist elements for the ISS cooperation (Parsons, 2007; pp. 92). Consequently, the two sets of institutions would be compared to identify the many institutional components that are the main variables of the cooperation on the ISS. To put it another way, the causal institutional component should be present during the institutionalization of the ISS cooperation but lacking during the institutional conditions that preceded this cooperation.

In this regard, there are various reasons to find institutional logic as a suitable theoretical ground for this research. As I mentioned at the beginning, I aim to explain the cooperation between the two states on the ISS. First of all, the ISS indeed is a man-made organization. This is the main factor to lean toward the institutionalist approach in the first place. Moreover, aside from the fact that the cooperation of these two states can also be considered as the cooperation between the two institutions, I explore the causality in the cooperation for the institution like the ISS, based on the institutional interactions within the two states such as the US Congress, NASA and Soviet Space Program/Russian space agency Roscosmos. Furthermore, The ISS cooperation was not an instant-realized idea. It was an organization that emerged essentially based on certain decisions made in the past but experienced certain changes as a result of unintentional and unpredictable effects that paved the way for cooperation. In summary, an institutional decision had the unintentional effect of directing later events along a certain historical route, which is also known as path dependence as mentioned above, for reasons other than structural elements. For this reason, I aim to explore the period between 1984-1993 by evaluating the research from a historical perspective.

Then, what happened in parallel with the framework of institutional logic along this historical route? As emphasized above, an institution like the ISS was not planned in the first place. When the idea of an international space station in outer space was announced as a project by NASA in 1984, its original name was Space Station Freedom. Initially, there were only 4 international space agencies stated to be involved in this project: NASA (United States), NASDA (Japan), ESA (Europe), and CSA (Canada). Russia was not included nor invited in the project during this time. However, dynamics and processes due to uncertainties and unpredictability from the announcement of the origin of the ISS in 1984 to the US invitation to Russia in 1993, eventually resulted in cooperation with the redesign and the change of the name of the project. In this framework, an institutional decision had the unintentional effect of directing later events along a certain historical route and pushed the two states to cooperate on the ISS. This cooperation occurred due to the mutual and conflicting interests of the two states.

After this decision was taken, the redesign of the ISS was determined, and the fact that the two countries were the most capable of establishing such a space station evolved and resulted in an interdependent way of cooperation in the ISS. Consequently, the ISS cooperation has created an institutional system under the ISS, which consists of two segments Russia and the US, in which the two countries will be interdependent in outer space.

In summary, due to the unpredictable sequences that have changed since the space station came to the fore, the cooperation decision made at time T resulted in changes in the entire Space station mechanism, organization and function at T+1 time, making the two countries interdependent on the ISS. Therefore, both states entered into this cooperation due to interdependence on joint capacities, and mutual and conflicting interests arising from certain reasons. Accordingly, this cooperation turned into reality and continued until today, with ISS making the two states interdependent. In light of these reasons, I find the institutionalist approach close to this research since I aim to examine the processes of the two states' institutions that led to ISS cooperation. I argue that these processes are compatible with the approach advocated by institutional logic. However, although the institutionalist approach provides a general framework, I also

need a theory where I can practically deal with the processes leading to ISS cooperation.

3.2. Complex Interdependence and Institutional Explanation

Although institutional logic provides a basic map from which I can address the processes that drive two states to ISS cooperation, a practical theory to explain these processes is essential on consolidating my thesis. As a matter of fact, if the issue I defend here is the ISS cooperation, which emerged from the interdependence of the two states, and if there is ongoing cooperation stemming from the ISS regime in outer space, then can there be such an interaction between the states? If possible, I find it crucial to introduce Keohane and Nye's theory of complex interdependence when explaining the US-Russia ISS cooperation, as it will provide me with a practical and specific framework on how this dependency may occur and under what conditions. I aim to analyze US-Russia ISS cooperation within the practical framework of complex interdependence through institutionalist logic.

3.2.1. What is Complex Interdependence?

Briefly, interdependence is an international policy approach tool based on cost-effect calculations that limit the autonomy of international actors over their policies (Keohane, 2002; pp. 14; Keohane & Nye, 2012; pp. 3). Most commonly, dependency defines a unilateral relationship and interaction condition in which the foreign policy of any state can be shaped by another state; interdependence, on the other hand, is a concept that describes the mutual interaction and relationship that may also occur in an asymmetric way in different countries' relations with each other. The root of this interaction between the actors may be based on monetary, political, financial, social, cultural, military, security, etc. issues (Keohane & Nye, 2012; pp. 8–9). In this context, transaction costs or constraints on these issues will determine how they affect interdependence. Hence, as Keohane & Nye (2012) point out, “where there are reciprocal costly effects of transactions, there is interdependence (pp.8)”. Consequently, the main aspect of interdependence that distinguishes it from other dependency situations and relation types is that the interdependence relations between the actors are jointly related to both actors. And the parties try to gain maximum benefit

and profits in a win-win way from this dependency between the two parties (Keohane & Nye, 2012; pp. 8). According to Keohane & Nye (2012), the two actors, who establish a relationship based on mutual dependency, are expected to minimize the problems and conflicts between them and ensure mutual peace (pp. 19–20). Hence, interdependence actually encourages bilateral cooperation and dialogue, which differs from the realist perspective in this regard.

While developing this theory, Keohane & Nye (2012) also drew attention to its connections with the phenomenon of "power and interdependence" (pp. 9–10). They challenge the traditional concept of power, which emphasizes that states with the greatest levels of military power dominate all other forms of power and international events. In this sense, they view power in a more elusive way as the resources that deliver it have become far more complex. In the postwar period, particularly, power components, applications, and accomplishments underwent a radical change (pp. 9). Even one of the most prominent realist thinkers, Hans Morgenthau, indicates this shift by highlighting that the acquisition of monopolistic or quasi-monopolistic control of raw resources necessary to the operation of advanced economies by militarily weak countries demonstrated a historically unprecedented separation of the practical connection between political, military, and economic power (pp. 9). Power can be defined as one's capacity to persuade others to take an action they otherwise wouldn't. Power can be thought of as having control over consequences. In both cases, assessment is not an easy task. To comprehend how power functions in interdependence, one should check the "bargaining power" of one of the actors, "a" on the other "b", and the interdependence relationship between the "b" of the other side with regards to the "sensitivity" and "vulnerability" degrees (Keohane & Nye, 2012; pp. 10). Steve Chan (1984) exemplifies this situation through the relations of the great states shaped around their need for Middle Eastern oil. Although the sensitivity of the US, Japan, and European states to Middle East oil is almost at the same level, the degree of vulnerability to possible negative developments regarding the oil in the region is not the same. Hence, it can be said that vulnerability interdependence dominates sensitivity interdependence as a power resource. In this sense, the bargaining power that Middle Eastern countries will have in negotiations with these countries on related matters also differs. For example, Japan, which gets about 75% of its oil needs from the region, has the most significant degree of impact, followed by

European states that supply approximately 65% of their total needs from the region and the US, which has a 25% dependency on Middle Eastern oil. In this case, Japan will be the country with which Middle Eastern countries have the strongest bargaining power in their relations (pp. 235). The main point that Nye and Keohane (2012) make in their assumption is not that interdependence completely eliminates power and renders it dysfunctional. Conversely, patterns of interdependence and power are actually closely linked. In this sense, Nye and Keohane discuss their argument through liberal and realist approaches rather than solely considering one approach.

The notion of interdependence differs from the concept of "complex interdependence" in some aspects. Interdependence occurs as a result of interactions between states or non-state actors. These interactions can be military, political, economic, or cultural (Keohane & Nye, 1998). Complex interdependence, as Keohane & Nye (2012) highlight, points out circumstances where multiple communication channels between multiple actors or states connect other actors and that there is no clear hierarchy in the issues between actors. Moreover, it emphasizes the conditions under which actors' use of military force against each other is disabled (pp. 19–20). In this regard, complex interdependence theory allows states to establish a dialogue with each other and avoid conflict by revealing the dependency-based relations between states. Consequently, the Complex Interdependence Theory makes it possible to observe actors' relations in the international system from an economic point of view. However, this theory is not purely economic but rather a political theory that proposes the transformation of the political sphere with economic dependence. According to Keohane & Nye (1998), this understanding highlights the fact that over time, as the importance of state security decreases, the power factor has less importance in state relations than the others. Eventually, states have become connected in many ways through multiple channels due to interdependence (pp. 84).

Although they depart from realist assumptions in this sense, Nye and Keohane (2012) argue that the military "asymmetry" in world politics still maintains its significance (pp. 14). However, according to them, it is not possible to obtain effective results by resorting to the element of military power without economic means. In a way, they support the claim that military power dominates economic power. However, due to the high cost of using military force, they do not guarantee that this option will be more

effective than economic options in achieving a planned goal (pp. 24–25). In this sense, due to the inclusion of globalization in international literature starting with the Cold War, the effect of interdependence began to be felt more. Especially considering the economy, this change was drastically felt as economic dependencies forced the states to act according to their interests based on what was brought by the international system without distinguishing or categorizing states as weak or strong powers (Keohane & Nye, 2000; pp. 105). As a result, the actors had to act in cooperation and shape their policies in the international domain according to this type of relationship.

Thus, within the framework of changing security and shifting military-based power priorities, realist theory falls short in analyzing the dynamics of this change. In this regard, "Sometimes, realist assumptions will be accurate, or largely accurate, but frequently complex interdependence will provide a better portrayal of reality (Keohane & Nye, 2012; pp. 20)", especially considering that states and state relations are dependent on issue-area rather than one single structure as discussed in Section 2.2.2. The issue-structure model, therefore, does not suggest that structure is irrelevant but rather that different structures construct the international system as a result of shifting security perceptions. Hence, they argue that due to the changes in the global environment and the occurance of new actors due to these changes, realism is inadequate in interpreting and evaluating the process in today's conditions, which are not mainly based on sovereign nation-states dominating the international environment.

In light of all these approaches, it can be said that with the increase in investments, economic activities, trade, and technology, the borders between states are gradually losing their importance, and as the borders lose their importance, the dependencies increase (Keohane & Nye, 2000; pp. 105). In this context, Keohane and Nye argue that the state-centered paradigm that belongs to the realist school should be improved. Accordingly, while the relations between the actors in the system become more complex day by day, these complicated situations bring the actors in the system to a vulnerable and sensitive structure, which complex interdependence theory explains on three basic points. Within the framework of these definitions, the term interdependence refers to a situation where countries are connected in more than one field and in more than one way, and the violence (competition for security) aspect loses its importance in the problems between them. In this respect, it is essential to check the "bargaining methods" that enable power and the circumstances that arise from complex interdependence.

Considering these 3 main elements that form a complex interdependence relationship, a methodology-based evaluation should be made in terms of linkage strategies, agenda-setting, and transnational and transgovernmental interactions, in which international organizations also play a lead role (Keohane & Nye, 2012; pp. 21–30)

a) Multiple Channels*:* The first condition in the international system that has shaped the complex structure of today is the large number of "multiple channels" that form societies' interactions with each other. Through the end of the 20th century, the opportunities for both states and societies to communicate with each other increased with the development of globalization and technology. The significance of non-state actors has become even more palpable. Transnational and transgovernmental relations between multinational companies and global non-governmental organizations can be viewed as examples of the multiple communication channels that occur in the international system. Today, although the realist theory still accepts the state as the most important actor (a single actor), the impact of states on world politics is decreasing with globalization. In this sense, individuals, multinational companies, transgovernmental entities, and NGOs also have a say in international communication as actors. Moreover, states' domestic and foreign policies have become more closely interrelated, making it easier for states to become dependent on each other. In this sense, multiple channels of communication between societies further blur the distinction between domestic and foreign policy. The presence of partners in political coalitions is not necessarily limited to national borders, as the realist argument assumes. The closer the situation is to complex interdependence, the more we expect the results of political bargaining to be affected by transnational relations. Multinational corporations, for instance, may be important both as independent actors and as tools manipulated by governments. Or the attitudes and policy stances of domestic actors, organized or not, can be influenced by communication between their counterparts abroad. The existence of multiple channels, therefore, leads us to anticipate limits on statesmen's ability to calculate interdependence manipulation or pursue a coherent linkage strategy beyond those normally found in domestic politics. Some organizations or groups may interact directly with actors in other societies or with other governments to increase the benefits they derive from a network of interactions. Thus, some actors may be less vulnerable and less sensitive to changes in

other parts of the network than others, and this will affect their patterns of political action. Yet, multiple channels of communication with complex interdependence are not limited to non-governmental actors. Contacts between government bureaucracies entrusted with similar tasks not only change perceptions but also lead to intergovernmental coalitions on specific policy issues. Additionally, state institutions try to involve actors from other governments as allies in their decision-making processes to increase their chances of success. Hence, the existence of transgovernmental policy networks leads to a different interpretation of one of the standard propositions about international politics, namely that states act in their own interests. Furthermore, the existence of multiple channels emphasizes the increased and important role of international organizations in world politics. Realists like Hans J. Morgenthau portray a world in which states act in their own interests and struggle for power and peace. The threat of war-based security issues dominated world politics. In such a world, it can be assumed that international organizations would have a limited role. However, contrary to such beliefs about international organizations' limited role, in a world where there are so many imperfectly interconnected issues and where coalitions are formed transnationally, transgovernmentally, and supra-governmentally, international organizations' potential role in political bargaining is significantly increased. In particular, they support setting the international agenda, act as catalysts for coalition formation, serve as arenas for political initiatives and engagements by weaker states, and allow them to pursue linkage strategies. Eventually, by bringing authorities together, international organizations help mobilize potential coalitions in world politics (Keohane & Nye, 2012, pp. 28–30).

b) Absence of Hierarchy among Issues*:* The second condition indicates that the developments and changes occurring at the IR level in the global system do not occur according to a certain hierarchy. The circumstances that shape states' foreign policies have become very diverse due to the developments in the global system since the 1970s. As a hierarchy cannot be established among the issues, it becomes impossible to set military and security goals as the main policy issues, contrary to realists. And eventually, this will create an issue-linkage or linkage strategy as the military force utility diminishes. The militarily powerful states will have challenges using their overall superiority to control outcomes on issues where they are weak. Hence, the patterns of outcomes are likely to vary from one set of factors to another since the

allocation of power resources, say, in trade or oil production, may be extremely different. In this regard, Keohane & Nye (2012) explain the connection between the absence of hierarchy among issues and linkage strategies as follows:

> If force were readily applicable and military security were the highest foreign policy goal, these variations in the issue structures of power would not matter very much. The linkages drawn from them to military issues would ensure consistent dominance by the overall strongest states. But when military force is largely immobilized, strong states will find that linkage is less effective. They may still attempt such links, but in the absence of a hierarchy of issues, their success will be problematic (p. 25).

Consequently, the distribution of power within each issue area will become increasingly significant as the value of military force decreases and as issues become more equally important. Since military force plays such a small part in state power, we should expect states to lean more on alternative tools. The results of political negotiation will progressively differ by issue area as linkages based on military power become less efficient or lose priority. Hence, linkages between issues will become more difficult due to the divergence between issue areas in complex interdependence, which will tend to weaken rather than strengthen international hierarchy. They will have to make important strategic decisions based on the plans about which issues should be linked together and which ones require concessions. Less vulnerable states, specifically, will attempt to leverage asymmetrical interdependence in certain issue areas as a basis of power and use international organizations and transnational actors for this endeavor. States will consider economic interdependence, particularly in terms of power, as well as how it affects citizens' welfare, even though welfare assessments will restrain their effort to maximize power. The majority of economic and ecological interdependence entails the potential for mutual gains or losses. The joint awareness of prospective gains and losses and the risk of deteriorating each actor's position through excessively arduous quarrels over the distribution of the gains either restrict or ease the use of asymmetrical interdependence (Keohane & Nye, 2012; pp. 25–26). In this context, linkage strategies will make states consider different aspects of an issue that should be taken into account without any hierarchy.

c) Minor Role of Military Force: According to Keohane and Nye (2012), there is a clear decrease in the importance and use of military power in the interaction between actors when compared to previous periods. As a result, it is almost not likely that the states

that develop relations based on mutual dependency would use joint military force against each other, unlike what realists argue (pp. 23–24). Keohane and Nye (2012) argue that military power comes to the fore in interstate relations that do not have interdependence. While military power can be of great importance in the military and political relations of an alliance with another bloc, it may not be that critical in solving problems between states that are members of the same bloc and vice versa. In such a situation, instead of using military force, it may be more useful and rational to choose a relationship related to interdependence. Ultimately, this causes the elimination of military issues as the main priority and creates a lack of hierarchy. As there is no defined hierarchy among the various issues, agenda-setting politics is to be expected since the efficacy of force decreases as political actors and concerns get more complicated and the distinction between foreign and domestic policy is blurred. In this regard, the politics of agenda-setting become more nuanced and distinct as the parameters of complex interdependence are more strongly approximated. We may anticipate that domestic and international issues due to economic expansion and growing sensitivity to interdependence will have an impact on agendas in complex interdependence. In this aspect, unsatisfied domestic groups or parties may politicize issues and push previously domestic issues onto the international agenda. Agendas will also be impacted by changes in the allocation of power resources within categories of issues. Agendas may be impacted by shifts as the significance of transnational actors evolves, even though state capabilities do not. Politicization can have many sources, such as agitation and controversy about an issue that tends to make it high on the agenda. These sources can be governments that become powerful enough to politicize issues by linking them with other issues or dissatisfied governments' pressure on change and increased politicization over an international regime due to suspicion of its effectiveness. However, attempts to politicize issues may also be made by domestic actors who are not content with interstate issues. For instance, the US Congress may affect the priority of an issue or the US administration's decisions on an issue with its solid impact and pressure. In this sense, the US Congress is an effective domestic political tool. At the international level and in the institutional framework, states and actors try to raise issues that will maximize their advantages by expanding or narrowing the agenda in international organizations. Ultimately, the technical features and institutional setting in which the issues are articulated strongly influence patterns of politicization (Keohane & Nye, 2012, pp. 27–28).

3.2.2. Complex Interdependence and International Organization Model

The three main themes mentioned above and the factors that form complex interdependence theory provide a solid map of how I can practically handle the US-Russia ISS cooperation process. As mentioned in Section 3.1.2 on the ISS cooperation process, the changes made in the ISS process after it emerged as an idea by considering the various capabilities, such as technical and financial, caused the US-Russia cooperation on the ISS to occur in 1993. Therefore, I need a model that explains the causality of bilateral ISS cooperation changes while also being compatible with complex interdependence ingredients. In this context, I assume that the international organization model, introduced under Keohane and Nye's complex interdependence theory that focuses on regime change conditions, will offer a practical approach to comprehending the changing dynamics from the initial space station plan to its redesign that leads to US-Russia cooperation. Moreover, the model is efficient to acknowledge where to check and look to clarify the reasons and outcomes behind the US-Russia ISS cooperation before (time t), during, and after (time t +1) the space station's re-design process. As Keohane & Nye (2012) indicate, the functioning of world politics depends on the distribution of capabilities among the main actors. States and governments, within the framework of the distribution of capabilities, can be interconnected not only by formal relations or correspondence between government offices but also by intergovernmental, transgovernmental, and supranational ties.

The term international organization is used to refer to these multi-level linkages, norms, and institutions. In this sense, international organization is another type of world political interaction and function, especially today. In the international organization model, the networks, institutions, and dynamics mentioned above are crucial independent elements that define regime change. Networks, norms, and institutions include norms associated with particular international regimes, although it is a wider category than regime since it also contains elite networks (such as Congress) and formal institutions (such as UNOOSA, NASA, the Soviet Space Program, and later, Roscosmos and other space agencies). Such networks, norms, and institutions are factors that influence international regime change. The international organization model assumes that once the relevant network, norm, or institution is established, it will be extremely costly and difficult to lift. In fact, even governments with superior

capacities will struggle to implement their will when it conflicts with established norms of behavior within existing networks and institutions. The distribution of capacities establishes and regulates regimes, but relevant networks, norms, and institutions have an impact on how effectively actors may employ these capabilities.

In this regard, as Keohane & Nye (2012) point out, "Power over outcomes will be conferred by organizationally dependent capabilities, such as voting power, the ability to form coalitions, and control of elite networks—that is, by capabilities that are affected by the norms, networks, and institutions associated with international organization as we have defined it (pp. 47)". Regimes function in a setting that the international organization provides. In this framework, the international organization can affect the regime, either in matters outside the issue area of the regime or within that issue area. In summary, international regimes can experience change through decisions influenced by an international organization, which is formed through actors' capabilities, networks, norms, and institutions. In this context, Figure 3.1 below, presented by Keohane & Nye (2012), is a diagram of the international organization model that explains the process of regime change (pp. 48).

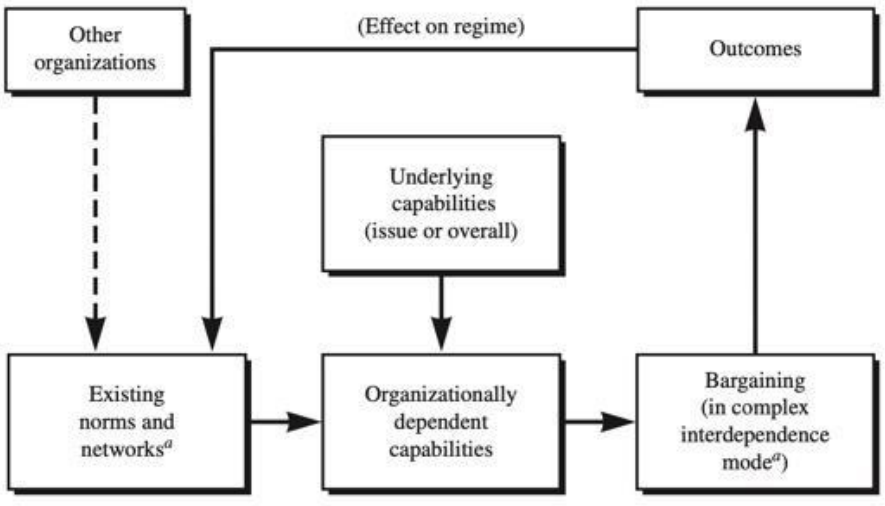

Figure 3.1. International Organization Model

Source: Keohane & Nye, 2012

Here, figure 3.1 shows that existing norms and networks and underlying capabilities influence organizationally dependent capabilities, which eventually impact outcomes. If only the solid lines in the diagram are considered, this system could be self-

sustaining with significant stability, but this is not entirely determined by the underlying patterns of capabilities. The dotted line, on the other hand, displays the main basis of change: other networks, norms, and institutions that may interfere with the particular organizational skeleton under consideration and thus influence the regime's nature. The model of international organization does not indicate how international regimes will alter based on a single variable, such as the international structure; instead, it takes into account various variables and processes, as shown in the figure above. Since this model focuses on the political processes connected to an international organization, it argues that actors' strategies and their ability to practice them can have a significant impact on international regimes' development. The existing regimes and related organizations would no longer have a life of their own if powerful states chose to remove them with their will and the capability to do so. Yet, based on the international organization model, when well-integrated elite networks exist across nations on many different levels, the costs of eliminating a regime will be tremendous. But the costs of an unfavorable regime could escalate to the point that some states decide to destroy it, even if it means interfering with those networks. According to Keohane and Nye (2012), under circumstances of complex interdependence, international organizational norms and practices as well as the political processes associated with them would shape patterns of international regime change.

The international organization model is only likely to be applicable in complex interdependent situations and is predicated on the premise that the regime will be stable, meaning that it will be unable to implement changes to the policy that might disrupt it. Actors would try to take advantage of each other's sensitive dependence, and they might make marginal changes to their policies to enhance their positions of vulnerability. Yet, there is a limitation to how far they can manipulate vulnerability and interdependence; if they attempt to alter policy too much, the regime would be challenged and dissolved. As a matter of fact, the model's validity hinges on the presumption that actors won't try to destroy the regime by abusing one another's vulnerability and dependence too much since both actors, particularly their capabilities, are interdependent with each other and form the regime. This means that one's loss would also mean a loss to the other, considering the interdependency effect.

In this sense, as mentioned above, as vulnerability interdependence dominates sensitivity interdependence as a power resource, the international organization model and sensitivity interdependence lose great significance once conflict levels reach a certain point. In this framework, the international organization model that led to regime change presents an appropriate argument for this research as it focuses on the change in the ISS that paved the way for US-Russia ISS cooperation.

3.3. Methodology and Hypothesis

To answer the research question, "Why the US and Russia decided to cooperate on the International Space Station (ISS)?", I used qualitative methodology. As the research is based on the process that led both countries to the ISS cooperation, I assume that qualitative methodology would shed light on the root causes and causality process of this decision. Essentially, a qualitative inquiry will be a suitable method following the basis of complex interdependence theory, which I will use practically through institutionalist logic when evaluating data for my research question. As a qualitative instrument, I decided on historical process tracing to test the complex interdependence framework of the US-Russia ISS cooperation. Process tracing, particularly, is crucial for this thesis as I aim to research the period between 1984, when the origin of the ISS was first announced, and 1993, when Russia was officially included in the space station program. Shortly, I aim to explore the process data that led the two states to ISS cooperation, starting from the original phase of the space station, in 1984, to the redesignation of the ISS and Russian involvement stage, in 1993.

Focusing on this period will narrow the research and provide an accurate path for understanding why the two states are collaborating on the ISS. Hence, I researched this timeline to find and explain the conditions and causal mechanisms between the two states that led to the ISS cooperation. According to the complex interdependence theory within the institutionalist explanation, the independent variable is the various interdependencies that led to the US-Russia decision for ISS cooperation. Hence, the dependent variable is the decision to cooperate with ISS. Yet there is also an antecedent condition to the causal relationship between the actors' interdependencies and the decision for cooperation. In this framework, this research's theory map requires analyzing the change mechanism that occurs in the ISS' regulation and organization

that led to US-Russia cooperation. Briefly, this research framework contains an independent variable (various interdependencies between the US and Russia), an antecedent condition (contingency provided by the changes due to interdependencies in the preexisting structural design of the ISS), and a dependent variable (the decision for the ISS cooperation).

As discussed previously, institutionalist logic focuses on the interaction of two states and state institutions and their data, such as agreements and statements. Based on this logic, to obtain a practical map, I focus on complex interdependence theory through two processes to answer my research question. Process 1 reflects interactions at the level of multiple channels, meaning transnational or transgovernmental channels, to underline that there is no hierarchy between issues, emphasizing that US-Russia cooperation on the ISS is harbored in a more strategic approach rather than the traditional military and security approach. It is to indicate that the role given to military power has decreased within the framework of interdependence. Thus, it is to show that alternative agendas are determined and prioritized, especially by internal or external actors. In other words, the main purpose here is to display the complex conditions caused by the connections and relations between the two states created by the many channels of interaction in the international system, which lacks a specific hierarchical agenda. Ultimately, the purpose is to explain the ISS cooperation process that was driven by the interdependence between the two states.

The institutionalist logic also emphasizes the importance of institutional changes that occur in T+1 time due to the unintentional and unpredictable effects of past decisions in T time. Therefore, Process 2 is based on the international organization model indicated by Keohane & Nye (2012) under complex interdependence in order to explain practical changes experienced due to unexpected results in the process of the ISS that led to US-Russia cooperation with organizational and regulatory change. Here, the purpose is to display how other organizations such as the UNOOSA, US Congress, NASA, and Soviet Space Program/Roscosmos interfere with existing norms and networks regarding the ISS. They set forth the underlying capabilities, such as financial and technological assets, that eventually reveal the dependent capabilities of the ISS, leading and influencing bargaining between the US and Russia for changes to achieve a functioning ISS regime. Simply put, for Process 2, by following Keoahen &

Nye (2012)'s regime change assumption, the aim is to fill the diagram mentioned above according to the findings of Process 1 to emphasize that due to the exposed interdependencies put forward for the ISS regime, the two states agreed on cooperating after finding mutual grounds for changes in the international regime. Ultimately, the main hypotheses of this research are as follows: The US and Russia decided to cooperate on the ISS due to interdependencies that led to the redesign and re-regulation of the organization to realize this cooperation.

I divided the main hypothesis into two sub-hypotheses to explain them clearly according to the two processes emphasized above. The first sub-hypothesis is that the US and Russia decided to cooperate on the ISS as a result of their interdependence. I aim to evaluate this sub-hypothesis (H_1) within Process 1 to explore whether there are variables that impact interdependent relations between the US and Russia for ISS cooperation. The second sub-hypothesis is that, as a result of the changes that took place on the ISS, the US and Russia were able to cooperate in the organization. With this sub-hypothesis (H_2), I attempt to explain the changes that occur in the ISS regime for this cooperation through Process 2. The H_2 is to display the unpredicted consequences (such as interdependencies due to unilateral capabilities) after past decisions eventually drive the re-structure of the ISS for US-Russia cooperation to be realized. The roadmap for testing the hypothesis is shown in the figure 3.2 below.

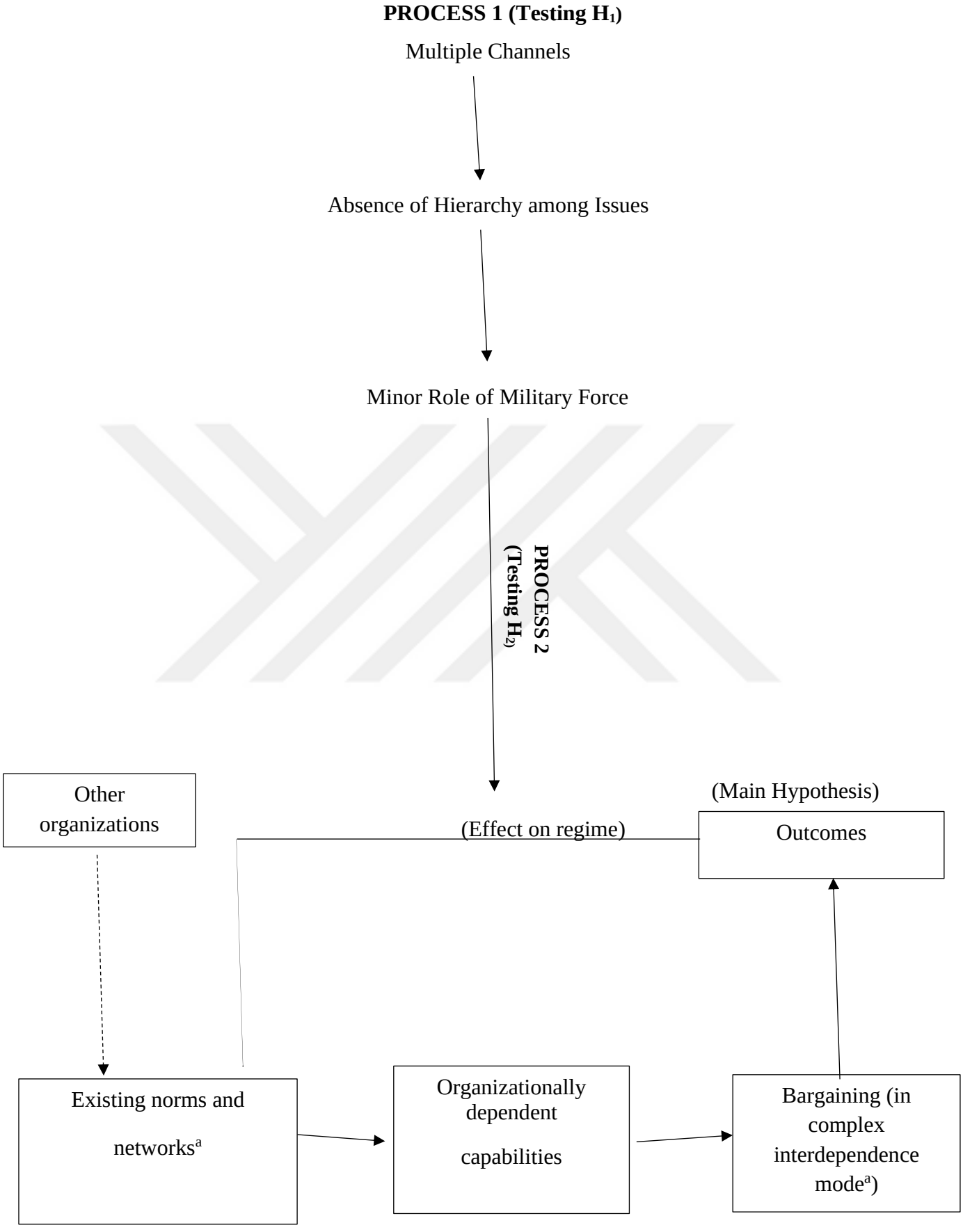

Figure 3.2. Roadmap for Hypothesis Test

(Source: Keohane & Nye, 2012)

In order to test the main hypotheses and the two sub-hypotheses, I focus on the historical chronology to analyze why the two states decided to cooperate on the ISS within the framework of Process 1–2 through institutionalist logic. As primary sources, I mainly check legal documents, archived files, statements, and news reports of the period between 1984 (the declaration of the space station) and 1993 (Russian participation after the station's re-design). As secondary resources, I looked at scholarly studies, second-hand interviews, and graphs to analyze the historical process that particularly leads to cooperation decisions. By emphasizing the possible use of graph data, I aim to indicate that the study may require checking the annual launch rates of countries, budget data of states, and state institutions for the overall outer space activities, particularly the ISS project, to display a causal variable for the decision of US-Russia cooperation. After all, the use of numbers in qualitative research can be part of a study, as Sandelowski (2001) points out by saying:

> As in quantitative research, numbers are used in qualitative research to establish the significance of a research project, document what is known about a problem, and describe a sample. But they are also useful for showcasing the labor and complexity of qualitative work and to generate meaning from qualitative data; to document, verify, and test researcher interpretations or conclusions; and to re-present target events and experiences (pp. 230).

In this context, this data will be utilized as empirical evidence to describe the interdependencies rather than focusing on majorly analyzing numerics, hence not making the study "mixed methods (Maxwell, 2010; pp. 475)". While constructing the historical process, I conducted two hoop tests to prove whether the hypotheses were acceptable. The hoop tests involved multiple questions regarding the necessary causal conditions of the two processes detailed in the above figure to display that the hypotheses are true for the US-Russia decision on ISS cooperation. I answered the questions through the historical process (Mahoney, 2015). The detailed results of the tests are discussed in the next chapter.

CHAPTER IV

THE US-RUSSIA COOPERATION ON THE INTERNATIONAL SPACE STATION (ISS)

4.1. Declaration of the Space Station

On January 25, 1984, US President Ronald Reagan announced the first-ever space station to be developed within a decade in a joint session of Congress on the Stat e of the Union by saying,

> We can follow our dreams to distant stars, living and working in space for peaceful, economic, and scientific gain. Tonight, I am directing NASA to develop a permanently manned space station and to do it within a decade. …We want our friends to help us meet these challenges and share in their benefits. NASA will invite other countries to participate so we can strengthen peace, build prosperity, and expand freedom for all who share our goals (Ronald Reagan Presidential Library, 1984).

Just three days after this official declaration for the ISS construction, Reagan stated in a radio address to the nation that the US' outer space strategy contains three elements, including international cooperation for peaceful activities on benefit of all mankind, emphasizing the necessity of cooperation in his remarks as, "International cooperation, the second element of our plan, has long been a guiding principle of the United States space program… Just as our friends were asked to join us in the shuttle program, our friends and allies will be invited to join with us in the space station (Ronald Reagan Presidential Library, 1984)". But before the official announcements, Reagan sent an off-the-record message to the leaders of Germany, France, the UK, Italy, Japan, and Canada on his intention to declare the space station program and his desire to cooperate with these countries in this effort. He also mentioned asking James M. Beggs, the Administrator of the National Aeronautics and Space Administration (NASA), to act as his personal representative and, meet with their senior officials soon to expand cooperative steps. In this regard, as part of the definition work required for a

presidential decision, negotiations with potential partners started as NASA sought their opinions on the space station's design and necessities.

On March 3, a delegation that includes NASA Administrator Beggs, Gil Rye from the US National Security Council staff, Phil Culbertson, John Hodge, Ken Pedersen, Peggy Finarelli, and Lyn Wigbels from NASA, and Mark Platt and Michael Michalik from the US State Department, visited London, Bonn, Rome, Paris, Tokyo, and Ottowa to repeat President Reagan's invitation for participation in the space station program. Furthermore, they discussed the questions and concerns of the countries' space officials and high-level diplomatic staff (Logsdon, 1998). The most crucial aspect of the meetings for NASA was the size and cost of each state's contribution to the program. In this context, before starting the visits, Beggs requested an estimation from Ken Pedersen to assess what should be expected from countries financially. According to Pedersen, considering Europe's roughly 12% cost contribution to developing the Space Transportation System under NASA's Integrated Program Plan, a "similar percentage contribution from these countries to the Space Station" could be expected (Memorandum from Ll/Director of International Affairs to A/Administrator, 1984). Germany's potential contribution, for instance, would possibly be around $1.5 billion, and Canada's station grant "would cost roughly" $100 million. However, "it is probably not realistic" to hope for any Japanese financial support to be half that of Europe, indicating that "at least $500 million" is needed to develop given their current lack of related (research and development) experience (Memorandum from Ll/Director of International Affairs to A/Administrator, 1984)." After the negotiation visits, Beggs wrote a letter to the visited countries, intending to clarify the raised points while underlining the US stance on the construction of the $8 billion-worth space station. The below-mentioned section of the letter also represented a written invitation for potential international partners to benefit from the joint capabilities of space agencies.

President Reagan has committed the U.S. to building an $8 billion fully functional space station to be operational by the early 1990s, but he has also set the stage for working together to develop a more expansive international space station with even greater benefits and capabilities for all to use. Thus, we are inviting your government to take a close look at our plans and concepts and then, based on your long-term

interests and goals, share with us your ideas for cooperation that will expand the capabilities of the space station (Logsdon, 1998; pp. 23, Letter from James Beggs (1984)).

Although the invitation trip moved positively, it also signified that there are more steps ahead in finding a common ground for such cooperation. Aside from the need for time for domestic political support of each member candidate of the space station, according to Beggs, the US officials encountered two major issues during their visit that were stressed by the other state officials, which displayed the necessity of long-term negotiations before the international participation agreement. The eleventh monograph that was prepared under the auspices of the NASA History Division and completed by John M. Longsdon (1998) explains the concern points through the first-hand letters that were collected for a report and mentions that in his exchange with the officials from the visited countries, Beggs realized that first, "technology transfer has been an increasing concern" of all the allies, and there has to be joint action on safeguarding the mutual technology based on this cooperation (pp. 26). The second concern was about the scope of the potential US military engagement in the space station, driving the US position on the space station to both reflect the related foreign sensitivities such as Canada's request on attaching conditions to not use the space station for military activities as well as the US government's necessities by highlighting that "The U.S. space station program is a civil program which will be funded entirely out of NASA's budget, with no national security funds used (Beggs; 2002; Logsdon, 1998; pp. 26, Letter from James Beggs)". In this regard, the letter written to the then UK Minister of Trade and Industry, Kenneth Baker (April 6, 1984), displays the emphasized plan for minor role of military activities and marginal security-based initiatives on the space station as follows:

> (The ISS) is a civil space station. Of course, like the shuttle, the space station will be available to users. If there are any national security users, like national and international users, they will be able to use the facility. As provided in the Outer Space Treaty, however, all activity on the space station will be limited to peaceful, non-aggressive functions (Logsdon, 1998; pp. 26; Letter from James Beggs).

Considering all the aspects, no ally wanted to reject Reagan's public invitation, as there was no compelling reason to do so. However, accepting the US offer, even in principle, meant that a sizable portion of their space expenditures for the next ten years would

have to be spent over the space station amid all potential partners' domestic projections and financial debates regarding future outer space activities. In fact, Beggs had made it apparent that the US wanted to make substantial spending on the station, about equivalent to 10 to 20 percent of the partners' total outer space expenditures for the following ten years (Longsdon, 1998). In light of all these developments, visits continued to take place until the first official talks at the G7 summit on the space station in June to reach a joint agreement on possible cooperation. A delegation went to Europe in April to gather with space agency officials. Their exchanges confirmed the perception that some Europeans would be hesitant to pledge cooperation at the upcoming G7 summit in London. The smaller ESA member nations, who were not involved in the summit process, were also discovered to be anxious about a summit declaration that may obligate them to make greater funding available to the ESA for the space station (Longsdon, 1998). Consequently, some of these states' industries did not recognize any opportunity for substantial investment in the project, and their finance ministries, which were almost always opposed to raising space budgets, had more clout than space advocates in ESA member countries. As a result, support for the station idea initially was not as strong in some of the countries. The challenge that European nations are facing as the American space station program takes off mostly relates to both national and European aims. Yet similar to European concerns, for other potential partners like Japan and Canada, it would be necessary to significantly raise space-related spending and, consequently, reevaluate national objectives to maintain current space programs while embarking on a new space station program. For the European case in particular, some could think that the US would be required to offer assurances and accept dependency that would be more than what Europe's portion of the burden would be worth. However, as Bortzmayer (1984) suggests, the imbalance is at play since "any substantial European involvement in a U.S.-led space station program would absorb so much of the space budget that Europe would forfeit the ability to create a similar but independent capability (pp. 26)". Indeed, considering the imbalance of capabilities, Figure 4.1 precisely displays the sharp disparity in the annual number of objects launched into space by ESA, Japan, and Canada compared to Russia and the US between the 1980s and 1994, indicating the states' capacity to invest in outer space activities during these periods.

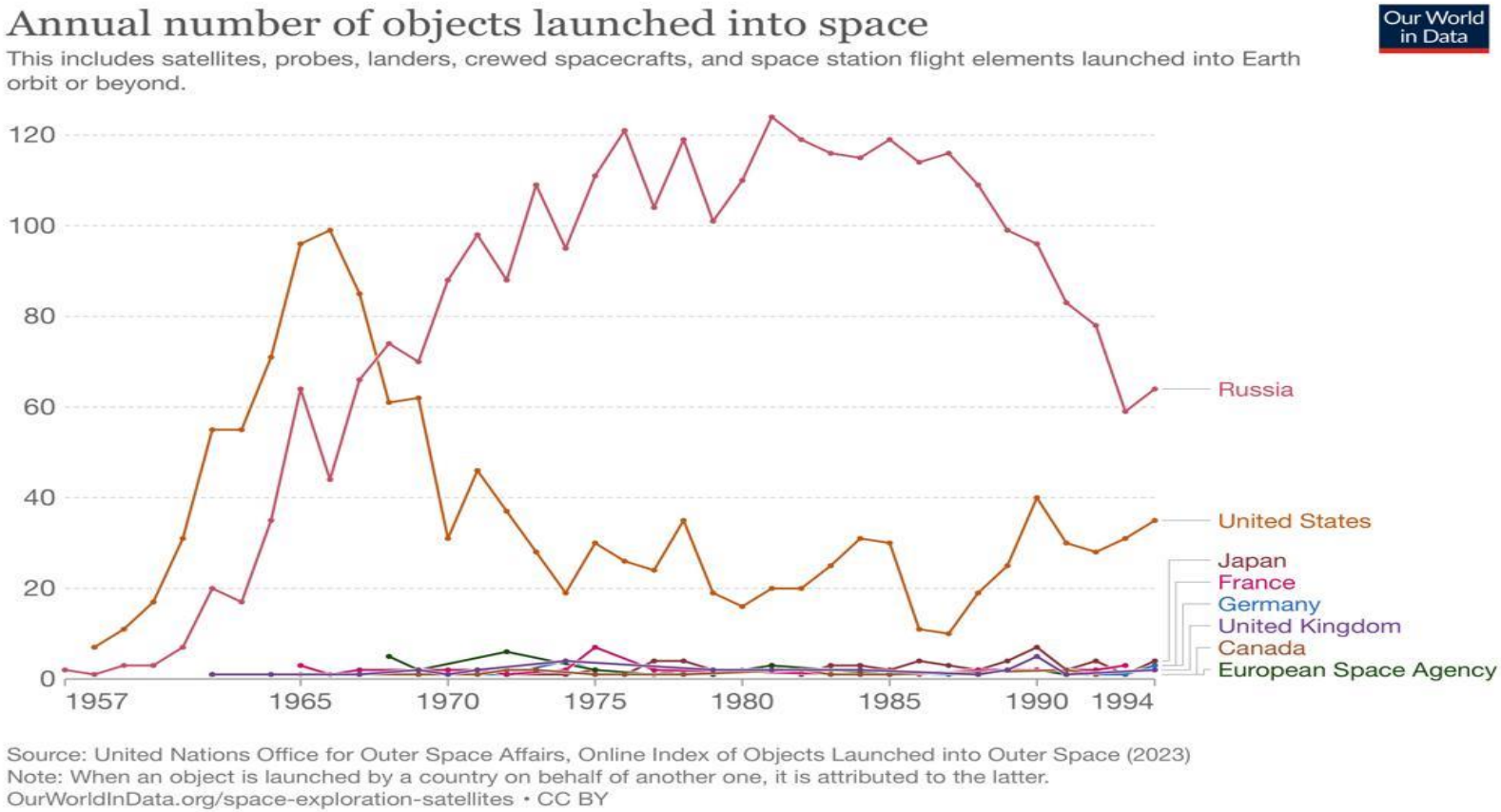

Figure 4.1. 1957-1994 Annual Number of Launched Objects

Source: Our World in Data: https://ourworldindata.org/grapher/yearly-number-of-objects-launched-into-outer-

In this framework, the first official discussions with state leaders happened during the London Economic Summit in June 1984. Yet as the official declaration of the Summit displays, the discussions were restricted only to the approval of the space station as a concept that "provides a stimulus for technological development leading to strengthened economies and improved quality of life (G7/G20 Documents Database: The London Economic Declaration, 1984)". Hence, it emphasizes the necessity of carefully considering the invitation from the US President to other Summit countries to engage in the development of such a station by the United States (G7/G20 Documents Database: The London Economic Declaration, 1984). However, the declaration did not suggest any possible joint action to start building the station while welcoming "the intention of the United States to report at the next Summit on international participation in their program (G7/G20 Documents Database: The London Economic Declaration, 1984)". The 1985 Summit agenda significantly included space station cooperation compared to the 1984 declaration, as seen below:

> We welcome the positive responses of the Member States of the European Space Agency (ESA), Canada, and Japan to the invitation of the President of the United States to cooperate in the United States Manned Space Station Program on the basis of a genuine partnership and a fair and appropriate exchange of information, experience, and technologies. Discussions on intergovernmental cooperation in the development and utilization of permanently manned space stations will begin promptly (G7 Summit: Bonn, 1985).

It was meant to encourage swift decision-making in Europe, Japan, and Canada since any postponements or disruptions in negotiations over accepting President Reagan's invitation would have to be reported back to summit leaders at their subsequent meeting. The US offer and the distinct space aspirations and objectives of Europe, Japan, and Canada would need additional time to be merged in ways that would be appropriate to all partners, but after all, there was now a deadline to give discussions over the cooperation steps at the 1985 summit. Eventually, all countries signed the Memorandum of Understanding (MOU) in 1985 regarding the ISS for the preliminary design and started to evaluate the necessary items and aspects of the ISS preliminary design stage and the fundamental guidelines for the post-development phase (Cline & Gibbs, 2001).

4.1.1. The US-USSR/Russia Outer Space Spectrum Ahead of Space Station Freedom Genesis

Although cooperation endeavors are regarded as the prominent aspect of US space policy, a national security decision directive written on July 4, 1982, for Reagan's administration revealed that the crucial goals for the US, aside from the civil and peaceful use of outer space, were maintaining the US outer space leadership and acquiring economic and scientific benefits through the exploitation of space (National Security Decision Directive Number 42, 1982). Therefore, the initial phase of the ISS, which is known as “Space Station Freedom”, has also symbolized the US effort to demonstrate American technological superiority over the USSR. Moreover, an interview with James Beggs in 2002 indicates how the US was not in favor of cooperating with the Russians in the first place. It gives details regarding a dialogue between Beggs and Reagan on selling the space station idea to the allies, where Beggs suggested the Russians as partners and, in return, Reagan rejected cooperating with them. Beggs mentions it during the interview as “I would have brought the Russians at that point, had I had permission to do so, but I didn't (Beggs, 2002)”.

Because after all, as Figures 4.1 and 4.2 display, from the 1957s to the late 1980s, the number of USSR space launches surpassed the US launch rate, proving the upper hand capacity of the USSR/Russia space industry compared to the US outer space activities, contrasting with the US objective on outer space leadership.

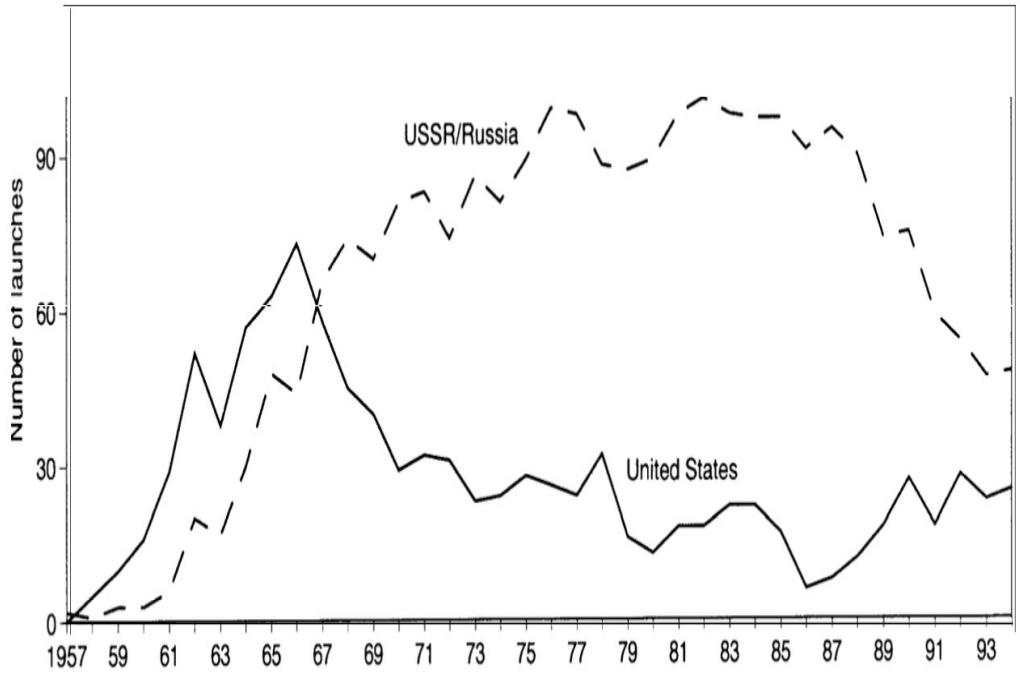

Figure 4.2. The US-USSR Number of Launched Objects

Source: Marcia S. Smith, Space Activities of the United States, CIS, and Other Launching Countries/Organizations: 1957-1993, Congressional Research Service Issue Briefs, Washington, DC, Mar 29, 1994.

In the beginning, both the US and the USSR regarded their space programs as a sign of their countries' technological superiority and productive capability over each other. The USSR's outer space capacity was initially shown to be ahead of the US as it launched the first-ever satellite into orbit in 1957. Then, in 1961, it sent the first human, Yuri Gagarin, into space. Consequently, the USSR had a more robust space program compared to the US from 1957 until its collapse in 1991, when the speed of its improvement started to heavily depend on the changing political and economic landscape of Russia (Karash, 1999; CIA, 1965). Indeed, a 1966 Central Intelligence Agency report on the comparative size of the US and Soviet space programs between 1959 and 1965 estimated the efforts of the USSR on some major space programs other than manned lunar landing by exploring the potential funding requirements compared to the US to understand the USSR's outer space strategy and indicating that "the most likely alternative is a program to orbit a very large manned space station (CIA, 1966; pp. 5–6)." As a matter of fact, Russia started to develop the first space station program called the Salyut Space Station in 1971 and formed its recent development phase by renaming it the Mir Space Station. The Soviet Mir space station's six modules were

launched by the Soviet Union on February 20, 1986, marking their first experience building a space station for scientific purposes. The Mir Space Station, similar to the ISS, was intended to serve international experiments in science and space engineering. Hence, it hosted many astronauts, including those from the US later on. In this context, as the U.S. Congress notes in the Office of Technology Assessment (1995) document, "Because of their experience with space stations, the United States expects Russia to play a large part in the design and maintenance of the International Space Station (pp. 34)". Yet, Russian participation only came into consideration after Reagan's era for certain reasons that will be further discussed. Moreover, the construction of the Buran space shuttle in 1980 was also another aspect of the Russians' ongoing space activities that required funding (Lewis, 2013).

A year before the Mir Station, the summit meeting between the US and the USSR in Geneva on November 21, 1985, set forth the scope of US-Russia space relations, especially amid the new leader of the USSR, Mikhail Gorbachev. In a joint statement, the leaders voiced their intention to prevent an arms race in outer space as well as impose an interim Intermediate-Range Nuclear Forces Treaty (INF Treaty), which was realized in 1987, while promising not to aim at achieving military dominance against one another (Ronald Reagan Presidential Library, 1985; Washington Post, 1987). In this sense, after Gorbachev became the new leader of the USSR in 1985, bilateral relations were able to find new prospects for outer space negotiations since his major priority after coming to power was cutting the country's defense spending under Glasnost and Perestroika policy strategies ("олитика "ласности,", роволаенна енералнм секретарем иаилом оревевевм, 2016). The demilitarization of Soviet foreign relations and changes in domestic politics had a significant impact on diminishing the activities of the Soviet space program and their use as an instrument for the USSR's global leadership race in the Gorbachev era. The USSR's decreased interest in supporting the space program was apparent during Gorbachev's speech in May, which was described as "disappointment" by several listeners as there was little sign of supporting the space program (Karash, 1999).

Indeed, the below figure 4.3 shows the decreasing trend in Russian space launches, particularly after 1985, which can be a sign of such declining interest in outer space activities.

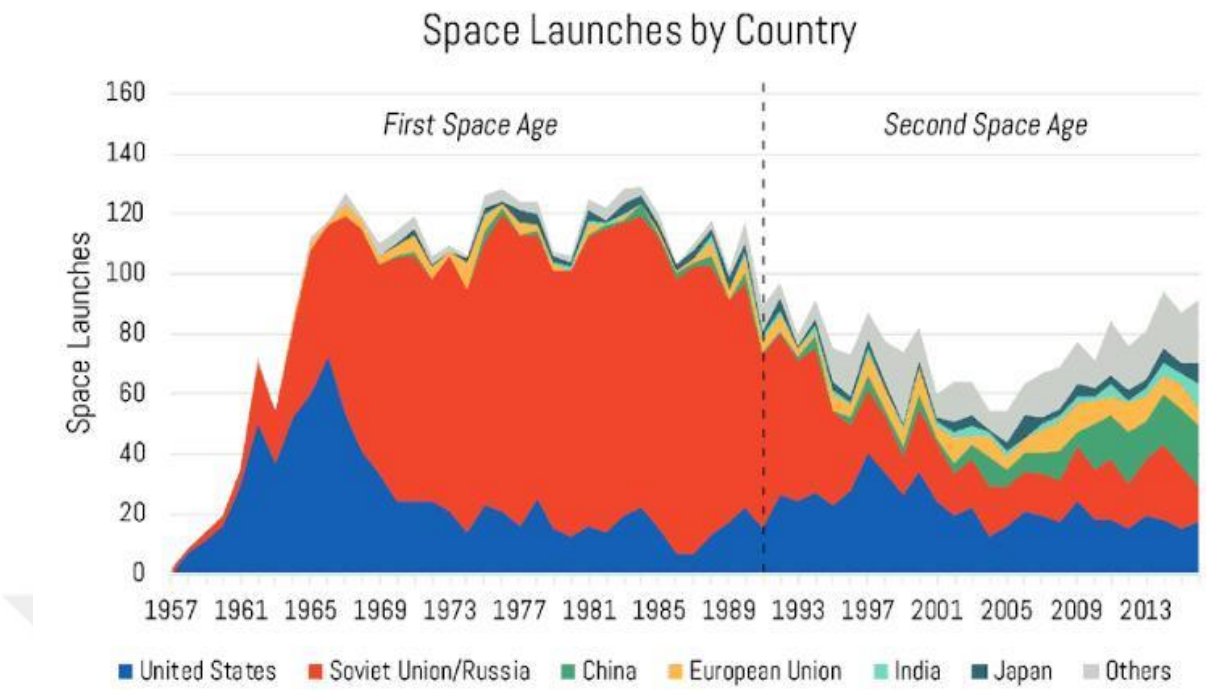

Figure 4.3. Space Launches by Country

Source: Space-Track.org

For some, questioning the significance of the space program for the national economy and defense, its success and cost-failure calculation paved the way for a perception regarding the burden of the space program for the country. Eventually, such an approach by the Soviet people and officials under Gorbachev's leadership catalyzed further erosion of the Soviet space budget, causing Soviet authorities to seek cooperation as a strategic move, particularly with a similar capacity-based spacefaring country, the US (U.S. Congress, the Office of Technology Assessment, 1995; Karash, 1999). The translated version of the resolution of the USSR Central Committee of the Communist Party "on space cooperation with the USA in the field of peaceful space exploration", which was also written by the former USSR foreign minister Eduard Shevardnadze in 1986, focused on the potential outer space cooperation "areas of mutual interest (pp. 3)" and steps that can be embarked on with the US, as well as the possibility of joint exploration of Mars, which is suggested as not appropriate at present due to various factors as follows, "However, at present, it is inadvisable to suggest joint development of such a project, given its extreme complexity, labor intensity, and high cost (National Security Archive, 1986; pp. 3)."

The statement above indicated the fact that during these periods, not only the US was not in favor of involving Russia in the ISS program, but also the USSR was hesitant to jointly develop major space programs. However, both sides were on the same page for much smaller-scale cooperative initiatives for scientific purposes, such as joint efforts to explore Halley's Comet through the USSR's Vega spacecraft, which was ascribed as a “demonstration that Soviet and American scientists can set aside political differences and work together in space exploration (The New York Times, 1986)”. Moreover, the encouragement for cooperation by the scholars and businesses was also visible in 1986's Business-Higher Education Forum, where they advised the US Administration and Congress to accelerate options for international collaboration on the peaceful use of outer space (Karash, 1999; pp. 161). While such progress was happening, the US Strategic Defense Initiative (SDI), also referred to as the "Star Wars program" and which was adressed by Reagan in a nationwide television conveyed on March 23,1983, was probably one of the biggest challenges between the two powers in this period (Ronald Reagan Presidential Library, 1983). Both outer space and Earth-based missile intercept stations were included in the envisioned SDI. The USSR vehemently opposed it, as they saw it as a step toward the US putting weapons in space, allowing the US the opportunity to potentially launch an initial strike. In this context, preventing a future arms race in outer space between the two nations was subsequently hampered by the possibility of the US building a defense system. Gorbachev insisted that the US forgo SDI for the negotiation of the Intermediate-range Nuclear Forces Treaty (INF Treaty) and the Strategic Arms Reduction Talks (START). Reagan's refusal to give up SDI over the course of the 1980s became the stumbling block that hindered the two nations from coming to an agreement on other arms restrictions. It was only when the two sides agreed to separate the talks on defense and intermediate-range forces that they were able to sign the INF Treaty (Daas, 2019). Moreover, several collaborative scientific initiatives were approved by both parties (the Nuclear Threat Initiative, or NTI). In this regard, a mutual understanding was reached between the two countries to separate military issues from non-military issues in outer space and to ensure outer space cooperation accordingly (U.S. Department of State Archive, 2001).

Considering NASA's approach towards cooperation with the USSR, it emphasized the fact that the expanding cost of space projects necessitates the need for more significant

outer space cooperation endeavors. Halley's Comet joint mission that was discussed above, for instance, was an on-point example regarding the cost-sharing aspect that would be significantly expensive if conducted by only one side alone. In the end, as the figure below displays, the sharp decline in NASA's percentage of the US budget after 1965 indicates that the US does not plan on unilaterally investing high budgets in outer space activities and persists in funding NASA at around 0.5% after ending the Space Shuttle Program. In this context, 1986's space shuttle Challenger catastrophe, which was described by Reagan as a "national loss", killing all seven crew members, was also another turning point since it caused questioning of US capability and NASA's readiness to take the next step on outer space initiatives and triggered the spirit of not making great expenditures for space programs (Video Recording #242; President Ronald Reagan's Speech on Space Shuttle Challenger, 1986; Wang, 2013). However, maintaining its importance for "expanding man's horizons" was out of the question (Video Recording #242; President Ronald Reagan's Speech on Space Shuttle Challenger, 1986; NASA History, 1986). In fact, as Dick Kohrs, the manager of the system engineering of the Space Shuttle in the 1980s, states, the public interest in the Space Shuttle has in fact decreased, particularly after 4-5 shuttle flights (Karash, 1999). After all, the overall approach towards cooperation was not opposed by the US administration's policy necessarily, but was favoring this cooperation to involve specific projects that would not demand complicated, labor-consuming, major initiatives that would bridge the US-USSR space programs during that period.

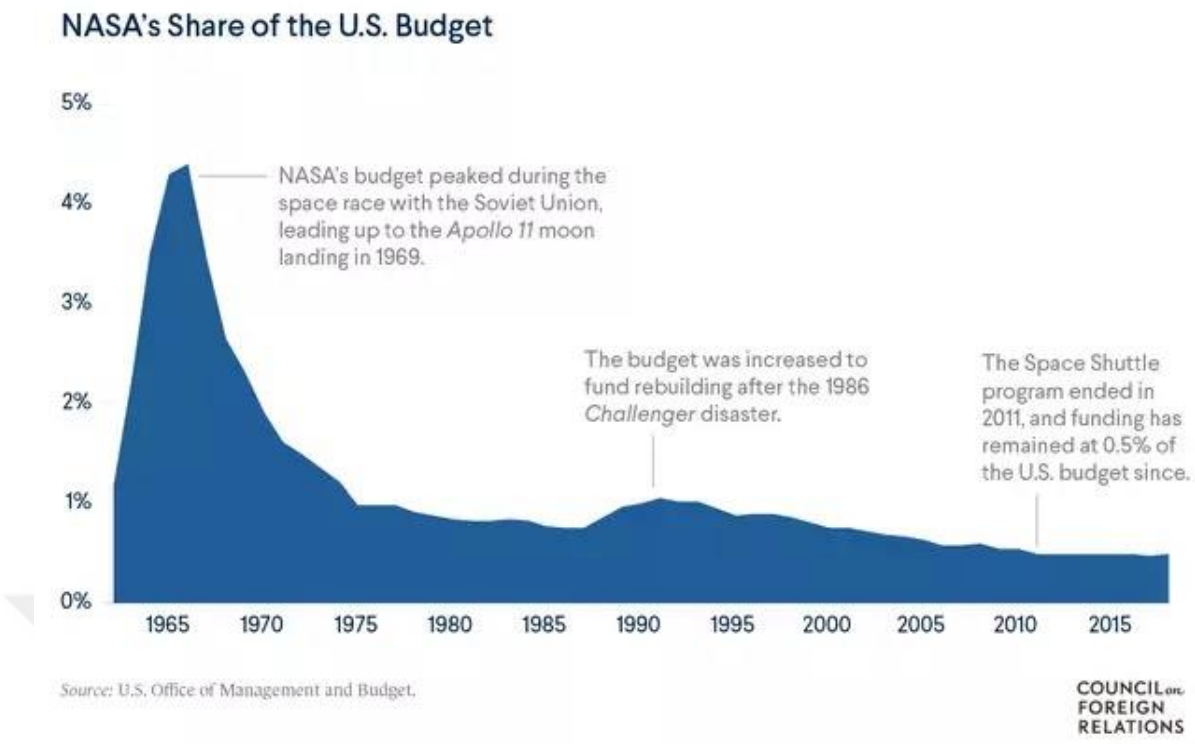

Figure 4.4. NASA's Share of the US Budget

Source: Council on Foreign Relations

Similarly, the Soviet Space Shuttle Buran space program, designed for sending crews, cargo, and necessary supplies to the Soviet Mir space station, was getting nowhere during that period and after its first flight in 1993 as there was a lack of budget and political turmoil in the country. Eventually, it increased the need for US-accompanying human spaceflights, meaning its Space Shuttle Program, for the operations of the Mir (Zak, Russian Space Web, n.d.). This was also a sign that, although an understanding of the space race between the US and USSR was continuing, the requirement of joint activities in space was beyond that competition as it requires joint initiatives for mutual gains.

Hence, in April 1987, a US-USSR Cooperative Agreement in the Exploration and Use of Outer Space for Peaceful Purposes was reached with US Secretary of State George Shultz and Soviet Foreign Minister Eduard Shevardnadze (NASA Historical Reference Collection, 1987). Several collaborative scientific initiatives were also approved by both parties. But more significantly, it contributed to bracing up the US and the USSR's Soviet outer space steps more, which is also mentioned in the Joint

Statement by Gorbachev and Reagan following the Soviet-United States Summit Meeting in Moscow in 1988 regarding initiatives for expanded civil space cooperation (Ronald Regaen Presidential Library & Museum, 1988). Yet, despite expanded civil cooperation for exchanging outer space science data and research as well as potential Moon and Mars missions, there was no mention of any space station cooperation. Even on the contrary, the Space Station Program Director Thomas Moser's one of the logics in justifying and persuading Congress for the money to fund the Space Station Freedom in the fiscal year 1987 was to highlight the necessity of the space station since the Russians already have it (Mir), and if the US does not launch its station into orbit, the Russians will beat the US in a "cumulative number of man-hours", leading its establishment (Karash, 1999; pp. 162). The following section continues with the initial building process of the space station Freedom.

4.1.2. The Troubles on Building the Space Station Freedom

When Reagan sent a letter to members of Congress regarding funding for science, space, and technology programs in 1988, there was no doubt that the letter was written to Congress due to previous financial conflicts that had escalated between NASA and Congress, particularly on funding the space station. The letter's tone was persuasive and stressed the crucial necessity of the program and provided a solid budget for it as follows:

> As the Congress prepares to consider the HUD-Independent Agencies Appropriations Act for fiscal year 1989, I want to emphasize the importance to the nation's future of full funding and support for science, space, and technology programs. These programs are essential if the United States is to maintain its leadership in space exploration and development and its preeminence in science and technology.
> The establishment of the Space Station will advance the frontiers of scientific knowledge and strengthen cooperation in space among the United States and its allies.
> We have considered the full range of federal programs and their competing demands on scarce taxpayer dollars and have concluded that full funding of science, space, and technology programs must remain a top priority. I urge the Congress to provide full funding and support for these programs (Ronald Reagan Presidential Library & Museum, 1988).

This letter came after NASA's initial cost evaluation for the space station in 1984, which yielded a backlash from Congress as many politicians began to emphasize their skepticism about the project, particularly after what The New York Times (1990) article called "a vicious cycle of financial shortfalls that led to delays, delays that led

to cost increases, increases that necessitated less costly new designs, and new delays". According to the former NASA Director Beggs, initially the space station was sold to Congress in 1984 as an $8 billion project, and Congress was "pleased with the initiation of the program (Beggs, 2002)". However, a year later, when NASA started to demand more budget after several technical and operational cost calculations, this opinion began to gradually change, and eventually, as Beggs emphasized in one of his interviews, there happened to be "a lot in Congress that wanted to kill the program many times", encountering "a very hard time" figuring out how to repair all the problems that they had (Beggs, 2002). In 1987, the detailed cost evaluation of the space station, which was named "Dual Keel" as the first design, suggested that the cost would be at least $14.5 billion, causing a political uproar. However, a compromise between NASA and the Reagan Administration in 1987 permitted the organization to move on with a less expensive $12.2 billion Phase One Station that could be fully built after at least 10 Shuttle flights. The Brunner-Byerly report found that the cost of the cutback was high—$2.2 billion for the revised design. The capabilities to repair and fuel spacecraft, build massive structures, and prepare for the launching of exploratory missions were among the qualities that were abondoned in the cutback that would have assisted in transforming the station into a spaceport. Beggs, who had already left NASA by then, stated that it was still a significant amount, about double what they'd begun with (The New York Times, 1990; Lindroos, n.d.; Congressional Research Service: Testimony Before the House Science Committee, 2001). In this regard, there would be $767 million in financing each year in FY 1988, $1.4 billion in FY 1989 and 1990, $2.3 billion over the following three years, and $1.4 billion in FY 1994. But the funding deal for the Space Station in 1987 did not persist due to a budget-minded Congress, as Beggs explains in his interview as follows:

> They oppose anything that costs money, and they keep making you want to do dumb things, like doing cost-benefit analysis, which doesn't apply. I kept telling them, "This doesn't apply to research." If you do cost-benefit analysis on research, you'd never do any research. Any good financial analyst can tell you that if it takes longer than seven years to bring a research project to fruition, you can't justify it. So you shouldn't do it because the costs greatly exceed the benefits (Beggs, 2002).

First, the budget for fiscal 1988 was decreased by Congress from $767 million to $525 million. Yet only $300 million of this was accessible until June 1, 1988. Moreover, NASA was granted more funds only with the condition of bringing a less costly

program (NASA: Chronological History Fiscal Year 1988 Budget Submission; Lindroos, n.d.; The New York Times, 1987). Eventually, the Phase One Station omitted the $3.4-billion 'Dual Keel' structure and half of its power generators, while the new Space Station design was declared “Space Station Freedom” by the Assistant to the President for Press Relations, Marlin Fitzwater, in 1988 (Lindroos, n.d.; Ronald Reagan Presidential Library, 1988). NASA made various changes in an effort to cut back on the number of flights required for Shuttle assembly. The first launch would now occur in March 1994; the station would begin to be permanently manned in April 1995; and after 17 flights, it would be finished in March 1997 (NASA). Lyndon B. Johnson Space Center: Space News Roundup, 1988 Congress was momentarily urged to speed up the plan since they did not appreciate the 6- to 9-month postponement. Scientists, on the other hand, disapproved of its diminished capabilities, such as the fact that the Dual Keel design had five berths instead of two for connected payloads. The station's increased expense, lagging timeline, and dependence on the Space Shuttle were among other frequent critiques. Numerous people also criticized NASA for underfunding the experiments conducted on the Space Station (National Research Council, 1987; Lindroos, n.d.; Wang, 2013).

Overall disputes hampered the Space Station's development throughout the 1984–1987 preliminary phase. When it comes to international partners, for Europe's participation in the program, NASA and ESA failed to come to a consensus. Congress demanded that Europe be prohibited from utilizing its Columbus module for materials research aboard the space station, but the ESA refused to comply (Dickson, 1987; Lindroos, n.d.). Moreover, no funding was promised, and NASA officials privately voiced distrust that it would ever be constructed, especially after many removals of exploration assets and technical aspects of the program (History of the ISS Project, n.d.; The New York Times, 1990). Moreover, the participating countries also had difficulties providing the necessary budget (History of the ISS Project, n.d.). Initially, some experts predicted that the space manufacturing industry would be worth up to $20 billion per year in 2000, when President Reagan authorized the project in 1984 (Lindroos, n.d.). But as the 1986 Challenger catastrophe significantly raised the commercial expenses for Space Shuttle missions while lowering the number of flight possibilities, a detrimental impact on the construction of the space station has occurred (see Figure 4.4; National Research Council, 1987). Hence, the assessments turned out

to be unduly optimistic. Nevertheless, the National Research Council panel permitted the Space Station proposal in September 1987, allowing NASA to eventually grant building agreements in December (National Research Council, 1987).

In September 1988, the Space Station Intergovernmental Agreement (IGA) was ultimately signed, giving NASA 97% of the US lab resources in exchange for 3% of the Canadian Space Agency's contribution to the program. 51% of each continent's laboratory units would remain with Europe and Japan. Canada and the US would each get 3% and 46%, respectively. Moreover, there would be a permanent crew of six Americans and two foreign astronauts on Space Station Freedom. The original 1987 schedule called for a 90-day service period for each crew member (Cline & Gibbs, 2001; Sadeh, 2004; The New York Times, 1990; Lindroos, n.d.). The below figure 4.5 shows the redesigned model of the space station and each member state's work allocation and payloads, displaying the majority role of NASA (Marshall, Johnson, Lewis, Goddard) and the US dominance with regards to the details above.

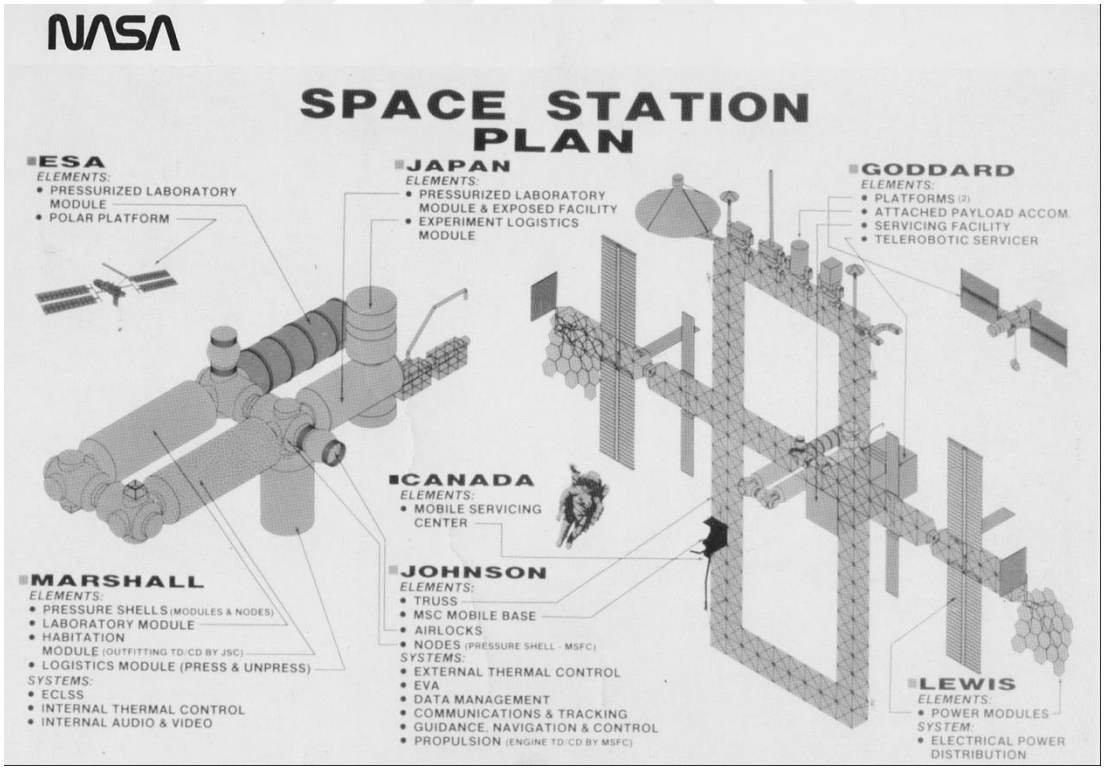

Figure 4.5. Space Station Freedom Model
(Source: NASA)

NASA quickly extended the tour of duty to 120 days, intending to lower the number of Shuttle flights from eight to five or six to lessen the need for transportation as many raised concerns regarding the Shuttle's ability and uncertain safety after the 1986 Challenger tragedy (National Research Council, 1987). In this context, the space station program was suspended until the newly elected President George H. W. Bush also emphasized his support for the program in his July 20, 1989 speech by saying, "I'm proposing a long-range, continuing commitment. First, for the coming decade, for the 1990s: Space Station Freedom, our critical next step in all our space endeavors (George H.W. Bush Presidential Library & Museum, 1989)". Yet again, the budget devoted to the space station was still not enough, and there was no positive development in this sense. The Space Station's funding for 1989 was only $900 million, which was $2.5 billion less than what was anticipated in the 1987 plan and 50% less. By this point, ongoing budget cuts had compelled a one-year delay in the initial launch, to March 1995. In this context, the space station would be finished in February 1998 and expected to be permanently manned in June 1997. Now, the total expenditure of the station has increased to at least $19 billion ($13 billion in 1984's value) as NASA needs to initiate a new program to expand the Shuttle's cargo-carrying capacity, making the space station more complicated and heavier. Moreover, the member states of the station were not content with the current situation, as NASA did not consult with them regarding the necessity of postponing the launch of modules due to new required arrangements (The New York Times, 1990; Lindroos, n.d.; Wang, 2013). Indeed, in 1989, a press briefing (The White House Office of the Press Secretary, 1989) by the current Administrator of NASA, Admiral Richard H. Truly, displayed the difficulties that were still occurring on the space station during the Bush era, indicating that "there's never a time" that they're not fighting for their budgets for "the very life of Space Station Freedom and other things in the civil space program", by also mentioning a direct call between President Bush and Congress to discuss the budget of the program as follows:

> We're fighting hard in the Congress for Space Station Freedom... It was clear that he made a very direct call to Congress about Space Station Freedom. I believe that he clearly said that our nation, which has the strongest economy in the world, is capable of a sacrifice to explore and continue to explore along the lines he talked about (The White House Office of the Press Secretary, 1989).

The press briefing also included questions about whether it is logical to raise taxes for the program and whether there may be a constant raise in the requested budget, while Truly answered the question by saying that, “The Vice President and Space Council should lay out a specific plan along these broad goals, and we'll do that (The White House Office of the Press Secretary, 1989)”. One of the questions included whether it is affordable to conduct potential missions to the Moon and Mars with the building of the Space Station Freedom and whether it would be rational to make joint missions with the Soviets to achieve such goals. Truly emphasized in return that “Space Station Freedom is an international project. It's premature in this particular direction to know where we're heading, but I would think it would have an international flavor (The White House Office of the Press Secretary, 1989).” Yet no concrete signs were given regarding the cooperation on the Space Station Freedom with the USSR during that time.

In the end, the Space Station Freedom project collapsed in 1990 as the design of the station was determined to be over budget, too heavy at around 23%, and too complex as there was constant congressional intervention for budget cuts, which led to a technological compromise that eventually paved the way for a limbo situation on deciding what to use and what technologically and financially to get from other space-faring partners who were not sufficient enough to support the overall program. Yet another design was requested from Congress in October 1990, demanding more cost decreases since the Fiscal 1991 allocation was cut from $2.5 billion to $1.9 billion. Over five years, a $6 billion overall budget reduction would be made (Lindroos, n.d.; Wang, 2013). The below figure 4.6 displays the overall decreasing trend of NASA funding from the federal budget except for the period of the Challenger accident in the 1960s, highlighting the sharp decline in the budget, which, according to many, posed a hurdle to building the space station.

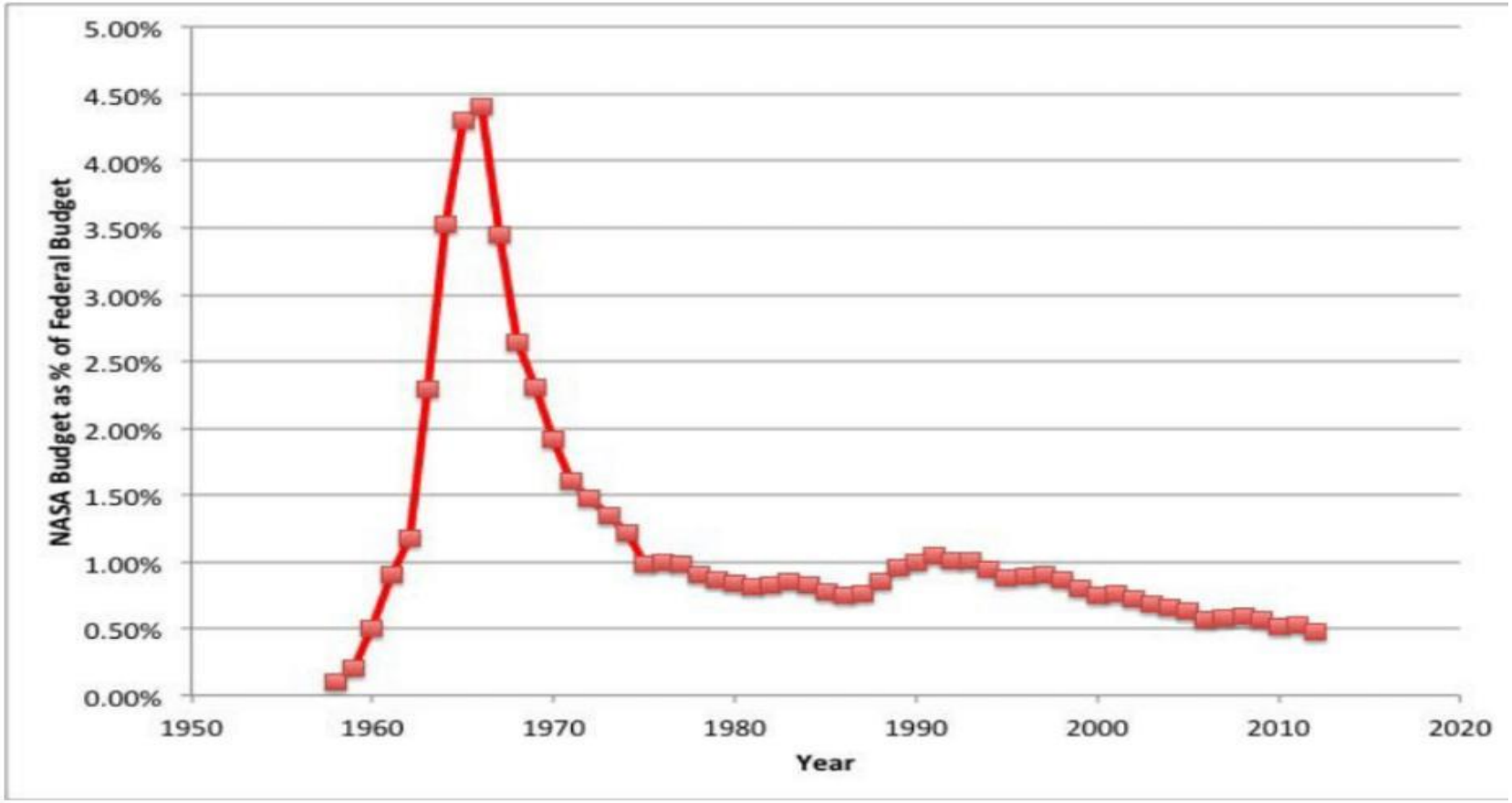

Figure 4.6. NASA Budget 1950-2010

Source: Augustine Report 12 in 1990 via data from NASA History Office

Ultimately, the ISS program experienced many cycles of crises that went nowhere until the major space-faring country, Russia,'s official involvement in 1993. Russian involvement drove a holistic re-design of the program, which resulted in a functioning process for the ISS building that eventually led to its launch in 1998.

4.2. Complementary Steps Towards the Cooperation

The beginning of the 1990s was full of uncertainty regarding the space station. However, this decade was also the period that brought two major space-faring countries, the US and Russia, together for the International Space Station (ISS). In 1989, during the annual Association of Space Explorers (ASE) planetary congress in Saudi Arabia, a proposal of flighting the USSR cosmonauts on the US Space Shuttle and flighting the American astronauts on the USSR Mir space station came to the fore as a rationale to jointly gain expertise by learning from each other's advanced capacities to cause mutual benefit for all. Soon after, in June 1990, Gorbachev and the then-US President George H.W. Bush's Vice President Dan Quayle decided to send an American astronaut to the Mir space station and a cosmonaut to the US Space Shuttle mission. But no concrete action has been taken due to pending arms and trade agreements between the states (Lawler, 1990; Karash, 1999; NASA, n.d.). Quayle was assigned to find ways to engage with the USSR in space cooperation and, most probably, as can be seen in President Bush's remarks below, find solid solutions to not repeat the same experiences regarding outer space by leading the National Space Council:

> And today I'm asking my right-hand man, our able Vice President, Dan Quayle, to lead the National Space Council in determining specifically what's needed for the next round of exploration: the necessary money, manpower, and materials; the feasibility of international cooperation; and developing realistic timetables -- milestones -- along the way (The American Presidency Project: Presidential Remarks, 1989).

The National Space Council considered the space station a necessary step to initiate missions to the Moon and Mars under the Bush-initiated Space Exploration Initiative (SEI) plan. As President Bush mentioned in his speech, they were also attempting to find ways to reduce the cost of the space station. Moreover, as a CIA paper from the National Space Council Meeting on October 26, 1989, highlights, profound consideration is being given to the possibility that the USSR will be a major participant

in the initiative", which may potentially lessen “the strain on US resources (CIA Point Paper For National Space Council Meeting, October 26, 1989)”. Yet there were also "serious concerns about technology transfer" in any such action (CIA Point Paper for the National Space Council Meeting, October 26, 1989, pp. 4). Nevertheless, on March 8, 1990, Quayle declared a US-USSR partnership in space, particularly for the Soviet Radio Astronomy Mission with Soviet Ambassador Yuri Dubinin (C-Span, 1990). Afterwards, in May 1990, Quayle consulted on space cooperation with Gorbachev (NASA History: Shuttle-Mir Background, n.d.). One of the main objectives of such an approach was to gain benefit from the immense Soviet space assets, such as their unique Soyuz crew return vehicle, which was later heavily used by the International Space Station (ISS) crew for return to Earth missions. Also, the USSR's already existing Mir space station would bring valuable knowledge in long-duration spaceflight to the planned station (NASA, n.d.; CIA Point Paper for the National Space Council Meeting, October 26, 1989).

In the 1990s, the USSR was characterized by general economic stagnation due to decades of hyperinflation, low tax returns, capital flight, gradually increasing dependency on the West, and a much lower GDP compared to the US, as displayed in the below figure 4.7 (Karash, 1999; Moltz, 2014; Jackson, 2015). It not only lost most of its military capacity but also its capability to conduct long-duration research and development in outer space (Jackson, 2015).

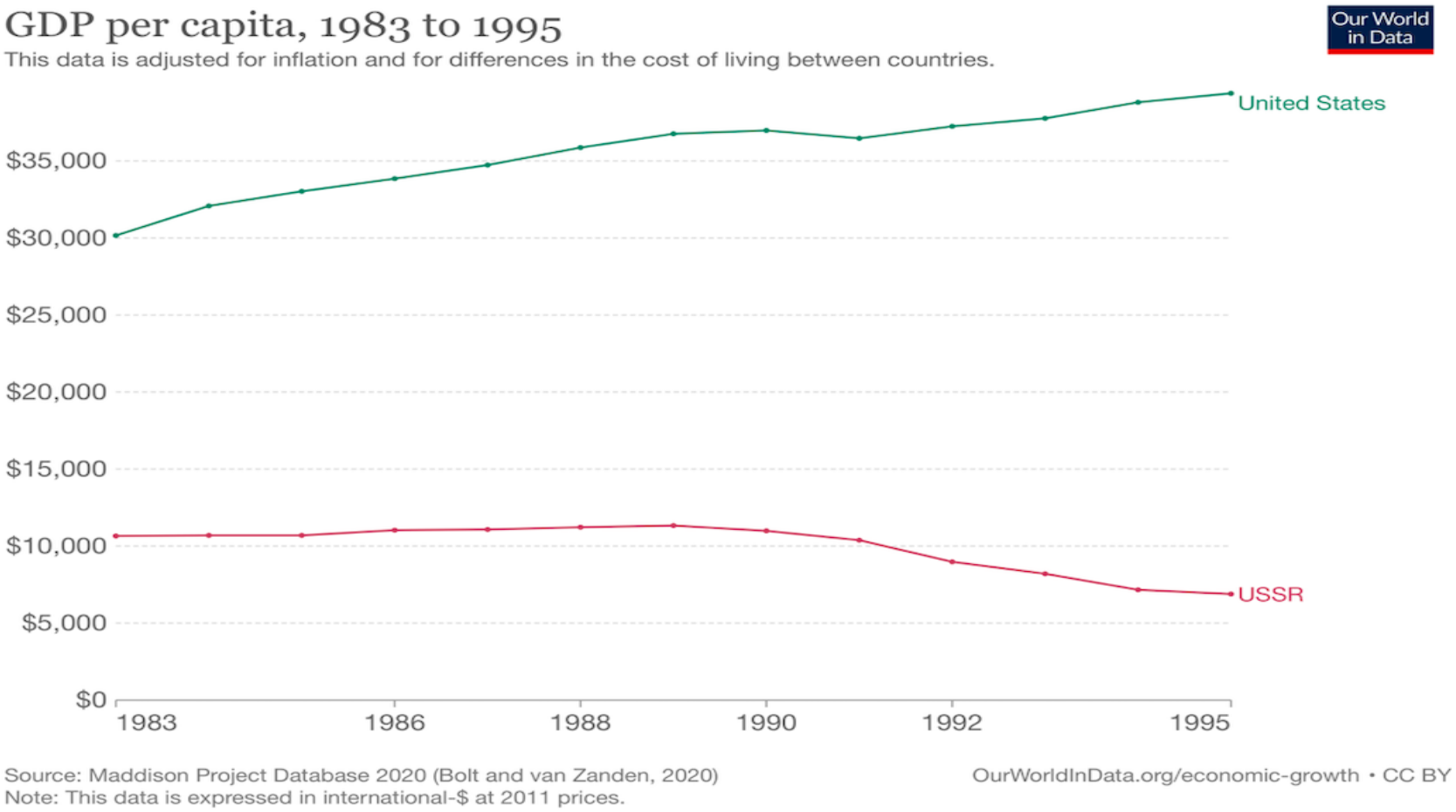

Figure 4.7. The US-USSR GDP per Capita 1983-1995

Source: Our World in Data

The assessment of Soviet space funding is not an easy task, as the USSR space complex command has more of an administrative rather than economic essence. Hence, financing of the USSR space programs was not based on acquiring budgets and using them beneficially but rather on the policy decisions of the top Soviet officials. After such decisions, it was easy to coordinate related bodies such as the Ministry of Finances, Gosplan, the USSR State Planning Committee, Gossnab, the USSR State Supplying Committee, and Minobshchemash, which oversees USSR spacecraft development (Tarasenko, 1994; U.S.-Russian Cooperation in Space, 1995). Hence, the complicated nature of this system made it almost impossible to use USSR budget figures as a space activity indicator since they were not even evaluated but contained under Minobshchemash. Yet some experts assume that the 1990 funding of Soviet space programs, both military and civil, decreased from the 1989 level of 6.9 billion rubles to 6.3 billion rubles, with a drop of 8.7% (Karash, 1999).

Considering the current economic and political decline, the acceptance of the US invitation for a visit to the US space facilities, including NASA Johson Space Center, which is also known as "Houston" and was initially established for the early space station program and later ISS mission operation needs, was not a surprise. Moreover, the US fears the hemorrhaging of technology from Russia to countries that "may not have a more peaceful intention behind the use of those technologies (NASA: History's Highest Stage, n.d.)". In June 1991, Minister of General Machine Building Minobshchemash and Oleg Shishkin visited the US and met with Quayle after the space facility tour. Both sides acknowledged the fact that 50% of US space technology was 5 to 6 years ahead of the USSR, while the USSR was ahead of the US in the other half (Karash, 1999). This review paved the way for the understanding that the two states could complement each other in outer space, including a shuttle rendezvous with the Mir space station followed by crew transfer using the US-initiated Manned Maneuvering Units. Moreover, mutual crew flights, meaning a cosmonaut flight aboard the American Shuttle and a long-duration astronaut flight on the Mir space station, were also under consideration (NASA History: Shuttle-Mir Background, n.d.).

4.2.1. Contemplating the Bilateral Civil Outer Space Partnership

One month after this meeting, on July 31, 1991, a space cooperation agreement was signed between Presidents Bush and Gorbachev, which Bush described as "going forward with space cooperation" during a joint news conference with Gorbachev in Moscow, where he also mentioned that they have "several joint projects in mind there (George H.W. Bush Presidential Library & Museum, 1991)". The agreement included a flight by a US astronaut aboard a Soviet Soyuz to Mir for a stay of around six months. And a Russian cosmonaut would fly aboard a Shuttle Spacelab mission. Ultimately, this created a coordination structure for boosting US-USSR/Russia space collaboration discussions through the joint "Manned Flight Joint Working Group" (NASA History: Shuttle-Mir Background, n.d.). Meanwhile, the dissolution of the USSR in December 1991 and the emergence of Russia as the major outer space player among the former Soviet republics brought new aspects to US-Russia outer space cooperation. The economic decline of the USSR further impacted the Russian space program, as it did not receive constant budgetary funding. Overall, gradually increasing inflation rates, shown in Figure 4.8, severely impacted the Russian space industry. For instance, the cost of a Proton launch increased from 17.1 million rubles in 1991 to 4 billion rubles in 1993. Such developments made cooperation with the West inevitable to maintain Russia in outer space as a prominent actor amid harsh inflation and a recessionary period since Western countries are the main sources of income for the Russian space industry (Karash, 1999).

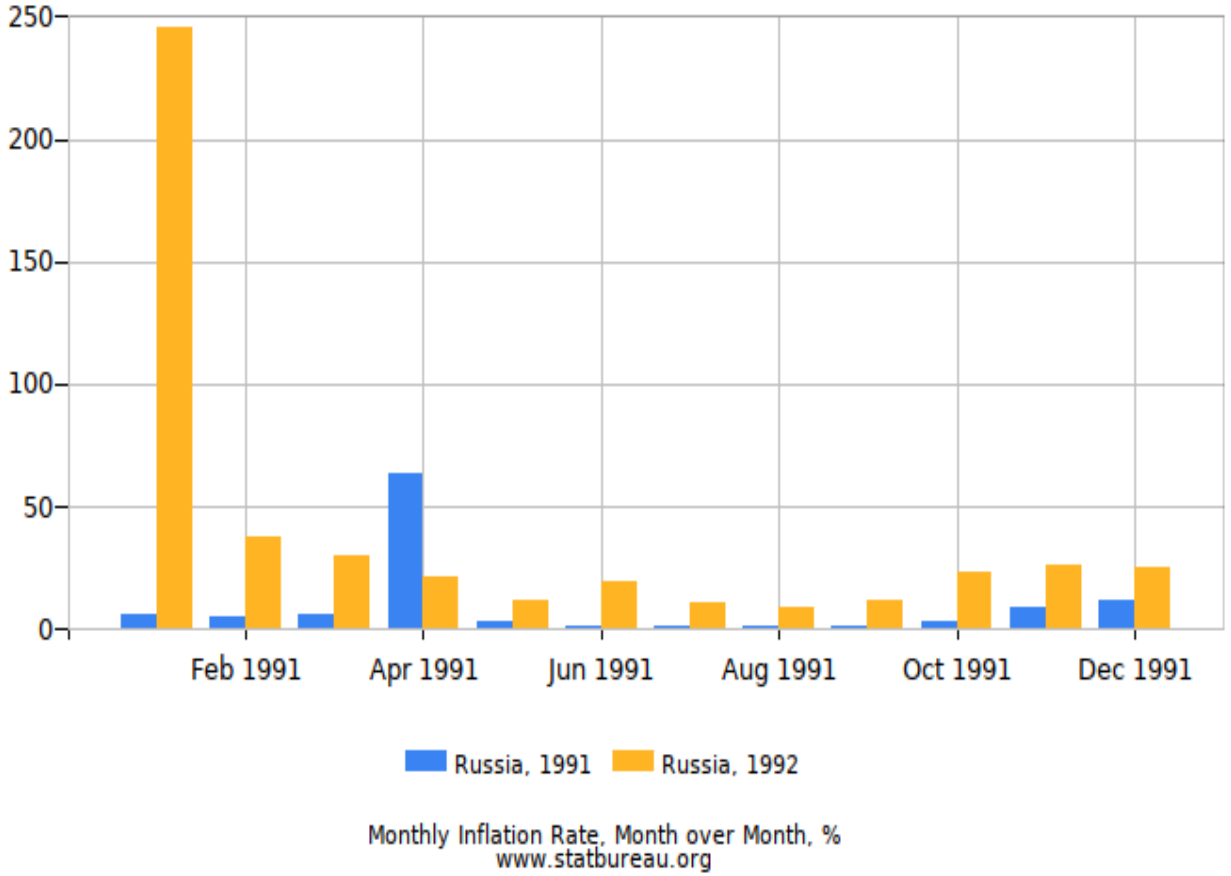

Figure 4.8. Russia Inflation Rate 1991

Source: Statbureau

Moreover, low wages of the specialists and experts in the space industry due to the collapse of the USSR triggered a dramatic brain drain situation to find opportunities abroad with all the Russian technological knowledge that could be used for military purposes, which was found problematic by the US and an important matter to discuss with the newly elected Russian President Boris Yeltsin during a meeting between US Secretary of State James Baker and Russian Foreign Minister Andrey Kozier as follows, “Secretary Baker said that President Bush also wanted to discuss with President Yeltsin the problem of a possible "brain drain" of Russian scientists to countries where their activities would not be in anyone's interest (Department of State, National Security Archive FOIA, 1992, pp. 4)”. To prevent this from happening, the US plan was to create possible job prospects for Russian space technology experts at home by engaging with Russia in cooperative projects (Karash, 1999). Additionally, while the collapse of the USSR eased the concerns regarding the technology transfer that were mentioned in a CIA report and emphasized here previously, it also paved the way for the collapse of the management system of the Soviet space program. The newly established Russian government built a new space agency called the Russian Space Agency (RSA) or Roscosmos in 1992 as the representative of the country's space program while dealing with foreign countries. RSA was responsible for “making efficient use of Russia's space rocket complex in the interests of the Russian Federation's socio-economic development, security, and international cooperation (Yeltsin, 1992)”. RSA's structure was similar to NASA's, which initiated a separation of the civil and military facets of Russia's space program. The objective was to make RSA responsible for civilian missions such as the operation of civilian satellites and the Mir space station. With this development, Russian space facilities became accessible to Western countries as the civil and military aspects of the program were divided, making the sensitive military technology transfer easy to control (US Congress, Office of Technology Assessment, 1995).

While NASA was being criticized for its inability to evaluate and control the cost of missions, particularly those to the space station, and the US Congress was pressuring the space agency to lower the costs, several suggestions were made related to cooperating with Russia after the collapse of the USSR during this period. One of these suggestions came from a report called America's Space Exploration Initiative (ASEI) prepared by a “Synthesis Group” under a former US astronaut with the support of Vice

President Queyle. The report emphasized the increasing scope of US-Russia cooperation attempts as a significant development while particularly focusing on the Mir space station and the possible benefits it offered by learning from that experience for the sake of Space Station Freedom. It also mentioned the importance of the US Shuttle program. Overall, the report highlighted the need for joint missions to acquire benefits from both the Russian Mir space station and the US Shuttle experience (Synthesis Group, 1991). Another report from the Vice President's Space Policy Advisory Board underlined that the rise of budgetary constraints on the US space program intensified the "interest in benefiting from the capabilities and resources of other countries in achieving objectives in space (A Task Group Report, 1992; pp. 34)". In this regard, Russia was addressed as "the country with perhaps the most to offer as a cooperative partner" to the US within the framework of "cooperative strategy", which balances the realities of economic competition with the potential benefits of cooperation (pp. 42), as follows:

> The United States should employ the existing space assets and capabilities of the former Soviet Union on a selective basis when they offer unique programmatic benefits and should encourage collaboration between US industry and the privatizing space organizations of the former Soviet Union in developing future space capabilities (p. 43).

In this context, one of the assets of Russia was the Assured Crew Return Vehicle (ACRV), the Soyuz spacecraft discussed above. When NASA Associate Administrator Arnold Aldrich visited Russia in March 1992 to gain more knowledge on the Russian space program, he concluded that adapting Soyuz would be a win-win bargain since it is much cheaper, whereas the construction of the US crew return vehicle would cost around $1–2 billion (Karash,1999). In this way, the US could save "billions in development costs while saving the Russian economy and scientific establishment from disintegration (The New York Times, 1992)". Moreover, the construction of the American ACRV won't be welcomed by Congress due to its expenditure. Ultimately, the likely purchase of Soviet space hardware generally found support from Congress, as the US economic situation in 1992 and upcoming election year fund-making would give NASA challenges in obtaining the necessary budget for the ACRV. Eventually, Congress approved $15 million for the fiscal year for the continuation of ACRV-based activities. The approval came amid concerns regarding the job shortage in the US space industry due to the purchase of Russian hardware and the potential transfer of

technology to Russia. Nevertheless, the adaptation process of the Soyuz spacecraft as an escape module from the space station Freedom was planned to continue through the fiscal year 1998 (Karash, 1999).

4.2.2. Searching for ''Faster, Better, Cheaper''

When the new NASA Administrator, Daniel Goldin, took office on April 1, 1999, he pushed for a new management philosophy called “Faster, Better, Cheaper” (Handberg, 2012; pp. 101). One of the strategies under Goldin's approach was to decrease NASA's budget by 35%, particularly for the Space Station Freedom program. According to NASA (2012), thanks to Goldin's assertive moves, the annual budget has been lessened, causing a $40 billion drop from previous funding plans. NASA explains the financial and activity-based achievements that were made under Goldin's leadership as follows, “He implemented a more balanced aeronautics and space program by reducing human space flight funding from 48 per cent of NASA’s total budget to 38 per cent and increasing funding for science and aerospace technology from 31 to 43 per cent saw considerable advancements (NASA History Office, 2012)”. Additionally, Goldin increased the average number of missions flown each year by around four times while reducing the cost and time for developing Earth and space science spacecraft by two-thirds and by 40%, respectively. At the same time, expenses for the Space Shuttle decreased by nearly a third, while all mission capabilities and safety indicators saw considerable advancements. The purpose of the “faster, better, cheaper” practice was to control the expenditure of space activities.

One of the solutions to preserving money was to boost strategic partnerships and diversify the purchase of Russian space assets since they were less costly than American hardware (Karash, 1999). In this framework, the “Final Report to the President on the U.S. Space Program”, written in 1993 by Quayle, mentioned a new space cooperation between the two countries in 1992, which happened only a few days after a first-time meeting between Goldin and Roscosmos General Director Yuri Koptev, where they agreed that there are multiple possibilities for enhanced bilateral space cooperation as follows:

> This past year also saw a historic reshaping of our relationship with the republics of the former Soviet Union, particularly Russia. During Russian President Boris Yeltsin's June visit to Washington, Presidents Bush and Yeltsin signed a new space cooperation agreement, which provides the basis for new and important interaction between the world's two major space powers in a wide range of areas, including space science, exploration, and applications. Soon after this agreement was signed, we and the Russians moved swiftly to implement a number of ambitious initiatives that had been proposed during the June meetings (Queyle, 1993; pp. 21).

In a Joint Statement on Cooperation in Space after the agreement, the two states decided on flights of Russian cosmonauts aboard an American Space Shuttle and US astronauts aboard the Mir Space Station in 1993, as well as rendezvous and docking missions between the Mir and Space Shuttle in either 1994 or 1995 (White House Office of Press Secretary, 1992). Other initiatives included a signed contract between the largest Russian space industry company, NPO Energia, and NASA for a joint study on the possible application of Russian hardware in US spaceflight and outer space exploration programs, "in particular the possible use of the Russian Soyuz-TM vehicle as an interim Assured Crew Return Vehicle for Space Station Freedom (Queyle, 1992, pp. 21)." Moreover, on October 1992, Goldin and Koptev signed an agreement in Moscow related to three essential goals: 1) the flight of Russian cosmonauts on the American Space Shuttle, 2) the flight of US astronauts on the Mir space station, and 3) a joint task including the rendezvous and docking of the US Space Shuttle with the Mir Space Station (Implementing AgreementBetween the National Aeronautics and Space Administration of the United States of America and the Russian Space Agency of the Russian Federation on Human Space Flight Cooperation Document, n.d).

Consequently, as Queyle discusses in his final report to the President, all these cooperative initiatives realized with these states that are also among the most robust industrial rivals due to budgetary limitations and the inherent desirability of following specific essential goals that jointly persist to expand the pressure for more collaboration with "an ever more diverse group of players" as they can't lose sight of the factors that lay the groundwork for success, including the careful blending of top-tier technical and scientific resources and the conviction that all partners' interests have been served by their collaboration (Queyle, 1993; pp. 22). Such consideration and a combination of interests ultimately paved the way Space Station Freedom redesing and the evaluation of Russia's role in the redesigned outer space station.

4.3. The ISS Cooperation

The idea of redesigning the space station was prompted by the new US President, Bill Clinton, who had a similar approach to Goldin for “faster, better, cheaper” initiatives, particularly for the space station. Rather than canceling the program, the Clinton administration ordered the space station redesign on March 9, 1993. Similar to Congress' desire, according to several NASA reports, a New York Times article, and the Clinton Digital Library, the intention was to decrease NASA's budget by about 15 percent in the next 5 years within the federal deficit reduction interest (Hess, 1993; Garrett, 1993; Friedman, 1993; Clinton Digital Library, 1993). Moreover, Clinton was keen to see the space station as a tool that could bring new prospects for the US civil space program, especially through cooperation with other countries. For him, Space Station Freedom was “a model of nations coming together in peaceful cooperation (Clinton Digital Library, 1993)”. Hence, when Clinton took over the office as president, his vision was shaped around the idea that joint outer space activities could bring the US and Russia closer together.

4.3.1. The Space Station Redesign

In this framework, the Space Station Redesign Team, which included representatives from both NASA and international partners, gathered under Goldin's responsibility after Clinton's redesign directive. According to Goldin, the team has designed three technically achievable space station alternatives, saying that, “Each provides for international cooperation to establish a fully-capable space research center in orbit that will enable high-priority science, technology, and engineering research and, in every case, do it for significantly less money than the current Space Station Freedom baseline (Hess, 1993)”. In his letter to the team, Goldin delivered a detailed roadmap and guidelines regarding the Clinton Administration's redesign strategy. The strategy included providing a cost-effective solution for scientific research and adequate industrial cost sharing, as well as the ability for effective long- and short-term space research through the annual budget requirements within the budget restrictions. Additionally, it highlighted the importance of continuing to encourage international participation. The team was also urged to “give consideration to greater use of Shuttle

and Spacelab capabilities...and the Russian Mir space station (Hess, 1993)". For the budget specifically, in the 5-year timeline guidance from Fiscal Years 1994 to 1998, NASA was to suppose a low alternative of $5 billion, a mid-range alternative of $7 billion, and a high alternative of $9 billion (Hess, 1993; Clinton Digital Library, 1993).

Option A configuration relied on the 1991 Space Station Freedom design that was previously abandoned. This design would have a "power station" at which a long-duration shuttle could dock for a maximum of 20 days of early research. Propulsion and attitude control would be provided by the previously classified US Air Force spacecraft Bus-1. The entire space station could be built later with the inclusion of more laboratories and a habitation module, including those that would be provided by international partners. Hence, the model was acceptable to them as well. Yet, the expected cost from 1994 to 1998 was $13.3 billion, which was significantly more than what Clinton ordered, exceeding the maximum limit of $9 billion (Lindroos, n.d.; Hess, 1993; Advisory Committee on the Redesign of the Space Station, 1993).

Option B was the most expensive model. To decrease the financial burden, it could be simplified with some subsystems while eliminating one truss segment. But since the entire cost over five years could not be maintained under $9 billion, the plan was essentially cancelled (Clinton Digital Library, 1993; Lindroos, n.d.; Hess, 1993; Advisory Committee on the Redesign of the Space Station, 1993).

Due to its drastic departure from all earlier Space Station ideas, Option C was the most controversial option. The projected cost of the core component was $3.19 billion, with the overall cost over five years amounting to $6.502 billion, eliminating reserves, operations, and the $1 billion Freedom cancellation cost. The ESA Columbus, the Japanese Experiment Module, and the Shuttle would all dock at the C Space Station. Yet, they all disapproved of this alternative since they would have to modify the electrical, thermal, and data control systems of their modules, which would be very costly and beyond their capabilities during that time.

Additionally, international contributions would be mostly ineffective. In this context, the C model was seen as highly risky because it would need to be built almost entirely from the beginning, tested in a short amount of time, and depend on a new launch

vehicle that must work on its initial mission. To make it function and save money, NASA offered Russia a contribution to the building process. However, the Russians rejected the offer because they thought it lacked sufficient information (Clinton Digital Library, 1993; Lindroos, n.d.; Hess, 1993; Advisory Committee on the Redesign of the Space Station).

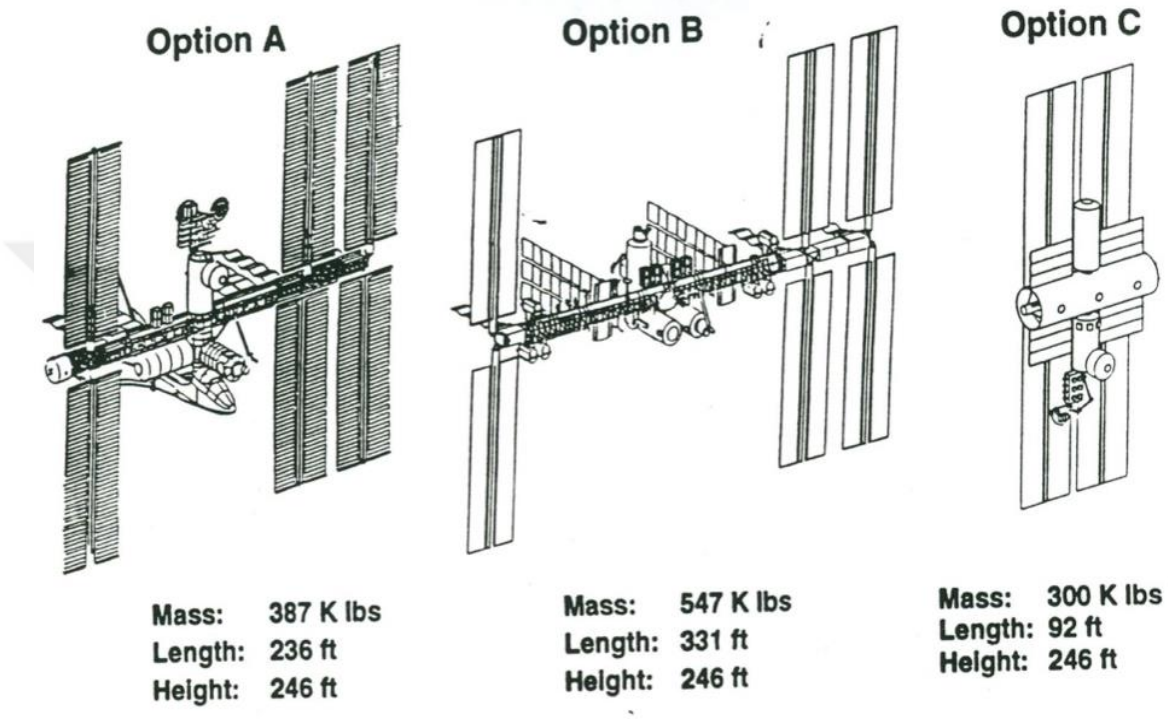

Figure 4.9. Space Station Freedom Model Alternatives
Source: The Clinton Digital Library,1993

All the options were prepared based on prioritizing cost-benefit calculations. Moreover, according to the Space Station Redesign Team Final Report to the Advisory Committee, Russian hardware alternatives were considered to benefit the redesigned models of the space station (Hess, 1993). Hence, Russia's impact was also considered during the preparation of the options. Interestingly, there was no option that did not consider a space station without Russian potential capacity and contribution. All alternatives regard the Russian crew return vehicle Soyuz as the core quality for crew return missions for the space station program. Russia's launch capacity and other space abilities were pointed out and found crucial for future space station modifications.

4.3.2. Russian Involvement to the Program

With the projection of the new space station, the Clinton Administration regarded Russian participation in the program as a primary partner, a crucial step after the beginning of the design studies (The Clinton Digital Library: A Space for Diplomacy, n.d.). In this context, the newly formed Advisory Committee on the Redesign of the Space Station under Charles M. Vest in April 1993, which was responsible for assessing the redesign team's space station options specifically for cost calculations, highlighted that international cooperation with existing partners such as Europe, Japan, and Canada and with Russia could develop further relationships. Such relationships would cause peace and prosperity for all (Charles M. Vest, 1993). But there was also a strategic perspective on approaching Russia as a possible partner. Clinton's encouraging approach towards broadening international participation in the space station stimulated consideration of the possible advantages of bringing the Russians into the space station. Firstly, it would diminish the risk of dependence on the US space shuttle as the only liftoff vehicle since the Russian Proton would be another alternative in case of a null situation. As a second suggestion, the use of the Soyuz spacecraft for ACRV to maintain low cost Additionally, it would allow the use of Russian Progress cargo vehicles to resupply the space station, as Progress emanates from the Soyuz spacecraft and launches on the same takeoff vehicle, a Soyuz rocket. Thirdly, Russian involvement would pave the way for accessing Russian risk management strategies and experience since it only has that much of an immense background in space missions except for the US. Fourth, it would also mean comprehending and assessing Russian abilities that could contribute to the redesigned space station.

Mir and other mechanical elements, automated rendezvous and docking hardware, environmental control, and life support systems would be the prominent examples in this regard that were not sufficiently developed by the other partners during that time. Mir specifically provided the additional potential for early joint-nation collaborative research prospects (Advisory Committee on the Redesign of the Space Station, 1993). In this regard, the Committee suggested their view on Russian involvement in the space station as follows:

> The Committee recommends that NASA and the Administration further pursue opportunities for cooperation with the Russians as a means to enhance the capability of the station, reduce cost, provide alternative access to the station, and increase research opportunities (Advisory Committee on the Redesign of the Space Station, 1993, pp. 59).

During their first summit in Vancouver on April 3–4, Clinton and Yeltsin discussed the possible opportunities ahead for space operations. In fact, on their first-ever encounter for the occasion of working dinner at the summit, both leaders discussed that they have economic potential in space in two to three years (National Security Archive, 1993). Moreover, Clinton emphasized establishing a Russia-US Council on Energy and Space by saying that his Vice President, who was Albert Arnold Gore (Al Gore) at that time, "is an authority on both issues" while suggesting that Prime Minister Viktor Chernomyrdin should be responsible for the council as a representative of Russia with Al Gore (National Security Archive: Working Dinner with President Boris Yeltsin, 1993; pp. 6). This was also approved by Yeltsin, who said that he would "authorize him to deal with" Al Gore (National Security Archive: Working Dinner with President Boris Yeltsin, 1993; pp. 6). One of the interesting parts of their first meeting was the mutual warmth between the two leaders, who decided to call each other by their first names at this dinner and underlined that anything is achievable if they work together. They even joked with one another about using the Russian Soyuz spacecraft to send American teachers and Russian politicians to outer space, while Clinton jokingly said that he'd pay half the costs of Soyuz if Yeltsin let him send a few people along, to which Yeltsin replied as, "Granted!" (National Security Archive: Working Dinner with President Boris Yeltsin, 1993; pp. 7). Hence, this conversation also set forth the importance of the Russian Soyuz spacecraft and the necessity for low-cost alternatives for space operations. During the summit, Clinton indicated that the US would be keen to enter into agreements to ensure significant Russian involvement in the space station program and to enable it to expand its engagement in the commercial space launch market. One of the reasons for the Russians' engagement with the Space Station was the expanded bilateral business relationship via space experts. Both the US and Russia had considerable presence in each other's countries with their officials, especially to work on the Shuttle-Mir program and see whether the Russians could contribute to the US redesign to make things easier and more functional. In this framework, aside from the discussions between both countries' political leaders, US-Russia cooperation in space through joint participation in the space station was continued by the space communities. At the end

of April, NASA invited a Russian advisory group to provide their suggestions to the US team redesigning the space station.The Russian group had prominent space station designers, including for Mir, space program managers, including Koptev, Salyut design bureau representatives, and many experts from other organizations. The meetings between the American redesign team and the Russian delegate happened from April to July and from October to November 1993 (Karash, 1999).

Eventually, on May 31, 1993, Koptev and Goldin decided to sign a confidential Memorandum of Understanding for bilateral cooperation in space, stating in the agreement that the redesign activity of the space station also concentrated on delivering capability to use the Russian Mir station and the American Space Shuttle, as well as Russian assets to support the process. In this context, the activities under the agreement were Shuttle-Mir rendezvous and docking missions of one of each, a 3-month stay on Mir by a US astronaut, and two flights for two Russian cosmonauts (one for each) on the US Space Shuttles (NASA, n.d.). Moreover, it also included the placement of US scientists in the Russian Spektr and Priroda Modules of Mir for data collection and experiments. The US and Russian crew transport for the Mir space station missions would be done by either the Shuttle or Soyuz. The activities based on Shuttle Mir specifically were crucial since they are considered the first step in fostering cooperation on the space station because these activities were intended to permit the US to learn from the Russian experience with a long-duration payload while Russia would gain financially amid the harsh economic situation and learn from the Shuttle experience. Shuttle Mir also initiated the fundamental aspect of constructing the joint ISS (Karash 1999; NASA History Collection). Consequently, the general understanding of the memorandum was that a unified US-Russian Space Station is feasible and could operate in a fully integrated fashion with both sides contributing to the unified Space Station (Goldin D., Koptev Y., 1993, as cited in Karash, 1999).

4.3.3. The US-Russia Official Agreement for the ISS Cooperation

On June 17, 1993, Clinton announced his preference for the space station redesign after a confidential memorandum of the National Security Council on June 15, 1993 (Clinton Digital Library, 1993). The memo was prepared as a recommendation to

Clinton after a meeting that included Al Gore, Goldin, consultations with international partners, and major members of Congress who suggested;

> 1) Select a "modular, freedom-derived design." (This supports option A with the flexibility to add some elements of option B as further study or consultation may dictate.) It was decided not to portray the decision as simply "Option A or Option B' (pp.1)
> 2) To include flexibility for the international partners and stress the future Russian partnership. Such a partnership would include the higher inclination orbit as well as the use of the Proton launch vehicle for transportation and the Soyuz capsule for assured crew rescue. (pp.2)

The memo also stated the need to increase the space station budget to around 2 billion per year, meaning an addition of 200 million, which may mandate lessening the 500 million technology package. Moreover, it underlined the necessity of Congressional support, including NASA management flexibility, since, otherwise, it is unlikely to expect building the space station (Clinton Digital Library, 1993). Eventually, Clinton's decision was parallel to the outcome of the National Security Council decision, choosing Option A but with enhancements from Option B that would maintain many of the international partners' contributions, contrary to Option A and C. According to Clinton's aides, he picked this design since it could preserve the station at a rational cost, saving “more than $4 billion over the next 5 years” compared to the cost that was planned for Space Station Freedom (Friedman, 1993; The White House Office of the Press Secretary, 1993). It was the only option that could gain enough support from both Congress and the program's foreign partners (Friedman, 1993). The initial stage of construction was scheduled to start after a program implementation plan was submitted to the administration in September (Garrett, 1993).

In August 1993, the Russian Space Agency (Roscosmos) and NASA engineers and experts set the stage for US-Russia cooperation in human space flight, ranging from the Mir space station to the building of the ISS, which would merge the elements from both the Mir 2 space station and the Freedom space station. The Russian segment is assumed to include three docking modules: a base module, a science-power platform, a docking airlock unit, a service module with life support systems, and the spacecraft Soyuz TM and Progress-M. NASA approved the new orbital inclination of 51.6 degrees, which normally goes into orbits with an inclination of 28 degrees. Yet, this was also a compromise for the Russian side, as it initially preferred 65 degrees for Mir 2 instead of 51.6 degrees for adequate observation of Russian territory (NASA History,

n.d.; Hornyak, n.d; Dempsey, n.d). The official engagement of Russia in the program was finalized between September and December 1993. On September 2, 1993, Al Gore and Chernomyrdin finally realized the previously planned Joint Commission on Energy and Space, indicating their intention as follows:

> Given the particular importance for Russia and the U.S. of their respective efforts in developing a new generation of orbital stations for scientific and technological progress and human activities in space, the parties regard further cooperation in this area as most important and consistent with the interests of both Russia and the U.S., as well as the broader international community (The White House, September 2, 1993; pp. 229).

The announcement regarding the Commission involved an initial phase for the realization of space station cooperation as well. The first phase contains an expansion of the bilateral program, including the US Space Shuttle and Mir Station. The second phase will involve using a Russian Mir module of the next generation in conjunction with a U.S. laboratory module and the US Space Shuttle, while "successful implementation of this phase could constitute a key element of a truly international space station (The White House, September 2, 1993; pp. 229)". The statement also highlighted the financial aspect of the cooperation, where the US was liable for providing compensation to Russia for its services in the first phase in the amount of $100 million in FY 1994. In addition, the allocation of $300 million to both phase 1 and phase 2 activities will be delivered through 1991. The third phase would be the full operation of the ISS. The Commission's statement set forth the prevailing importance of the US and Russia in building the space station. Both sides regarded their segments together as already completing "a unified space station", as well as with Canada, Europe, and Japan (The White House, 1993; pp. 230).

The Addendum to the Program Implementation Plan, which was signed by Goldin and Koptev, described the US-Russia outer space cooperation as a new relationship between the US and Russian space agencies. The plan included a detailed process for three phases of bilateral cooperation. Phase One was about the Shuttle-Mir program, indicating that at least four US astronauts would fly to the Mir station and stay around 24 months, and at least 10 US Shuttle flights would be made to Mir to assist crew exchange, resupply, and payload activities for Mir. Phase Two would be the building of the ISS program by combining US and Russian hardware, which will lead to cutting-edge orbital research capability. This facility would significantly expand, leading to

progress in scientific and research activities while developing the core around which the international space station will be built. Phase Three would be the final step in fully operating the ISS with prominent countries like the US- Russia, and other partners.

Eventually, the idea of combining Russian and American steps on the space station was defined by the Clinton Administration as a major foreign policy achievement. After Reagan declared the space station in his State of the Union address, similarly, Clinton announced the broader context of US-Russia relations, shifting to what Clinton said, "Instead of building weapons in space, Russian scientists will help us build the international space station" on January 25, 1994 (Clinton Digital Library, 1993), just a year after the formal invitation to Russia to become a full-fledged partner in the space station on December 6, 1993.

4.4. Testing the Hypothesis

According to the theoretical framework of this research, the main hypothesis underlines that the mode of cooperation between the states happens due to interdependencies that may lead to institutional changes and eventually realize the cooperation. Hence, in the ISS cooperation case, the main hypothesis is that the US and Russia decided to cooperate on the ISS due to interdependencies that led to the redesign and re-regulation of the organization to realize cooperation. As discussed previously, to simplify the process, I conduct two hoop tests according to the two processes explained in Section 3.3 and divide the main hypothesis into two sub-hypotheses. The following section asks several questions for each hoop test to evaluate whether the hypotheses are valid according to the historical narrative I gathered above.

4.4.1. First Sub-Hypothesis Test

The first sub-hypothesis is that the US and Russia decided to cooperate on the ISS as a result of their interdependence. The hoop test is conducted with questions related to Process 1 of Figure 3.2 above.

a) Were there multiple channels that led to interaction between the two states?

Yes. After The US President Reagan announced a space station, multiple channels of interaction and communication between the two states began. These channels were initially based on a mutual exchange of views. Then, they evolved into small-scale cooperation and eventually formed the ISS. Although these interactions were initially limited since both sides did not favor any space station cooperation due to their bilateral competition for outer space superiority, the necessity of this cooperation during the evaluations for establishing a space station came to the fore after being emphasized by various state leaders, government officials, particularly from the Foreign Ministries, experts, engineers, and scholars. Moreover, the international visits between the related space program institutions, such as NASA and the Soviet Space Agency, later known as Roscosmos, paved the way for such cooperative and productive initiatives. In this sense, the interaction of scientists and experts from the Soviet Space Agency and NASA for Halley's Comet exploration is one of the concrete examples that are important in the ISS cooperation process.

Considering the rich capabilities of the two sides in outer space, the opportunities that joint scientific research can offer have been further strengthened by these communications and interactions, enabling the separation of military and non-military outer space issues and eventually leading to dialogue. The US-USSR Cooperative Agreement in the Exploration and Use of Outer Space for Peaceful Purposes, signed as a result of high-level meetings, is a crucial step and an example in this regard. With this step, many collaborative scientific initiatives have started. Most importantly, the summit in Moscow in 1988, which included extended civil space cooperation negotiations at the level of state leaders, continued the pace of the cooperation dialogue through many channels, directing exchanges with space-centered institutions. In addition, in 1989, the Association of Space Explorers (ASE) provided the pinpoint of ISS cooperation as the member states offered the idea of flying the Soviet cosmonauts on the US Space Shuttle and the American astronauts on the Soviet Mir space station to jointly gain expertise by learning from each other's advanced capacity thanks to multi-channel interaction. Thus, the senior officials of both states increased their discussions within the framework of this idea, and they agreed on the importance of the space station, especially for the missions planned to the Moon and Mars. Moreover, meetings between Quayle and the Soviet Ambassador to the US, The US Vice President Quayle- The USSR leader Gorbachev talks, Bush-Gorbachev discussions,

and periodic meetings and agreements between NASA and Roscosmos officials, under the leadership of Goldin and Koptev, have revealed the potential contributions of the two sides to the planned space station regarding assets for the ISS. All these multi-faceted negotiations have shown the significance of Russia for NASA and international partners, gathered under the Space Station Redesign Team, which was established for a cheaper and more functional design of the ISS during the Clinton era. Consequently, Clinton and Yeltsin discussed Russian participation in the space station in their first meeting. During this period, the American and Russian experts gathered many times for one of the ISS program's building blocks, the Shuttle-Mir program, indicating that apart from the state authorities, the space communities of the two countries came together to evaluate the opportunities for cooperation. As a result of all these multi-faceted negotiations, the agreement made in the joint Commission of Al Gore and Chernomyrdin set forth the prevailing importance of the US and Russia in building the space station. In this context, both sides assumed their segments together were already completing “a unified space station” (The White House, 1993; pp. 230). Ultimately, the ISS cooperation decision was made with the signing of the Addendum to the Program Implementation Plan between NASA and Roscosmos officials. Many institutions and international organizations within and outside the United States have been the channels that have been used to facilitate this cooperation.

b) Was there an absence of hierarchy among issues?

Yes. The US-Russia outer space relations were initially defined as competition-oriented, and both countries considered their space programs a technological superiority and productive capability race against each other. For this reason, when the space station was first announced and cooperation offers were made to certain countries, Russia was not among them. In fact, the idea of the space station itself may have been a step, according to the nature of this rivalry, since the Soviets successfully launched their own Salyut space station in 1971 and became the first country to do it. However, after the difficulties experienced by the two states in maintaining their space ventures due to the troubles in their domestic politics, after comparing their unilateral assets and capacities through meetings and negotiations, they realized that many mutual gains can be received by jointly working for outer space activities, shifting their relations to cooperation mode. In this sense, despite the aspects of the relations

between the two major rival countries that can be strained due to the Cold War nature of the defense initiatives in outer space, such as SDI, they separated military and non-military issues and created cooperation by considering their capabilities in outer space and the benefits that joint scientific research can offer. Consequently, relations based on military security and competition have turned into a strategic move towards cooperation when it comes to outer space politics. The leaders-level summit of the US and Russia, which included the INF agreement and was signed on November 21, 1985, to prevent the arms race and mutual military dominance efforts, laid the groundwork for bilateral cooperation that can serve common interests such as outer space exploration and scientific studies amid the difficulties both countries experienced in maintaining their space programs due to domestic policy developments, especially economic problems. Processes that promote collaboration are essentially determined as follows:

1) A rational decision for the US to benefit from the Russian experience of the Mir program and Soyuz spacecraft and to eliminate the financial problem that causes tension with Congress.
2) A rational decision for Russia considering that it was a way of providing an important financial gain, especially from the West and the ISS member states, in the post-Soviet harsh economic stagnation and recession period. The aim is to maintain its major role in outer space and keep it in the game by developing space activities, especially through the American Space Shuttle program.

Ultimately, despite both states being in space competition, the budget conflicts between NASA and Congress for the space station, the decrease in interest given to the space program due to the political and economic turmoil during Post-USSR, and both countries' superior technical capabilities over the other prioritized the idea of gaining common gain through joint work and lifted this idea above the space competition, revealing cooperation as the main agenda-setting due to mutual interdependence.

c) Were the two states given a minor role in military force?

Evidently. One of the significant issues in the discussions with the potential partner for the space station program initiative was whether the space station would be linked to any military engagement. NASA Administrator Beggs guaranteed that, as a civil program, the space station would not be subject to any national security budgeting, which facilitated the participation of other partners, especially Russia, on the space station. In this sense, by referring to the OST agreement, Beggs underlined that all actions on the space station would have a peaceful and non-aggressive purpose. However, while the confidential report written by the US in 1982 focused on the civil and peaceful use of space, it also aimed to protect its technological superiority against the USSR. But, within the framework of the INF agreement, the joint calls of the two state leaders, especially during the Gorbachev era, to end the space race and prevent any militarization are one of the first attempts to reduce the importance of the military role in outer space.

In the post-USSR period, the Soviet space program was viewed as a financial burden and questioned as a defense investment that caused demilitarization and a decrease in the defensive capacity to use the space program. Hence, this prompted the Soviet authorities to explore potential cooperation steps. In this context, space activities with the US emerged as areas of common interest, and it was declared some sort of safe zone where peaceful exploration was expected. Likewise, the encouragement towards cooperation on the US side has increased, especially after the INF agreement. Thus, both states gave importance to non-military and civil progress in joint space activities such as the Shuttle-Mir program. For the US, the reasons for avoiding defense-based military space investment in mutual relations actually stemmed from the pressure of Congress; as pointed out by Keohane and Nye (2012), domestic actors such as Congress were presumed to influence decisions on an issue. Indeed, the limited budget granted to NASA by Congress and the unpredictability of the budgets have led to limiting military investment in space and considering cost-sharing options to advance civil space projects. Additionally, the fear of non-peaceful countries acquiring Soviet space program technologies due to the internal turmoil in the collapsing Soviet Union also strengthened the understanding of cooperation with the Russians. One of the most crucial points in the development of this cooperation lies in the change in management

of the Russian space agency after the collapse of the USSR and the new space agency Roscosmos's strategy of distinguishing military and civil activities, similar to NASA. Thus, the two institutions were able to advance their civil exploration within the two institutions that dominate the common civil understanding and took the military technology transfers under control and pushed them to the secondary issue. In this regard, the ISS cooperation between the two countries has developed as a technical and financial exchange within the framework of joint civil space activities. As a result, the military-based foreign policy approaches of the two states against each other have become secondary to outer space issues, and Russia and the US gave importance to unified and contemplated steps for the space station. Clinton summarized this situation in a statement by saying, "Instead of building weapons in space, Russian scientists will help us build the international space station (Clinton Digital Library, 1993)".

4.4.2. Second Sub-Hypothesis Test

The second sub-hypothesis is that, as a result of the modifications that took place on the ISS, the US and Russia were able to cooperate in the organization. The H_2 also shows the unpredicted consequences, such as unilateral capabilities, and developments that changed past decisions and eventually led to the re-design of the ISS for US-Russia cooperation to happen. The hoop test is conducted with questions related to Process 2 of Figure 3.2 above.

a) What were the existing norms and networks?

In the beginning, the countries that formed the space station regime within the framework of the norm of scientific research were the US, Japan, Europe, and Canada. But then, networks that caused regime change and US-Russia cooperation on the ISS after Russian involvement were the US Congress and, as formal institutions, the Administrations, NASA, Roscosmos, other ISS member country space agencies, the US National Security Council, foreign ministries, the Central Committee of the Communist Party of the USSR, the Space Station Program, the US National Space Council, the Manned Flight Joint Working Group, NPO Energia, the Space Station Redesign Team, the International Space Station Advisory Committee, and many more.

b) What were the underlying unilateral capabilities of the US and Russia?

Unilateral factors that caused the ISS cooperation process to be evaluated by the two states were as follows:

- The US

- The Space Shuttle: Russia's need for US-accompanying human spaceflights paved the way for considering the American Space Shuttle Program for the Russian Mir space station operations. It was the key element of Phase 2 of the construction of the ISS under the Shuttle-Mir program, leading the way for engaging and learning from Russian Mir space station experiences with mutual crew flights.
- Technological advancement: 50% of US space technology was 5 to 6 years ahead of the USSR or Russia.
- The US capacity on potential job and economic income opportunities for Russia: The US's capacity to provide job opportunities for Russian space tech experts in Russia and the purchase of Russian hardware positively impacted Russia's income amid the harsh post-Soviet economic stagnation with rising inflation and recession. In this context, the US was liable for delivering payment to Russia for its services in the first phase with an amount of $100 million in FY 1994. In addition, the allocation of $300 million to both ISS phase 1 and phase 2 activities will be delivered through 1991. Moreover, the activities based on Shuttle Mir specifically were crucial in this regard since they are considered the first step in fostering cooperation on the space station because these activities were intended to permit the US to learn from the Russian experience with a long-duration payload while Russia would gain financial benefits amid a harsh economic situation and learn from the Shuttle experience. Shuttle Mir also initiated the fundamental aspect of constructing the joint ISS.

- Russia

- Rich assets: Russia had its first experience building a space station for scientific purposes with the Mir space station. In this sense, the US was interested in exploring the Mir for the ISS, which paved the way for the American Space Shuttle's rendezvous with the Mir space station. It was followed by crew transfer using the US-initiated

Manned Maneuvering Units. It would also mean comprehending and evaluating Russian capabilities that could contribute to the redesigned space station. Mir and other mechanical elements, automated rendezvous and docking hardware, environmental control, and life support systems would be the prominent examples in this regard that were not sufficiently developed by the other partners during that time. Mir specifically provided the additional potential for early joint-nation collaborative research prospects. Soyuz ACRV was also another important asset, considering that it eventually became a mere spacecraft to or from the ISS. Considered the longest and safest operational human spacecraft, the Soyuz paved the way for avoiding the possible cost of building an American-made ACRV spacecraft and the Congressional backlash and carried out many space activities, especially on the ISS, with the Soyuz, which turned out to be cheaper than building a spacecraft and led to cost-sharing for the US and Russia. Additionally, it would allow the use of Russian Progress cargo vehicles to resupply the space station, as Progress emanates from the Soyuz spacecraft and launches on the same takeoff vehicle, a Soyuz rocket. The Russian Proton was also an alternative to the American Space Shuttle, preventing the risk of dependence on one piece of hardware. Ultimately, considering all the assets, maintaining the Russian experts and engineers specializing in Russian space technology was crucial for both countries.

- Technological advancement: 50% of Russian space technology was 5 to 6 years ahead of the US.
- Civil activities Space Agency: The formation of Roscosmos, which is responsible for civil missions, and the Mir space station made Russian space facilities accessible to Western countries, especially the US.
- Russian Risk Management: Russia's risk management was ahead of the other space-faring countries due to its immense background in space missions. Hence, cooperation with Russia would mean accessing Russian risk management strategies and experience.

c) What were the organizationally dependent capabilities?

The US and Russia cooperated with the ISS due to their joint interdependencies. As stated by Koptev and Goldin in their 1993 memorandum, the ISS “could operate in a

fully integrated fashion with both sides contributing to the unified Space Station (Goldin D., Koptev Y., 1993, as cited in Karash, 1999)." In this context;

From a technical perspective, the Shuttle-Mir program, symbolizing the second stage of the ISS, is a joint venture between Russia and the US that includes American Space Shuttles visiting the Russian space station Mir, Russian cosmonauts flying in the Shuttle, and an American astronaut flying in a Soyuz spacecraft. As an 11-mission program, it brought together the complementary elements that were important in the ISS's construction, causing the US to experience Russian hardware, especially the Mir space station and Soyuz, and Russia to experience the US Shuttle program. The utilization of Russian Progress cargo vehicles for resupplying the space station is made possible by their association with the Soyuz spacecraft, which shares the same launch vehicle, the Soyuz rocket. This enables the Progress spacecraft to be launched and fulfill its role in delivering essential supplies to the space station.

From a financial aspect, during a constant budget row between NASA and Congress regarding the ISS, Russia has emerged as an alternative, and the idea of using the Russian Soyuz as an asset of Russia instead of a costly US-made crew return vehicle that could be met with harsh backlash in the US Congress has been found logical. This was also in the interest of Russia, which was experiencing economic distress. In this way, the US could save "billions in development costs while saving the Russian economy and scientific establishment from disintegration (The New York Times, 1992)". This proposed arrangement presented a mutually advantageous and economically favorable agreement, given that it offers substantial cost savings in comparison to the estimated expenditure of constructing an American crew return vehicle, which is projected to range between $1 and $2 billion.

From an operational and management aspect, all of the technical and financial dependencies at the stage of establishing the space station eventually revealed the necessity of a redesign and change in order to make the space station faster, cheaper, and better. In this context, it has been comprehended that the two countries could play a major role and provide regulation on the space station, considering all the capabilities and potential contributions that they have if they choose to cooperate. Thus, both states played the necessary roles that enabled the ISS to function. The pivotal components of

the space station encompass two primary divisions: the Russian Segment (ROS) which is shown in the below figure with the color red and the United States Orbital Segment (USOS), shown in the same figure with yellow, which collectively form the foundational elements of the station. The Russian Segment (ROS) constitutes the operational responsibility of Russia and encompasses six modules within the ISS. In contrast, the United States Orbital Segment (USOS) comprises a total of eight modules, incorporating elements contributed by the US and other partner countries, which account for an additional three modules. The final configuration of the space station reflects a significant module count from both the US and Russia. Notably, the ISS relies on the Russian system for maintaining its orbital trajectory at an altitude of approximately 250 miles (400 kilometers) above sea level, while the US segment assumes responsibility for critical systems pertaining to electricity and life support assets.

Figure 4.10. The ISS Model

Source: NASA, "ISS Modules," *Mapping Cultural Space Across Eurasia"*, accessed September 17, 2023

Consequently, the occurrence of any malfunction or unpredictable conduct from either Russia or the US would have severe ramifications for the two principal pillars of the program due to their intertwined interdependencies (Strategic Comments, 1997; Dempsey, n.d.). As explored in Section 3.2.2, it is evident that the existing regime and its associated organizations would no longer have a life of their own if major countries decided to dismantle them at their volition, nor would they have the necessary capability to do so since such a course of action would incur substantial costs given the complex interdependencies (Keohane & Nye, 2012).

d) What were the unpredicted consequences of past decisions that led to re-design?

The US had to re-evaluate the space station design and program, which it had initially planned without Russian engagement, to gain mutual benefits from the interdependencies detailed above. Otherwise, the construction of the ISS did not seem possible. For Russia, the ISS cooperation was an important step to staying in the game and earning income amid post-USSR economic difficulties.

- For the US:

After the space station program was announced, it turned out to be a more expensive venture than expected. Moreover, due to the unexpected difficulties encountered in its construction, Russia was included in the program, which caused the reorganization of the space station.

The Space Shuttle Challenger catastrophe, which happened amid heavy budget criticisms by Congress against the US space program and NASA, intensified the backlash on the space program's investments and increased suspicion towards NASA and its space programs, especially the Space Shuttle Program. At this point, Russia and Soyuz emerged as an alternative to the Shuttle and became the only spacecraft that was enormously used to bring crews to and from the ISS within the ISS cooperation agreement.

The change in NASA administrator was also another factor. With the new NASA Administrator, Goldin, NASA adopted a new policy under the title “Faster, Better, Cheaper” that was in line with President Clinton's strategy of stretching the federal budget. For Goldin, cooperation with Russia became a means of carrying out his policy practically, leading to the redesign.

- For Russia;

Russia has adopted an assertive cooperation strategy towards the West to overcome the harsh impact of the economic problems it experienced in the post-USSR period on the Russian space industry.
The new government established in Russia after the USSR showed more importance and interest in space activities compared to the USSR period, stimulating ISS cooperation with the US.

The new space agency, Roscosmos, which has become civil within the framework of the new space program understanding of the new government, has advanced ISS cooperation with the US, especially by attaching importance to international cooperation-centered civil missions and Mir assets that have a crucial role in the realization of ISS cooperation.

e) Bargaining due to complex interdependence?

Obviously. All the processes in the ISS regime change were realized in the light of Russian-American multi-channel negotiations, agreements, studies, and bargaining that focused on win-win outcomes. During the bargaining process, it was determined that Russia should take a leading role due to its capacity. Hence, it was given a more active role compared to the pre-existing ISS members in the design process, fostering US-Russia cooperation momentum.

4.4.3. Outcomes

The two sub-hypotheses, H_1 and H_2, both passed the hoop tests. This signifies two things. First, the assumption that the US and Russia decided to cooperate on the ISS

as a result of interdependence is valid according to the framework of Process 1. Indeed, various variables display the interdependent relations between the two states that led them to seriously evaluate ISS cooperation as a rational choice. Secondly, the assumption that, as a result of the changes that took place on the ISS, the US and Russia were able to cooperate in the organization is also valid within the framework of Process 2. This set forth the reasons for re-design and changes in the regulation of the ISS with Russian involvement due to the unilateral and organizational capabilities of both sides that drove them to ISS cooperation negotiations and processes resulting in such collaboration. As the two sub-hypotheses are supposed to be valid, the main hypothesis of this study—that the US and Russia decided to cooperate on the ISS due to interdependencies that led to the redesign and re-regulation of the organization to realize this cooperation—is valid as well.

CHAPTER V

CONCLUSION

5.1. Research Findings

In this study, I attempted to find out the reasons behind the ISS cooperation between the two rival states, the US and Russia. The ISS cooperation symbolized the shift from the hard/military outer space security understanding to the safety-edge security cooperation of the US and Russia. Despite the continuing Cold War context during the 1980s and the space race nature of both states, they decided to maintain the cooperation process that eventually resulted in the ISS cooperation. Hence, this study explores the precise puzzle by attempting to set forth the causal aspects through theoretical and empirical approaches. In this context, I concentrated on the historical narrative to analyze the process data and tried to test it with related hoop test questions to make my argument study valid. Through historical chronology and hoop tests, I underlined each aspect and condition of both the US and Russia comprehensively to answer the research question: "Why did the US and Russia decide to cooperate on the International Space Station (ISS)?".

Each hoop test question leveraged the causal explanation by checking the historical process based on the theoretical framework presented in Figure 3.3. This reflects that the absence of a hierarchical structure in the interactions across various channels has underscored the notion that the cooperation between the US and Russia on the ISS is founded upon a strategic framework rather than a conventional military and security-oriented approach due to interdependence. I found out that the fundamental capacities encompassing financial and technological resources ultimately unveiled the interdependent capabilities of the ISS, thereby shaping and exerting influence on the negotiation process between the US and Russia. Ultimately, this drove the objective

of implementing the necessary modifications to establish an operational and effective regime for the ISS, which was finalized with US-Russia ISS cooperation.

5.2. Contributions

With this research and its results, I initially contribute to the ISS literature as well as the US-Russia outer space relations by suggesting an alternative explanation to the root causes of the bilateral ISS cooperation through a theoretical framework presented in Chapter 3. The unique part of the research framework was the merge of Parsons (2007)' intuitionalist logic and Keohane & Nye (2012)'s complex interdependence and international organizational model theory. Parsons (2007)' logic provided this research with a basic map of "what causes what" by also focusing on past decisions that led to unintentional and unpredictable effects, which in this case was the US' invitation to Russia to the ISS that was initially not planned for. However, this theory alone was not adequate enough to explain the processes of the ISS cooperation. Hence, I also introduced complex interdependence and international organizational model theory as I focused on the interdependencies and the change in the ISS due to interdependencies that resulted in cooperation. Hence, the merging of the three theory maps provided solid arguments and consolidated the research's hypothesis while presenting a unique approach towards further organizational cooperation cases.

Instead of heavily concentrating on the realist perspective of bilateral outer-space relations through the international system, I set forth the argument that when it comes to outer-space politics, the Cold War security perspective may change due to complex dynamics. In this regard, the inadequacy of realist assumptions in addressing the dynamics of ISS cooperation, coupled with an excessive emphasis on the single-structure model, proves insufficient in comprehensively explaining the intricacies of such cooperative dynamics. I also avoided concentrating too much on the Cold War mindset of cooperation assumptions, which argued that ISS cooperation in outer space exclusively strived to foster US-Russian cooperation in the Cold War context. But instead, I argued that the cooperation on the ISS has contributed to the improvement of US-Russia relations. The ISS collaboration is not solely a causal factor in the enhancement of Russian-American relations within the structural context. Instead, the very nature of ISS cooperation has exerted a noteworthy influence on the trajectory of

Russian-American relations, even during periods of tense relations, due to mutual rational choices triggered by domestic issues and the shortcomings of the two parties. Therefore, I argued that both states have effectively departed from traditional policies and actions when it comes to matters related to outer space and have conducted research from a traditional perspective.

Additionally, little attention to the causal analysis of the US-Russia ISS cooperation and the lack of checking quantitative data, especially for explaining economic reasons in the ISS literature, made this research promising since it focuses on ISS budget and cost issues while explaining the reasons. At the same time, considering that the ISS is a technical structure, the focus on the US and Russia's technical function in the ISS to explain why their function in the ISS necessitated such cooperation for both parties has been one of the strengths of this research and contributed to the ISS literature accordingly.

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