Universidade de Brasília

INSTITUTO DE RELAÇÕES INTERNACIONAIS

PROGRAMA DE PÓS-GRADUAÇÃO EM RELAÇÕES INTERNACIONAIS

Victor Oliveira Tibau

COMPLEXITY AND FOREIGN POLICY

A prototype of foreign policy planning amid uncertainty

(versão revista)

Brasília, 2025

VICTOR OLIVEIRA TIBAU

COMPLEXITY AND FOREIGN POLICY:

A prototype of foreign policy planning amid uncertainty

Tese apresentada ao Programa de Pós-Graduação em Relações Internacionais do Instituto de Relações Internacionais da Universidade de Brasília (IREL-UnB) como requisito parcial para a obtenção do título de doutor em Relações Internacionais.

Orientador: Prof. Dr. Rogério de Souza Farias

Brasília, 2025

VICTOR OLIVEIRA TIBAU

COMPLEXITY AND FOREIGN POLICY:

A prototype of foreign policy planning amid uncertainty

BANCA EXAMINADORA

_____
Prof. Dr. Rogério de Souza Farias (Orientador)
Universidade de Brasília (IREL-UnB)

_____
Prof. Dra. Letícia de Abreu Pinheiro (externo)
Universidade do Estado do Rio de Janeiro (IESP-UERJ)

_____
Prof. Dr. Feliciano de Sá Guimarães (externo)
Universidade de São Paulo (IRI-USP)

_____
Prof. Dr. Haroldo Ramanzini Jr. (interno)
Universidade de Brasília (IREL-UnB)

_____
Prof. Dra. Ana Flávia Granja e Barros (suplente)
Universidade de Brasília (IREL-UnB)

Abstract

Complexity and Foreign Policy: A prototype of foreign policy planning amid uncertainty

This thesis examines how states can plan their foreign policy in an international environment increasingly defined by uncertainty and unpredictability. It argues that the international system is a complex adaptive system, in which linear, mechanistic approaches to planning are inadequate. Drawing on the conceptual framework of complexity, this thesis proposes an alternative approach for foreign policy planning that explicitly embraces unpredictability and change as permanent features of world politics. The analysis unfolds in four main steps. First, it establishes the conceptual foundations that the international system is complex adaptive, and that contemporary processes (most notably the rise of China and the diffusion of new information technologies) are deepening this complexity. Second, it develops a general model of complex institutional design, grounded in the principles of diversity and emergence, as a way to organize decision-making under deep uncertainty. Third, it applies this model to the field of foreign policy, questioning and reframing the concept of the national interest and redefining the role of Ministries of Foreign Affairs as orchestrators and curators within a distributed, platform-based environment. Finally, it presents a prototype of foreign policy planning consciously designed to harness complexity through wide-ranging digital participation and adaptive policymaking. The thesis concludes that planning in the 21st century cannot rely on prediction or the wish to exert control, as it traditionally did, but must instead be based on adaptation, iteration, and inclusiveness. By reconceptualizing planning as a process of collective learning and translation, it argues that states can transform uncertainty from a constraint into a source of resilience and strategic advantage. The proposed prototype thus provides both a conceptual and practical contribution to the emerging field of complexity-informed foreign policy.

Keywords: complex adaptive systems, foreign policy planning, adaptive institutions, uncertainty, platforms, diplomacy, institutional design, new technologies.

Resumo

Complexidade e Política Externa: Um protótipo de planejamento de política externa em meio à incerteza

Esta tese examina como os Estados podem planejar sua política externa em um ambiente internacional cada vez mais definido pela incerteza e pela imprevisibilidade. O argumento fundamental é que o sistema internacional é um sistema complexo-adaptativo, no qual abordagens lineares e mecanicistas de planejamento são inadequadas. Com base no arcabouço conceitual da complexidade, esta tese propõe uma abordagem alternativa para o planejamento da política externa que incorpora explicitamente a imprevisibilidade e a mudança como características permanentes da política internacional. A análise desenvolve-se em quatro etapas principais. Primeiro, são estabelecidos os fundamentos conceituais segundo os quais o sistema internacional é complexo-adaptativo e processos contemporâneos (sobretudo a ascensão da China e a difusão de novas tecnologias da informação) estão aprofundando essa complexidade. Segundo, desenvolve um modelo geral de "design institucional complexo", fundamentado nos princípios de diversidade e emergência, como forma de organizar a tomada de decisão sob incerteza profunda. Terceiro, aplica este modelo ao campo da política externa, questionando e reformulando o conceito de interesse nacional e redefinindo o papel dos Ministérios das Relações Exteriores como orquestradores e curadores dentro de um ambiente baseado em plataformas. Por fim, apresenta um protótipo de planejamento de política externa conscientemente projetado para aproveitar a complexidade por meio de ampla participação digital e formulação adaptativa de políticas. A tese conclui que o planejamento no século XXI não pode depender da previsão ou do desejo de exercer controle, como tradicionalmente ocorria, mas deve basear-se na adaptação, na iteração e na inclusão. Ao reconceituar o planejamento como um processo de aprendizado e tradução coletiva, argumenta que os Estados podem transformar a incerteza de uma limitação em uma fonte de resiliência e vantagem estratégica. O protótipo proposto oferece, assim, uma contribuição tanto conceitual quanto prática ao emergente campo de estudos de política externa a partir da complexidade.

Palavras-chave: sistemas complexo-adaptativos, planejamento de política externa, instituições adaptativas, incerteza, plataformas, diplomacia, design institucional, novas tecnologias.

Agradecimentos

Apesar da tese em inglês, não posso evitar que estes agradecimentos sejam em português.

Este trabalho começou a ser desenvolvido em 2020, em Brasília, com base em ideias que remontam a períodos profissionais e acadêmicos anteriores, em São Paulo e Nova York. Continuou sendo escrito em Pequim e foi concluído em Viena. Ao longo de mais de meia década, atravessou e se confundiu com o próprio correr da vida. Foram anos de mudanças intercontinentais e de pandemia; anos em que vivi a perda de pessoas queridas e em que tive novas e intensas demandas de trabalho. Assim como a pesquisa que se segue argumenta, vi-me recorrentemente frente ao inesperado, ao imprevisível e ao incontrolável, o que agregou camadas adicionais de desafios. Não foram poucas as ocasiões em que essa dificuldade acumulada pareceu impossibilitar a continuidade da pesquisa com a qual me comprometera. Se, de alguma maneira, consegui persistir e, agora, depositar este trabalho foi, acima de tudo, graças ao imensurável apoio que recebi, cujo registro a seguir não chega perto de corresponder à ajuda que para mim representou.

Em primeiro lugar, meu mais profundo agradecimento ao professor Rogério de Souza Farias. O Rogério não é apenas um pesquisador de excelência, cujo trabalho acompanho há anos, como o melhor orientador que eu poderia aspirar ter. Foi quem encorajou minha candidatura ao Programa de Pós-Graduação do IREL-UnB e quem incansavelmente me estimulou prosseguir, ao longo de toda a jornada, inclusive quando eu mesmo não acreditava. Não exagero em dizer que se não fosse por ele não teria conseguido chegar até aqui.

Agradeço ao Instituto de Relações Internacionais da Universidade de Brasília, especialmente à Coordenação de Pós-Graduação, que forneceu o espaço ideal para que eu desenvolvesse a pesquisa proposta, mesmo em meio às dificuldades acima mencionadas.

Agradeço às professoras Janina Onuki e Ana Flávia Barros pela valiosa contribuição na banca de qualificação e às professoras Cristina Inoue e Maria Regina Soares de Lima, com quem tive a sorte de cursar disciplinas e discutir algumas ideias fundamentais ainda nos primeiros semestres. Agradeço aos professores Feliciano de Sá Guimarães e Haroldo Ramanzini pelos comentários na banca de defesa, ao lado

da professora Letícia Pinheiro, a quem agradeço também pelas avaliações durante disciplina cursada no IESP-UERJ e no exame de qualificação.

Agradeço especialmente à Patrícia Peixoto, quem mais diretamente teve que lidar com os sacrifícios diários, ouvindo e dialogando comigo em cada etapa. Pela contínua parceria e paciência, e como diriam por aí: "*xiexie* demais".

Meus amigos, especialmente, mas não apenas, Gabriel Almeida, Gabriel Furlan, Luís Sandes e Pedro Zacarias, também vivenciaram por anos essa jornada. Com eles pude compartilhar e discutir antecipadamente muitas das ideias que fundamentam esta pesquisa, bem como as dores e alegrias que inevitavelmente a acompanharam.

Por fim, e de maneira alguma menos importante (na verdade, o oposto disso), agradeço à minha família, sobretudo à minha mãe, ao meu irmão e ao meu pai. Os motivos são muitos e não caberiam aqui: muito obrigado.

Summary

Introduction

There is a widespread sense that something is currently out of place in international affairs. Over the past few decades, series of unpredictable events have repeatedly unsettled the international system (Ramo 2009). Amid such profound transformations, it has become increasingly difficult to grasp what is truly happening and where the world is headed. Overall, the 21st century appears to be defined by uncertainty.

Usually, this long line of unforeseen events with structural impacts has its symbolic starting point at the sudden end of the Cold War. It had for decades structured the practice and the study of international politics, and generations were trained to analyze its dynamics and predict its evolution. Nevertheless, when the Berlin Wall fell, "the intellectual and policymaking community was largely taken by surprise" (Cox 2009, 162). Similarly, another unexpected event with significant implications throughout the entire system were the terrorist attacks of September 11, 2001. They unleashed a widespread questioning of how could the world's sole superpower be attacked on its own soil, in some of its most symbolic places, during the apex of its "unipolar moment" (Krauthammer 1990), whereas not even during World War II the attacks suffered by the United States took place on its continental territory. Finally, the ensuing "war on terror" also unleashed another series of unexpected events that unfolded during the following decades (Ramo 2009).

The economic realm is not immune to impactful surprises. In September 2007, "the Fed and the Treasury misjudged the scale of the fallout from the bankruptcy of Lehman" (Tooze 2019, 25). What ensued was "the first crisis of a global ages", with profound political repercussions throughout the world, including in Europe, where it almost led to the departure of Greece from the European Union (Tooze 2019). Nevertheless, at that point in time, the fall of Lehman felt like a shock to almost everyone, including key financial and political actors. The financial crisis was later pointed out as one of the causes of the twin surprising electoral results of 2016: the decision of the United Kingdom to leave the European Union and the election of Donald Trump at the United States. At that time, these outcomes were

not predicted by the opinion polls and both of them challenged widespread assumptions.

Later, it was the Covid-19 pandemic that shook all spheres of social life, including international politics (Drezner 2020; Brands and Gavin 2020; Basrur and Kliem 2021). The pandemic is a prime example of how the world is deeply interconnected, across scales and regions: a virus stopped everything; its social, political and economic impacts were structural. Moreover, as was the case at the end of the Cold War, no one predicted this that turned out to be one of the most important events of the time.

The Covid-19 pandemic can, indeed, be seen as a sign of the greater, looming danger brought by climate change and the "Anthropocene", with its threats of mass extinction and planetary devastation (Burke et al. 2016; Chandler et al. 2018) , as well as the multiple interconnections among humans and "non humans" (Pereira and Saramago 2020; Carter and Harris 2020). These processes seem to imply in a radical transformation of "everything" (Klein 2014), including the role of humans (Chakrabarty 2015), society (Drysek et al. 2011) and politics (Demeritt 2001), fundamentally contributing to the overall uncertainty

Furthermore, and more recently, one could also mention the also the ongoing wars on Ukraine (Cox 2023) and Gaza (Mishra 2025) and their own impacts, still mostly unknown, as well as Trump's reelection in 2024 and the ensuing period of high unpredictability with deep global repercussion (Keohane and Nye 2025). That, coupled with China's growing assertive posture (Doshi 2021), not only continues the long line of unpredictability, but also might signal to a possible deep, comprehensive change in the international system.

Additionally, yet another example of the challenging nature of our times comes from a different area of research (a survey of contemporary art and architecture), with the conclusion that the *blur* may be considered the defining feature of today's world. Whereas previously Modernist works were projected based on the ideal of transparency, we currently see an abundant use of "translucent or semi-opaque facades, undefined contour volumes and ambiguous surfaces", which seem to mimic the non-hierarchical, simultaneous and dispersed structure of

information on the Internet, especially on the cloud (Wisnik 2018). These works can be understood as a reflection of radical transformations introduced by information technologies, which drastically reshaped every sphere of our lives, but are still not fully understood. This is a view shared, for instance, by Bratton (2015, 14), who claims that "only a blur provides for an accurate picture of what is going on now".

Even though one might argue that art and architecture are unrelated to international politics, the recurring references to the "architecture of the international system" in debates about the configurations of the world order allow us to set a few parallels between these two realms. Hillary Clinton, for instance, speaking at the Council on Foreign Relations as Secretary of State, in 2013, declared: "we need a new architecture for this new world, more Frank Gehry than formal Greek" (*apud* Bratton 2015, 4). This metaphor was carried on by her then-aid, and later National Security Adviser, Jake Sullivan (Labott 2021).

In sum, all these events illustrate how unpredictability is not a rare, extraordinary phenomenon, but rather appears to be *a* defining feature of the contemporary international system, be it the blur (Wisnik 2018) or the turbulence (Rosenau 1990), the unthinkable or the world disorder (Ramo 2009). As Gilpin (1981, 205) had already acknowledged in his landmark work, "in truth it must be said that uncertainty rules the world". This is the fundamental premise of this thesis.

Based on these prognostics, the main research question of this thesis is: how can states plan their foreign policy in such an uncertain and unpredictable world? Similarly, it fundamentally asks: if uncertainty is a defining feature of the contemporary international system, what are the existing alternatives for those who have to daily deal with it? Is any planning possible in this world of blur? These overarching questions reflect the thesis's central concern: if unpredictability is an intrinsic property of the contemporary international system, what forms of strategic planning remain possible? They also link theory and practice, seeking to move from understanding complexity to applying it in the realm of diplomacy and statecraft.

This thesis is grounded on the conceptual framework of complexity (i.e., the study of complex adaptive systems and their characteristics), which was especially developed for dealing with change and unpredictability, as will be further discussed.

It reviews its main concepts but attempts to advance this research agenda by concretely proposing a prototype of institutional design for foreign policy planning consciously projected to harness complexity. Thus, it gradually develops a theoretical but practice-focused argument.

At the core of the argument lies the inevitable clash between planning, at least in its traditional format and assumptions, and complexity. Traditional planning is based on the "predict-then-plan paradigm", one that, as will be further discussed, is grounded on linear, mechanistic assumptions. It aims first and foremost to forecast where the system is heading to and then to plan accordingly to that. Nevertheless, complexity highlights that unpredictability is inevitable: complex adaptive systems are characteristically unpredictable, therefore it is impossible to plan based on foresight. From this, some critics of complexity labeled it as "a recipe for doing nothing", in face of the uncontrollability and unpredictability of these systems (Geyer and Rihani 2010). Their argument is that, confronted with the unknown, there is nothing to do, no planning possible. This thesis, on the other hand, will argue against this and instead propose concrete ways in which an institutional design for foreign policy planning can be consciously crafted not only to recognize and incorporate the complexity of the international system (and its ensuing unpredictability, uncertainty and uncontrollability) but also to harness it. It will also attempt to demonstrate that this effort of conscious adaptability is inevitable for states aiming to act in the contemporary world.

To do that, besides the main research question, there are also sets of sub-questions guiding this research. For instance, regarding theoretical foundations, this thesis aims to answer: in what ways does viewing the international system as a complex adaptive system reshape traditional understandings of global order and change? How does the complexity framework challenge the linear and mechanistic assumptions that have historically underpinned international relations and policy planning? To what extent do major global transformations, especially China's rise and the diffusion of digital technologies, increase systemic complexity and uncertainty? These questions shall establish the conceptual basis of the thesis, since they aim to demonstrate that uncertainty requires a paradigm shift in how foreign policy is conceptualized and practiced.

Furthermore, on the institutional and organizational level, the sub-questions are: what would an institutional design adapted to complexity look like? How can complexity's key elements (notably: diversity and emergence) be operationalized in decision-making processes? How can Ministries of Foreign Affairs operate within a complex system? By attempting to answer these questions, this thesis develops its "many-models" framework of institutional design, linking theoretical insights to organizational reform and showing how complexity can inform not only analysis but also the architecture of institutions.

Finally, there is a set of practical and implementation-related sub-questions: what kind of foreign policy planning institutional design can harness complexity? How can policy planning transition from prediction-based to adaptive and learning-based approaches? What are the political challenges for implementing a complexity-informed planning model? In that way, the work attempts to move from model to practice and to inform the design of the proposed prototype.

Together, these questions aim to build a bridge between the analysis of complexity and the practice of foreign policy. The thesis therefore combines conceptual, organizational, and practical dimensions into a single inquiry. The answers developed across the chapters converge on the idea that effective planning under complexity requires embracing uncertainty, fostering continuous adaptation, and transforming foreign policy into a collective learning process.

Chapter one discusses two core ideas and one important conclusion which arises from them. The first idea is a foundational concept of this thesis: that the international system is a complex adaptive system. To make this claim, the chapter describes the conceptual framework of complexity and the way in which it has been incorporated into International Relations. It highlights that the fundamental parameters of the traditional, linear, Newtonian paradigm (order, reductionism, predictability and determinism) deeply influenced works of central authors in IR and international politics, such as Thomas Hobbes and Hans Morgenthau. In this way, the challenges posed by the limitations of such approach, originally evident in studies in the "hard sciences" domain, also extended to the social sciences, as exemplified by the series of unpredictable events previously mentioned. At that

point, a promising alternative pursued in the 1990s was precisely to theoretically bridge complexity and international politics, for which the conceptualization of the international system as a complex adaptive one was a cornerstone. The fundamental meaning of this characterization is to accept unpredictability and uncontrollability as defining characteristics of the international system, rather than something exceptional which could be isolated and dealt with.

The second main idea of chapter one is that not only the international system is complex, but also that two highly influential contemporary processes contribute to increase its complexity. First, the rise of China, which provokes a power shift and the rebalancing of the system. Second, the widespread, structural impacts of new information technologies, which profoundly change basic elements such as power, politics and the state, political participation, and war. The impacts of the new technologies over each of these four domains is analyzed in-depth.

Chapter one concludes with the perspective that, by considering the international system as a complex adaptive one and taking into account its rising complexity, there is a possibility (even though not a predictable certainty) that it might be moving towards a point of deep, systemic change with lasting consequences, commonly referred to as a critical juncture. The chapter then reviews the concepts of punctuated equilibrium, critical juncture and systemic change. From that, it concludes that these moments lay the groundwork for the ensuing period, which translates into an increase of the importance of key actors in the system to appropriately plan their actions in such a context.

From this theoretical starting point, *chapter two* moves the analysis to the level of organizations. The fundamental link is the idea that critical junctures are moments of decision-making under deep uncertainty in which the existing institutional settings end up determining each actor's decisions, with determinant impact over the following outcome. Therefore, these moments have a structural, lasting impact. From this, the chapter develops, based on the existing literature about organizations in complex environments, a general, "many-models model" of institutional design.

This general model has two axes, each correlating to one key element of complexity: diversity and emergence. First, based on the premise that complex systems are fundamentally diverse (for they are composed by a large number of actors), it investigates the concept of the "crowd" and, following lessons drawn from the Internet, analyzes crowd-based organizations. It reviews conclusions from the "collective intelligence" literature to incorporate suggestions on how to "harness the crowd". Later, it incorporates the element of emergence, which is characteristically unpredictable. To deal with it, this chapter presents lessons from the "designing from emergence" and the "decision-making under deep uncertainty" frameworks, which advocate for a bottom-up, participatory approach. Another key element of the model is the incorporation of adaptability from the beginning of the planning process, which includes the development of sets of scenarios and adaptive policies.

Finally, chapter two discusses how platforms can be seen as a template of institutional design which fully incorporates these elements related to diversity and emergence: decentralized or distributed, they allow large-scale participation and adapt to emergent phenomena.

Chapter three main goal is to bring this organizational discussion into the realm of foreign policy. It analyzes foreign policy's fundamental object (the concept of "national interest") and actors (Ministries of Foreign Affairs), in an attempt to: i) systematize how they have traditionally been conceptualized; ii) demonstrate how this classical understanding has been gradually challenged and eroded and; iii) suggest an alternative approach based on this thesis framework. By doing that, it aims to show how both the concept of national interest and the role of Ministries of Foreign Affairs have been undergoing deep transformations, which brought them out of an original context of supposed isolation directly into the fragmented, politically disputed and complex environment of contemporary societies.

This chapter also discusses organizational formats (centralized, decentralized and hybrid ones) and argues that the Ministries of Foreign Affairs could be understood as the owner, curator and moderator of a platform-setting environment, where it could become capable of influencing and orchestrating a large number of stakeholders.

Finally, *chapter four* is built upon the premises established on the previous sections and aims to fulfill this thesis' main goal, by presenting a prototype of foreign policy planning consciously designed to harness complexity. Located within the broader field of strategic planning, the prototype builds on debates around national interest, strategy, and grand strategy. It critically revisits George Kennan's policy planning model in the United States, highlighting both its innovative role and its reliance on linear, prediction-driven methods that complexity theory shows to be limited. It recognizes the work by scholars such as Slaughter and Prantl, who already discussed the need for bridging strategy and complexity, highlighting, however, that their contributions remain mostly illustrative. This chapter, therefore, aims to move beyond that stage by proposing concrete alternatives for implementation.

The proposed prototype rests on three main elements: the central role of digital technologies, a platform model to maximize stakeholder inclusion and adaptability, and an expanded role for the Ministry of Foreign Affairs as both interpreter and translator of planning outcomes into diplomatic practice. These innovations frame foreign policy planning as a process of continuous collective adaptation, rather than a quest for definitive foresight. While it reviews existing empirical examples that already show partial progress in this direction, the chapter argues that full implementation would require political will and willingness to experiment. In sum, this thesis aims to discuss in-depth the reasons and meanings of today's international system high level of uncertainty and unpredictability, proposing ways to explicitly handle and harness it, as advocated for example by Axelrod and Cohen (2000).

Finally, a preliminary note regards a possible normative bias involved in this effort. This thesis goal is to *propose* a specific approach (a "prototype", as discussed in chapter four). In this sense, it is impossible to be restricted to a merely descriptive and analytical position. There explicitly is a "proactive attitude". Nevertheless, this was done in a way as to consciously avoid normative stances. As will be clear throughout the text, the proposals presented are all clearly grounded in a systematization of the existing literature reviewed in the thesis. Furthermore, the empirical elements included in the analysis aim to show that similar projects already exist, which corroborates the general "spirit" of the recommendations.

1. The increasing complexity of the international system

1.1 Introduction

This chapter begins by presenting the basic features of complexity as a conceptual framework, highlighting its application to international affairs, in order to present and discuss our fundamental premise: that the international system is a complex adaptive system. Besides arguing that, it aims to demonstrate how the currently ongoing global power shift propitiated by the rise of China, combined with structural changes brought about from the widespread diffusion of new technologies, is increasing the complexity of the system and thus possibly leading it to a point of deep, systemic change, one which is commonly referred to as a "critical juncture". It concludes by making reference to discussions about how these moments of profound transformation usually lay the ground rules to a following, long-lasting period of relative stability ("path-dependence"), resulting in the argument that those practitioners involved with the planning of their country's foreign policy in such a setting should be especially attentive to these trends in order to try to harness complexity.

1.2 The rise of complexity studies: deciding to face uncertainty

Since the 17th century, based on the foundations laid by René Descartes and Isaac Newton, the scientific method has broadly followed the "linear paradigm". There are four axes that support this approach: i) *order*: there is – always and inescapably – a "variable x" that can be identified as the cause of an "effect y", in a linear causal relationship; ii) *reductionism*: a system is equal to the sum of its parts, from which it follows that it is possible to understand its overall functioning from the individual analysis of each of the elements that compose it; iii) *predictability*: it is always possible to predict the future development of system events; and, iv) *determinism*: the processes take place along orderly and predictable trajectories, starting from a well-defined beginning towards an expected and rational end. (Geyer and Rihani 2010)

The many advances that this linear paradigm bequeathed to science are undeniable. Nevertheless, throughout the 20th century, researchers began to observe phenomena that escaped the parameters of this framework and were

therefore not explainable in its traditional terms. In that original moment, innovations came mainly from physics – challenges to Newtonian mechanics – and from meteorology studies – unpredictability of weather patterns. Gradually, it was concluded that not all phenomena were explainable according to the linear model, and the search for alternative explanations began. (Gleick 2008)

Then came the studies of complexity. It is an interdisciplinary field that focuses on the functioning of complex systems. In general, it is possible to understand complexity as the range of phenomena situated "between order and randomness, which cannot be easily described, evolved, designed or predicted" (Page 2011, 32).

The human brain, the climate of the planet Earth, ant colonies, social networks, the organization of economic and urban processes and the covid-19 pandemic all represent phenomena of radically different natures, but which share the same fundamental structure: they are complex adaptive systems (CAS). All of these, however different they may be, configure *non-linear processes of decentralized self-organization*, characterized by inherent uncertainty and unpredictability, from which the *need for adaptation* arises. These are systems in which the interactions between many units involve *feedbacks* (effects that can significantly increase small disturbances, if they are positive, or reduce them, if they are negative) and generate *emergent characteristics*, that is, that are explained only by the systemic interaction (and not by the units themselves). (Gell-Mann 1994; Bak 1996; Mitchell 2009; Holland 2014)

A widely accepted definition of complex adaptive system posits that it is "a system in which large networks of components with no central control and simple rules of operation give rise to complex collective behavior, sophisticated information processing, and adaptation via learning or evolution" (Mitchell 2009, 13).

1.3 IR and complexity: how international studies incorporated complexity

The study of complex systems was originally restricted to the so-called "hard sciences", mainly physics. However, it gradually expanded to different areas of research, inevitably being useful also to the social sciences. In this realm, it became even more evident how the traditional, linear scientific paradigm was unsuitable to dealing with political issues. In the beginning of the years 2000, some authors claimed that in physics, many problems are "easy" (in the sense that they are tractable via universal laws, controlled conditions, and predictable regularities), while, in contrast, in social sciences, the problems are "hard": messy, contingent, uncertain and adaptive. This is clearer in politics and international relations, in which the phenomena under analysis are fundamentally different: reflexive, less isolable, more interdependent, more context-sensitive and more responsive to their own theories and predictions (Bernstein et al. 2000).

Even though these early authors point to the "physics" as a model of hard-sciences unsuitable to analyzing social sciences, what in fact they meant to criticize was the traditional paradigm of physics, i.e., its Newtonian, linear, mechanist approach. It is noteworthy to emphasize that, while this traditional approach had great influence over the production of research in the social sciences, the same happened with the development of the alternative approach of complexity.

The first encounter between the study of complex systems and International Relations happened on the context of the unexpected end of the Cold War. Then, given the overall inability of existing theoretical perspectives to predict an event of such magnitude and structural impact, the linear foundations of International Relations theories began to be questioned (Gaddis 1993). The principal point of critique was that the main approaches to the study of international relations were embedded in the mechanist, linear paradigm, which assumed therefore that the international system would – always and inevitably – function in an orderly, predictable manner. This shared premise shaped expectations that it would be possible to anticipate the future evolution of the system and plan each country's foreign policies according to this prediction – and this belief was deeply put into question with the fall of the Berlin Wall.

To illustrate how the traditional, linear approach to science had deeply influenced international relations thinking, it might be useful to understand that Thomas Hobbes, often depicted as one of the intellectual founding fathers of political realism (a school of thought which for a long time structured the mainstream of the academic study of International Relations), was also "the first modern thinker to apply the new science of nature to the study of politics and, therefore, (…) the first to argue for the use of scientific method in the study of politics", especially in its "mechanistic, anti-metaphysical doctrine of matter in motion" (Weinberger 1975, 1336).

A similar argument might be presented in relation to the work and influence of Hans Morgenthau, who claimed to be "trying to shuffle all the quirks of the global system into some sensible order, to explain wars with the precision that Darwin, say, had brought to Biology or Newton to Physics" (Ramo 2009, 27). With that effort, he was attempting to devise "an entire Physics of global affairs based on the idea that power worked in such direct and almost predictable ways," in "a system of power that reflected the Physics of Newton: capable of equilibrium, predictability, linearity" (Ramo 2009, 27–28).

The main practical corollary of this conceptual approach was the rise of views that understood to be possible to achieve *order* and that argued for strategies of *control* as the best ways to act in this linear, mechanistic international system. As Tickner (1995, 432) noted: "the need for control has been an important motivating force for modern realism. To begin his search for an objective, rational theory of international politics, which could impose order on a chaotic and conflictual world, Morgenthau constructs an abstraction which he calls political man". For decades, International Relations was though about and practiced on the basis of precisely these theoretical abstractions, which take for granted its underlying linear, mechanist parameters and concepts.

It was in the 1990s that the pioneering works (Rosenau 1990; Gaddis 1993; Jervis 1997) established complexity as a conceptual framework for the analysis of international politics. This was a first phase of approximation between the two realms, for which the main contribution of complexity was to allow for the

understanding of the international system as a complex adaptive system and, from that, the development of tools for the interpretation of the changes through which it unfolds (Lehmann 2012). The result of this first conceptual moment was the emergence of what Kavalski (2007) called "Complex International Relations Theory".

Kavalski argues that a new way of thinking about the development of global politics had emerged in an environment of uncertainty, in which elements of order (linear), disorder (allinear) and complexity (non-linear) coexist. This new strand represented, according to him, the "fifth debate in International Relations", both epistemological and ontological. This Complex Theory of International Relations would be characterized by three distinctive principles: i) the dialogic principle (both maintenance and transcendence, in a concomitant way, of the agent/structure duality); ii) the principle of recursion ("causes are simultaneously effects"), and; iii) the holographic principle (units are "both wholes and parts of ever greater wholes, simultaneously and at all times") (Kavalski 2007, 444).

A second phase followed, in the post-9/11 context, in which complexity-based research in International Relations analyzed certain past foreign policy choices in light of the principles of complex adaptive systems. It was, then, an application of the concepts of complexity to the field of foreign policy analysis. Finally, the third – and currently ongoing – stage of complexity-based International Relations studies refers to the attempt to apply these elements of complexity to the policymaking process itself. (Lehmann 2012)

1.4 The international system is a complex adaptive system

Based on the aforementioned literature, the central claim this chapter makes is that the international system is, itself, a complex adaptive system, and should, therefore, be analyzed as such. Moreover, as this thesis shall try to demonstrate in the following chapters, international politics practitioners should probably also depart from this assumption if they wish to harness complexity. Even though this framing of the international system is not an innovation, for it has already been made by different authors, this thesis argues that it still is underappreciated in the

relevant literature, and this results in deep impacts to the subsequent policy planning processes that are grounded on these theoretical premises.

Modelski (1996, 331), for example, defined global politics as "a complex system that evolves in specifiable conditions". More recently, Dunne, Hansen, and Wight (2013, 417) similarly stated that "the contemporary international political system is best understood as a complex open system, which displays 'emergent properties' and degrees of 'organized complexity'". Also, Crawford (2016) advances the idea that to study world politics "is to analyze a complex adaptive system composed of various actors reflexively interacting within and changing a dynamic social and natural environment."

A more detailed definition was presented by Slaughter (2017, 39–40), according to whom:

> Understanding global politics as a complex adaptive system gives us a world of states as a system of moving parts, rather than as a (temporarily) static equilibrium like the Congress of Europe or the bipolar stalemate of the Cold War. Simulations can allow us to see how those equilibria emerge, just as complexity theory allows us to see how the interaction of many elements of an ecosystem, all influencing and adapting to one another, produces a result that could not have been predicted by tracking only one or a few of those elements.

Furthermore, Scartozzi (2018, 111, 112) sistematically develops the idea that "the international political system is a complex adaptive system, with emergent properties and dynamics of self-organization", as well investigates its related meanings, such as the "multilevel nature of nonlinear dynamics in the international system". By grounding his research on a definition of the international system as strictly attached to that of a complex adaptive system, he highlights the points of contact between these systems and the main characteristics of international politics: "the international system is composed of many diverse, interconnected, and interdependent agents that iterate non-linear relationships from which multilevel behavior evolves and emerges" (Scartozzi 2018, 119).

In sum, to understand the international system as a complex adaptive system has profound implications for the ways of both studying and trying to act in it, for it impacts both the scholarship and the political, diplomatic practice. Complex systems

are defined by their unpredictability. One agent's action has at most limited impact over it, since the combination of multiple feedback events makes the system uncontrollable. It is a system in which there are emergent phenomena, that is, processes only explainable by the interaction among a large number of agents. This makes a complex system "larger than the sum of its parts", one that cannot be understood through the mere study of each one of its parts. It's an open, dynamic system, defined by adaptation, evolution and information processing, in constant, unpredictable change. It is decentralized, multi-level and self-organizing.

In the following sections, we aim to demonstrate how – alongside other important structural factors mentioned in the introduction but not deeply discussed in this thesis, such as climate change – both the ongoing global power shift and the structural impacts of the new technologies might be intensifying these characteristics, increasing the complexity of the international system and possibly driving it to a point of deep, systemic change.

1.5 The international system is getting more complex
1.5.1 China's rise and the international system's power shift

Henry Kissinger's (1994) *Diplomacy* is probably one of the most famous works for the general public about foreign policy and international relations to be published since the final years of the 20th century. Interestingly, it opens with a bold statement: "almost as if according to some natural law, in every century there seems to emerge a country with the power, the will, and the intellectual and moral impetus to shape the entire international system in accordance with its own values" (Kissinger 1994, 17). Quite contradictorily, in the following pages, however, Kissinger claims that the 21st century international system would not be dominated by a single country, but instead would "be more like the European state system of the eighteenth and nineteenth centuries (…) contain[ing] at least six major powers – the United States, Europe, China, Japan, Russia, and probably India – as well as a multiplicity of medium-sized and smaller countries" (Kissinger 1994, 23–24).

It is especially noteworthy that, at the end of the 20th century, Kissinger himself predicted that China would be only one of the powers in a multipolar setting, in equal footing with others. He was, after all, one of the main architects of the US

policy towards China which led to both countries reestablishing diplomatic relations during the Richard Nixon administration (Ferguson 2023) – and even that experience did not lead him to pay special attention to the role China might play on the international system. Nevertheless, almost two decades later, Kissinger devoted an entire book to the country, based on the understanding that, after the 2008 crisis, "Chinese preeminence is often presented as inevitable and approaching" (Kissinger 2011, 532). Kissinger's adaptation and change of emphasis can be, therefore, seen as an illustration of the unexpected fast paced international (and structural) change brought about by China.

There seems to be no more doubts about it, as it is currently a widespread assumption that the most decisive, impactful element of contemporary geopolitics is the rise of China. It still remains unclear, however, what the end game of this process might be: possibilities range from a new Chinese global hegemony (Jacques 2009) to its upcoming decline (Brands 2022) . A "new cold war" between China and the United States (Ferguson 2019; Kaplan 2019) or an era of fragmentation and multipolarity (Bremmer 2013) are also commonly referred to in the literature, as well as the inevitable hegemonic war between the rising and the status quo powers, with deep systemic impacts (Allison 2017).

At the origin of China's rise lays the "reform and opening up" period, promoted by Deng Xiaoping (Vogel 2013), which led the country to achieve remarkable economic growth (Maddison 2007; Cheung and Haan 2013). China's accession to the World Trade Organization is often cited as a pivotal moment in this process (Feng 2006), for it paved the way for China's insertion into the international trade system. As a result, China achieved the world's fastest economic growth for a prolonged amount of time having a positive external effect on the globe as a whole and becoming the world's second largest national economy in 2010 (Allison 2017).

In the US, widespread assumptions held that the active participation of China in the international system was the best policy to be pursued, since American policymakers believed that political liberalization was supposed to be the almost natural result of economic liberalization (Rowen 2007). Nevertheless, this never happened, at least in the way predicted by the American community of experts.

Chinese economic growth has indeed coexisted with the perpetuation of the leadership of the Chinese Communist Party, whose power has been constatly reinforced. Some authors point to a "Dengist paradigm", which advocates that only under the Chinese Communist Party rule could economic improvements unfold in the country – an approach that, according to its proponents, would constitute until today the "chief basis of political life in China" (Brown 2017). This has now become a widespread view in the United States, where even the main architects of the country's current policy towards China depart from the assumption that "there is a growing consensus that the era of engagement with China has come to an unceremonious close" (Campbell and Sullivan 2019, 96)

Contrary to previous expectations about emerging countries – and about China in particular –, what happened was that, instead of the expected full integration into the Western-led system (and the adoption of all its policies, rules, values and political practices), "this economic success has [led to increasing] confidence and a desire to take a place on the world stage" (Bisley 2013, 14). In sum, the often called "rise of the rest" might have been "at heart an economic phenomenon, but it has [had] consequences for nearly every other sphere of life" (Zakaria 2012, 4), especially to the very structure of the international system.

Therefore, the first decade of the 21st century witnessed the establishment of a plethora of new international forums, a moment in which there was "an increasing emphasis on different sorts of informal groupings, clubs, concerts and coalitions" which formed "a complex mosaic of various groupings (…) emerging in a process of 'global à la cartism' or 'messy multilateralism' (…) in response to shifts in global power" (Hurrell 2010, 62). It was in this context that groups such as the BRICS and the G-20 and have been founded. It has also been a moment of renewed claims to the reform of the existing global governance architecture, in order to incorporate new actors.

A central moment in this process was the 2008 crisis, when emerging countries, especially China, stood up while the West was badly hit. The initial fears in the US about China possibly becoming a growing threat had initially appeared in the 1990s but quickly lost importance in the public debate, due to the complete

total-focus on the war on terror that followed the 2001 "9/11 attacks". This allowed China to pursue its development trajectory without opposition. Things began to change when China's response to the 2008 crisis demonstrated that it no longer could be considered a weak, vulnerable actor, as was advocated by Deng's "hide our capacities and bide our time" foreign policy paradigm. China, then, has been forced to assume a centrality which it might have wished to avoid, and this only intensified a few years later, with the changing Western position as a response to both Brexit, in the United Kingdom, and Donald Trump's election as president of the United States. (Brown 2017)

To sum up this movement, it might be argued that "the US–China symbiosis of the 1990s and 2000s suddenly turned into rivalry in the 2010s, (…) [even though] the political and economic systems of neither country underwent any fundamental, qualitative change" (Hung 2022, 2). It was such a profound change in such a short space of time that looking back at Western expectations about China at the turn of the millennium paints a picture of "a world we have lost" (Tooze 2020).

Another important element of these years, ranging from the mid-2000s to the mid-2010s, is that China seems to have been fully detached from other developing countries. While initially they were all often studied together, as noted above, more recent analysis of its peers highlight how they suffered from economic and political instability in the years after 2008, while China did not stop its growth trajectory (Hess et al. 2019). This seems to have aggravated the asymmetry among them and has highlighted China as a potential superpower, vying for the leadership of the whole international system.

Taken together, these processes led to a scenario in which specifically China appears today as the country capable of challenging the American hegemony of the system brings additional meanings and implication, since the country has always been discussed at the West behind a great deal of obscurity and misunderstandings. Even Chinese scholars recognize the intrinsic difficulties involved in analyzing China, claiming that "questions concerning China's territories, nations and peoples, faiths, territorial boundaries, and identities are far more complicated than for any other country in the world" (Ge 2018).

The history of China's foreign relations adds yet another layer to this difficult scenario. In the traditional Chinese cosmology, the country was supposed to be the central foundation of order and legitimacy, in a hierarchical setting deemed to be the "natural" pattern. A civilization with a history so old that its origins fade in time and it appears almost as a natural phenomenon (Kissinger 2011, 5). Even today, China does not fit perfectly into the traditional, European definition of a state, having been presented as a "civilization pretending to be a nation-state" (Pye 1992) or even a "civilizational-state" (Coker 2019). This "civilizational element" is also part of the impact China exerts on the international system, since "part of China's claim for world leadership (...) increasingly rests on the argument that China, with its Confucian form of governance, will be able to tackle issues (...) that the United States, with its governance structures so controlled by lobbying interests, cannot address" (Puett 2018, 232). Interestingly, this argument of the "Chinese specificity" continuously unfolds in different directions, allowing, among others, the claim that the Chinese state has developed according to an "engineering approach", which fosters innovation and development, in a sharp contrast to the "lawyerly society" of the United States, which supposedly imposes obstacles to this very process (Wang 2025).

Therefore, China presents itself as a multidimensional challenger to the current order. One of the most famous warnings regarding this fact has been US-scholar Graham Alisson and his "Thucydides' trap" thesis. According to him, the fast, structural change generated by China's rise has no historic parallel. A structural transformation, however, was indeed the main variable behind the twelve times that a war happened as a result of the clash between a rising and a status quo power. Allison bases his understanding on Lee Kuan Yew's interpretation, according to which China is the biggest player in the history of the world and its rise completely transforms the global balance of power. The closest historical analogy would be Germany's rise, which challenged the British rule at the beginning of the 20th century, and ended up fomenting two world wars. Allison concludes that if the US fails to produce the structural changes necessary to cope with the rise of China, war between these powers might be inevitable.

Many seem to have heard Allison's call and responded to it. In the US, a policy response was that of the "pivot to Asia" (Campbell 2016), presented publicly by secretary of State Hillary Clinton in 2011, claiming to re-structure US foreign relations away from the Middle East and towards Asia and the Pacific. Since then, in the country, there seems to have emerged a bipartisan consensus about opposing China's rise, based on the assumption that the country is a threat (Mahbubani 2020).

This opposition towards China seems to be centered on a fundamental critique: that the country aims to undermine the "rules-based order" which has been structuring international relations since the end of World War II (Johnston 2022). China has even been described at the United States' *2022 National Security Strategy* as "America's most consequential geopolitical challenge" since it is supposed to be "the only competitor with both the intent to reshape the international order and, increasingly, the economic, diplomatic, military, and technological power to advance that objective" (United States of America 2022, 11, 8).

Such profound power shift has obvious implications to the international system. The rise of a state to such a position challenges the current hegemon dominance and threatens the whole current stability. The fact that it is China, such a unique and unknown country, to be the one leading this change has additional impacts, since besides the power rebalancing it also puts forward questions regarding culture, values, norms and interests. This whole process has deep effects over every agent's expectation, impacting the way they process information about it and adapt accordingly. In brief, a direct impact of the rise of China is to lead the international system into an even more dynamic phase.

1.5.2 New technologies and their impacts

The ongoing power shift in response to the rise of China is not the only process leading the international system to a state of greater complexity: another important driver is the worldwide diffusion of new information technologies, which also have structural, systemic impacts, for they radically alter the political infrastructure.

The term "new technologies" might be considered a framework concept which involves a myriad of distinct instruments, techniques and processes. In general, it might refer especially to artificial intelligence (AI), but also to the Internet of things (IoT), 5G (the fifth generation of broadband networks), machine learning, big data, ubiquitous computing, and many others. Taken together, these technologies impact is profound and widespread.

These new technologies revolutionized the way people deal with information. Along with complex collective behavior and adaptation, one of the main defining features of a complex system is precisely information processing, since "these systems produce and use information and signals from both their internal and external environments" (Mitchell 2009, 13). Fundamentally, a complex system processes information and then proceeds to adapt its behavior (Mitchell 2009, 39). Such is the centrality of information processing to a complex system that in one canonical work of the field there is the suggestion that "in studying any complex adaptive system, we follow what happens to the information" (Gell-Mann 1994, 23).

Additionally, it has even been argued that technology itself might be better understood as a complex adaptive system *per se* (Fleming and Sorenson 2001). These authors claim that technological inventions can be thought of fundamentally as a process of recombinant search within a complex adaptive system, where inventors combine components to explore a rugged landscape of possibilities. They also highlight how the structure of technology itself (its modularity or interdependence) fundamentally influences the likelihood and trajectory of successful innovation.

Therefore, in the present section, the main argument is that new technologies contribute to the growing complexity of the international system for they have a structural, ontological impact as they drastically change the global flows of information. In doing so, they generate four main key transformations, which shall be further discussed: they change power, they change politics and the state, they change possibilities of political participation, and they change the means of war.

International politics has traditionally been studied with reference to the concept of *power* (Baldwin 2016). It is therefore useful to review a few ways through

which new technologies might affect it, since "with the creation of cyberspace, a new arena for the conduct of politics is taking shape (...), [and] when politics is evoked, power is a necessary corollary" (Choucri 2012, 9).

Morozov (2017, 2–3) claims that today's "digital world" can only be understood at "the intersection of [the] complex logics driving the worlds of politics, technology, and finance". This new framework turned data ("a digital residue of various social, economic, and cultural networks and relationships that crisscross our lives") into "the most important resource of the 21st century". Since data control is concentrated by few private actors – the big technology firms –, these actors then become key gatekeepers of the new digital economy, by establishing a model of "data extractivism" which turns citizens into users and then into valuable stocks of data. Politically, he concludes that this has the profound effect of changing "the power balance of tomorrow's politics (...) [in] favor [of] private players over public ones in a way that has not been observed since the feudal era".

A growing literature also point to a fundamental ongoing change in international affairs, which is a gradual transformation of structures into *networks* (Kahler 2009; Castells 2010). According to Bratton (2015, 3), the two main drivers of this fundamental transformation have been "the continuing emergence of planetary-scale computation as meta-infrastructure and of information as a historical agent of economic and geographic command". As a result, political geography has been structurally altered and is currently shaped through networks. This allows for the conception of the "the international system as a web": "a world not of states but of networks, intersecting and closely overlapping in some places and more strung out in others" (Slaughter 2017, 7). It produces, as well, "a world order that relies more on networks than hierarchies" (Ronfeldt and Arquilla 2020, 25).

While in traditional, hierarchical settings power tends to be viewed as a direct result of each actor's capabilities, in networks what matters are the "horizontal relationships and the connections between participating actors". In it, power can be understood not as an individual trait, but as a systemic, emergent property (Slaughter 2017, 173), since "the power of networks is derived from the

ability of actors to organize collectively (even in the absence of formal hierarchies), to adapt to changing circumstances, and to scale up rapidly" (Hall et al. 2019, 160).

Those scholars working within this frame of reference point to a few ways in which networks change power. Grewal (2008, 3–4), for example, claims that globalization propitiated "the rise to dominance of shared forms of social coordination", thus creating "network power", one which "emerges with the possibility of social coordination via new global standards, made possible by (…) technological advances". Similarly, Owen (2015, 3, 6, 38) understands that "rapid advances in digital technology have empowered individuals and *ad hoc* groups to do what was once available only to institutions run by the state and to private organizations built on a similar top-down, bureaucratic model", therefore creating "a new form of digitally derived power", namely "disruptive power", which is "formless, unstable, and collaborative".

There is also the argument that an ontological transformation of power has taken place. Owen (2015, 3), for example, presents the distinction according to which "digital technologies – meta-technologies – are qualitatively different from industrial technologies because they vastly multiply the degrees of freedom with which we can interact with each other and with the material world", pointing to the fact that "this increase in flexibility and capacity has altered the nature of power".

Other authors converge on this analysis, claiming that these changes have led to the appearance of "informational power". Previous forms of power included instrumental power ("shapes human behaviors by manipulating the material world via physical force"), structural power ("shapes human behaviors by manipulating the social world via rules and institutions") and symbolic power ("shapes human behaviors by manipulating the material, social, and symbolic worlds via ideas, words, and images"). For its part, informational power would shape "human behaviors by manipulating the informational bases of instrumental, structural, and symbolic power" (Braman 2006, 25). This underlying nature would make it dominant over the other forms of power, since it "changes how they are exercised, and alters the nature of their effects" (Braman 2006, 26). Similarly, "informational power can be described as 'genetic,' because it appears at the genesis – the

informational origins – of the materials, social structures, and symbols that are the stuff of power in its other forms (Braman 2006, 26).

Ronfeldt and Arquilla (2020) adopt a similar understanding and conclude that information is not only "a distinct dimension of grand strategy", but also "a form of power". For them, "the world is moving to a new system in which power is understood mainly in terms of knowledge", which means that "diplomats and other actors should start focusing on the balance of knowledge, as distinct from the balance of power" (Ronfeldt and Arquilla 2020, 37).

Secondly, besides affecting power, new technologies also have an impact over the *state*, traditionally regarded as the main actor in international politics. There is an obvious, straightforward relation between power and the state, but also information. As noted by Owen (2015, 22), "the modern history of power is inextricably tied to the development, interests, and capabilities of the state. (…) State power is hierarchical, institutional, and structural. It is also connected to the ability to control information and broadcasts". He argues that the rise of the nation-state as "the primary unit of international politics coincides with the development of a new information technology" (the printing press) which "shaped how information was conceived" and allowed for the "centralization of communicative and organizational authority" (Owen 2015, 22–23). Currently, the rise of digital information is revolutionizing technology patterns, releasing communications from its previous linearity and hierarchy, a profound change which challenges the current structure of the state (Owen 2015).

These changes over the state created by new technologies are usually understood in two different ways. Some authors discuss how states might lose power and some of its typical capabilities to other actors, while others emphasize structural changes over the functioning of the state itself, which remains as the predominant actor. As summarized by Choucri (2012, 13–14):

> One view holds that cyber realities undermine state sovereignty in notable ways (...). Another line of thinking holds that despite the emerging power of virtual reality, the fundamentals of state sovereignty remain robust, as revealed in various successful efforts in democratic as well as authoritarian states to regulate the transmission of content. (...) Yet another view proposes that cyberspace is fundamentally generative in

both technological and social terms, and as such contributes to reframing conceptions of sovereignty and the role of the state, most notably in the provision of public goods.

A good example of the discussion about whether or not states might be replaced by newly empowered actors was present in a public debate between Bremmer (2021) and Walt (2021).

Bremmer (2021, 112) recognizes that "states have been the primary actors in global affairs for nearly 400 years" but asserts "that [this] is starting to change, as a handful of large technology companies rival them for geopolitical influence". In his argument, these companies "have taken control of aspects of society, the economy, and national security that were long the exclusive preserve of the state", which means that "nonstate actors are increasingly shaping geopolitics, with technology companies in the lead" (Bremmer 2021, 112–13). He continues by pointing to how the balance of power between public and private actors seems to be shifting, since technology companies "are increasingly shaping the global environment in which governments operate", exercising "a form of sovereignty over a rapidly expanding realm that extends beyond the reach of regulators: digital space" (Bremmer 2021, 113). The independent geopolitical influence exercised by these firms stem from them having "created a new dimension in geopolitics – digital space – over which they [and not states] exercise primary influence" and from the fact that "they are increasingly providing a full spectrum of both the digital- and the real-world products that are required to run a modern society" (Bremmer 2021, 114–15). His inevitable conclusion is that "big technology companies (...) are increasingly geopolitical actors in and of themselves" (Bremmer 2021, 119).

In a response to Bremmer's article, Walt (2021) provides a much more skeptical view, according to which big technology firms are not as powerful or as autonomous as Bremmer portrayed. He fundamentally claims that only "physical space is essential to human life", from what follows that the control of the digital space by these firm will not let them "supplant or replace the nation-state at any point in the foreseeable future". To him, even though "digital technology affects our lives in myriad ways", they will not transform "the geopolitical map".

Nevertheless, this debate about whether tech companies might or might not replace states as the main actors in international relations is not as relevant for the present work as the discussion about the structural transformation of the state itself as a result of these new technologies.

Bratton (2015, 7–8), for instance, provides a summary of how political philosophy has been dealing with the relation between the state and technologies. According to him, Weber portrayed the "state as a machine", i.e., an apparatus in which inputs and outputs of instrumental rationality would guarantee pre-determined results, while Althusser thought about "the 'state machine', an ideological mechanism of distribution". Furthermore, Foucault discussed "technologies as forms of governance", in a view that placed the state as only one among many "sites of governance". Finally, Bratton presents his own model, in which a planetary-scale computing system gave rise to a new political geography, fundamentally changing the Westphalian model of sovereignty. This leads to the conception of "the machine as the state", since the "scale of technology (...) comes to absorb functions of the state and the work of governance". Therefore, "the state's own future is to be decided through its own negotiation of encounters with the challenges posed by planetary-scale computation to its geographic and jurisdictional legacies" (Bratton 2015, 17).

Referring to her concept of "informational power" and portraying states as complex adaptive systems themselves, Braman (2006) posits the creation of the "informational state". According to her definition,

> The informational state is characterized by multiple interdependencies with other state and non-state entities in ways that largely require use of the global information infrastructure for information creation, processing, flows, and use. Informational states use control over information to produce and reproduce loci of power and to carve out areas of autonomous influence within the network environment. The temporal vision of the informational state is transformational in ways best described through the use of complex adaptive systems theory. Complexity, self-reflexivity, and change are key organizational features. Boundaries are mobile, permeable, and more accurately defined in terms of informational reach than of geographic space.

Another theoretical contribution comes from Choucri (2012), who writes based on the original discussion from Rosecrance (1999) about "virtual states". According to her:

> The essence of the virtual state lies in its ability to garner the power of finance and ideas and transform them into sources of global influence. (...) It calls into question the fundamentals of traditional politics among nations based on competition for territory, trade, and military prowess, replacing these with new parameters, such as education, skills, knowledge management, and various manifestations of 'brain power' (Choucri 2012, 10).

She advances this discussion claiming that "almost all states, rich and poor, are already engaged in various forms of e-governance", which are ways the state has been finding to adapt itself to act in the cyberspace, a space of interaction that both "challenge[s] traditional concepts of sovereignty" and "provides new venues for the exercise of state power" (Choucri 2012, 20).

Morozov (2014) adds to this discussion by demonstrating how the rise of internet connectivity and the growing power of technology firms have also brought to life the political program of "algorithmic regulation" and "digital solutionism", a wide array of "initiatives [that] aim to reprogram the state and make it feedback-friendly, crowding out other means of doing politics".

A third structural impact of the new technologies is that they change means of *political participation*. As a preliminary illustration of this statement, an analysis of social protests in Egypt (2010), Syria (2010) and Hong Kong (2019) concluded that "new technologies – most notably information communications technologies (...) – play an increasingly important role in how movements evolve over time", because they allow people to "find each other, connect, and form enduring networks that evolve into collective action" (Frank 2022, 1). The author also point to the fact that "the same capabilities that were viewed as essential for building civil societies in nondemocratic countries have had dramatic effects on democracies as well" (Frank 2022, 5).

On a general perspective, everyone's political participation is a direct result of citizenship, as established with the creation of nation-states, when monarchical subjects became citizens (Braman 2006, 155). With the "changing relationships

between individuals and various types of loci of power", due to contemporary transformations which arise from the ubiquitous use of new technologies, even "additional ways of conceptualizing citizenship are appearing"(Braman 2006, 155–56). In this way, it is possible to conclude that information policy affects citizenship, including with "changing conceptualizations of the informational needs of citizens" and with the development of the category of hybrid citizenship" (Braman 2006, 156).

Furthermore, Benkler (2006) demonstrates how new technologies have allowed for the emergence of a "networked information economy" which, in turn, has laid the foundation for the appearance of a "networked public sphere". Previously, public conversation happened inside a "mass media architecture", structured in a "hub-and-spoke fashion with unidirectional links to the end points". Nevertheless, the rise of new telecommunication technologies has profoundly challenged this system, by establishing a "distributed architecture with multidirectional connections among all nodes in the networked information environment" which allows for "the practical elimination of communications costs as a barrier to speaking across associational boundaries" (Benkler 2006, 212). This had a profound effect, since it "fundamentally altered the capacity of individuals", equipping them to become "active participants in the public sphere as opposed to its passive readers, listeners, or viewers" (Benkler 2006, 212). According to his optimistic conclusion, "the networked public sphere, as it is currently developing, suggests that it will have no obvious points of control or exertion of influence (…) [and] promises to offer a platform for engaged citizens to cooperate and provide observations and opinions, and to serve as a watchdog over society on a peer-production model" (Benkler 2006, 117).

Finally, a fourth structural impact of new technologies happens in relation to *war*, a phenomenon closely associated with international affairs. In this regard, for example, Demchak and Dombrowski (2011, 35) point to the Stuxnet cyberattack against the Iranian nuclear project in 2010 as a turning point which "marks the official beginning of a new cyber Westphalian world of virtual borders and national cyber commands as normal elements of modern cybered governments". According to them, since then, "a cyberspace regulating process is happening, building the

initial blocks of emergent national virtual fences", creating a parallel at the cyberspace of what previously happened geographically in the physical world. They predict that in this "process of border development, the singular marker of a new age of sovereignty and cybered conflict will come to be a normal part of the modern state's capacities: the national cyber commands or their security equivalents at the national level" (Demchak and Dombrowski 2011, 35). They conclude that "just as militaries still exist in the modern age of mass weapons, they or their functional equivalents will also be sent to guard key national points in cyberspace" (Demchak and Dombrowski 2011, 35).

The impacts of the new technologies over war are not limited to explicit cyberattacks. Instead, many of the contemporary conflicts which are usually understood as being geopolitical also have a specific informational nature, subject to influence of these technologies. As Ronfeldt and Arquilla (2020, xiv) assert, "around the world, myriad cognitive wars – ideological, political, religious, and cultural wars – are underway, aimed at shaping people's minds and asserting control". Recently, this technology-war nexus has become particularly evident at the competition between the United States and China. As the influential Chinese scholar Yan Xuetong (2021) pointed out, the Sino-American dispute:

> will be launched on a new battlefield, especially in the digital space. As people become more dependent on digital space, cyber security will become more important than territorial security. The share of the digital economy in the GDP of major countries has been growing rapidly and has become an important source of national wealth. The race for 5G and 6G leadership will be increasingly formed, and for now, China seems to be in a leading position.[1]

The CIA director during the Biden administration has expressed the same understanding. During a speech given at Georgia Tech, William Burns declared that "the main arena for competition with China [is] the revolution in technology" (Burns 2021).

On the same token, Brown (2017) understands cyberespionage to be a special area of friction between China and the US. According to him, one of the reasons for this would be the understanding, shared by a few Chinese strategists,

---

[1] Citation freely translated.

that the cyberspace would constitute a more leveled playing field, with greater parity between the two countries, which is not the case in other areas, that are already dominated by the United States.

In conclusion, as the general overview presented above tried to demonstrate, new technologies have structural impacts over the political realm. The changes propitiated by them profoundly alter the dynamics of the international system, increasing its complexity. They also enhance the disruption already being cause by the rise of China, as previously argued.

1.6 Punctuated equilibrium, critical juncture, systemic change

Having portrayed the international system as a complex adaptive system and having argued that the ongoing power change coupled with the structural effects of the new technologies are increasing its complexity, in the present section we aim to discuss how this situation might be leading the system to a point of deep change with lasting consequences, commonly referred to as a critical juncture.

Alongside information, *evolution* is another key element of the study of complex systems. From studies about evolution a main concept was introduced to the social sciences, namely, punctuated equilibrium, an idea which has also been commonly referred to with other names, such as critical juncture and systemic change. Even though not usually understood as such, this is an area in which the studies of complex systems have directly influenced the social sciences approach. As Liu, Fisher Onar, and Woodward (2014, 3) state:

> The toolkit emanating from complexity theory also has been influential in theorizing path-dependence (...) and is congruent with much work in historical institutionalism from epic macro-historical accounts (...), to case studies that borrow from notions like critical junctures, increasing returns, sequencing, tipping points, and lock-in.

In biology, one of the main proponents of this approach was Stephen Jay Gould, who, through the study of change in the morphology of organisms, observed "long periods of no change in the morphology of organisms (and no new species emerging) punctuated by (relatively) short periods of large change in morphology, resulting in the emergence of new species" (Mitchell 2009, 84–85). This

combination of a long period of relative stability combined with short moments of profound and quick change is what has been labeled punctuated equilibrium.

At the social sciences literature, a key reference of this approach is Collier and Collier (1991), who aim to develop a unified framework for the analysis of these short moments of profound changes, labeled critical junctures. They define critical juncture "as a period of significant change, which typically occurs in distinct ways in different countries (or in other units of analysis) and which is hypothesized to produce distinct legacies" (Collier and Collier 1991, 29). For them, additional building blocks of a critical juncture are the previous conditions (that represent the standard of comparison from which both the critical juncture and its legacies might be evaluated) and the cleavage/crisis (which arises from these previous conditions and unleashes the critical juncture).

The element of cleavage/crisis is of special significance and should be properly analyzed. It refers to a previous environment of tension, due to the accumulation of contradictions, which end up shaking the entire structure of the system. For its nature as the starter of a profound change, the cleavage is often said to be a "generative cleavage". According to the analysis by Collier and Collier (1991), this might be propitiated by the rise of new social and political actors or by a reshuffling of political relations.

When analyzing change in international politics, one main driver of such crisis usually is a rebalancing of the power in the system, created by a process of differential growth of power, as has been famously argued by Gilpin (1981). The model he develops to explain change and war in international politics understands the disequilibrium of the system as a precondition for it. The three main causes of disequilibrium are political, economic and technological developments, which cause a disjuncture between the existing social system and the redistribution of power.

In Gilpin's (1981) view, three possible changes are possible to follow such disequilibrium. When "the ways in which economic, technological, and other developments affect the scale, efficiency, and viability of different types of political organizations", it leads to a change on the actors and entities which compose the international system, in a process labeled "systems change" (Gilpin 1981, 42).

Previous examples include the rise and fall of Greek city-states, of the feudal systems, of Empires and of nation-states. Secondly, there are also "interaction changes", which happen through transformations which arise from the process of regular interactions among actors, and which leads to changes on the rights and rules of the system. Historically, it has led to regime change or to the creation of alliances and transnational relations. Finally, there is "systemic change": a transformation on the form of control and governance of the system itself. It unleashes changes on the international distribution of power, on the hierarchy of prestige and on the rules of the system, and is usually related to the rise of a new hegemon and the decline of the current one.

The aggravating factor of Gilpin's analysis of systemic change is that he concludes that "throughout history the primary means of resolving the disequilibrium between the structure of the international system and the redistribution of power has been war, more particularly, what we shall call a hegemonic war" (Gilpin 1981, 197). A hegemonic war restructures the system and its basic elements according to the new power reality. This restructuring, however, also follows the basic model of the punctuated equilibrium, because:

> The conclusion of one hegemonic war is the beginning of another cycle of growth, expansion, and eventual decline. The law of uneven growth continues to redistribute power, thus undermining the status quo established by the last hegemonic struggle. Disequilibrium replaces equilibrium, and the world moves toward a new round of hegemonic conflict (Gilpin 1981, 210).

This discussion about hegemonic wars and the associated debate about an eventual inevitability of a Sino-American conflict (Allison 2017), however, is not the main point of the present work. What this thesis fundamentally argues is not that a systemic war might be coming, but that evidence points towards the growing complexity and disequilibrium of the system, possibly leading to a situation of crisis. According to this aforementioned literature, these moments of crisis have a generational nature, in the sense that they lay the basis for the long period of path dependence which follows it. And the position of each actor during the critical juncture determines its place in the ensuing historical legacy. As Acemoglu and Robinson (2013, 107) point out, "once a critical juncture happens, the small

differences that matter are the initial institutional differences that put in motion very different responses", and this explains the differences in the historical legacies.

To sum up, the international system, due to its nature as a complex adaptive system, already evolves according to the punctuated equilibrium model, in which long periods of relative stability are shaken by episodes of deep and quick change. A critical juncture is not predictable, and it might very well not happen in the near future at the international system. Nevertheless, the previous sections tried to demonstrate how the power shift related to the rise of China and the structural changes unleashed by the new technologies seem to be increasing the complexity of the system, possibly leading it to a state of disequilibrium. This should be carefully taken into consideration by those involved with foreign policy making.

1.7 Conclusion

This chapter tried to demonstrate how uncertainty seems to be the defining feature of the current international system. Part of the explanation is due to the fact that the international system is a complex adaptive system, composed by a large number of agents that interact locally among themselves, in a decentralized manner, creating emergent phenomena, that can be amplified or diminished by feedbacks. This self-organizing system evolves through learning, adaptation, and information processing, in a dynamic, uncontrollable and unpredictable manner.

This chapter argued that the rise of China and the political effects of new technologies are helping to drive the international system towards a situation of increasing complexity. This, for its part, may end up causing a deep transformation of the system, if it goes through a critical juncture.

Critical junctures are moments in which "decision making [occurs] under conditions of uncertainty" (Capoccia and Kelemen 2007, 354). As we tried to demonstrate on the previous sections, the mechanist, linear approach views the world as capable of being controlled. This implies the possibility of taming uncertainty, an approach which has never been abandoned, as recent works demonstrate (Friedman 2019).

Nevertheless, if the international system is indeed a complex adaptive system, as this thesis argues, this is a futile effort. By definition, such a system cannot be controlled, for uncertainty cannot be washed away. On the contrary, all those actors involved in it could be better off if they better understood the complex nature of the system and aimed to adapt to it as best as possible. Instead of trying to escape uncertainty, international actors might be better off if they embrace it, in an attempt to harness complexity (Axelrod and Cohen 2000).

The aim of the next chapters is precisely to present possible models of bureaucratic organization and strategic policy planning that are adapted to complex systems, trying to investigate if they could represent a better alternative for acting in the complex setting of the international system.

2. Complex institutional design: taking diversity and emergence into consideration

2.1 Introduction

Political decision-making is never easy. Not only it involves a large number of subjective human actors, but it is also affected by a myriad of events, in many cases in unforeseeable ways. A classical definition of policy choices, for example, considers them to be "wicked problems", because "there are no 'solutions' in the sense of definitive and objective answers" (Rittel and Webber 1973, 155–56).

Many influential International Relations works have also acknowledged the inherent uncertainty associated with the decision-making endeavor. Even Gilpin (1981, 87), for instance, who considers that only the behavior of a few actors "has an appreciable effect on some or all of its rivals", understands that the international system is an "interdependent decision making" space in which "the behavior of other states and the effects of this behavior on one's interests and competitive position are *uncertain and unpredictable*" (emphasis ours).

The inherent uncertainty and unpredictability of the international system are even more in evidence in these special moments labeled as "critical junctures". Capoccia and Kelemen (2007, 354) come to the point of concluding that "we can consider the analysis of critical junctures as the analysis of decision making under conditions of uncertainty". This understanding, which equates critical junctures with decision making under uncertainty, is crucial to this research, for it links the system effects typical of complex adaptive systems (discussed in chapter one) with its inherent consequences to international actors.

On the same token, a fundamental premise of this thesis lays on institutional analyses of historical processes, which have presented the already previously mentioned conclusion that "once a critical juncture happens, the small differences that matter are the initial institutional differences that put in motion very different responses" (Acemoglu and Robinson 2013, 107). As a historical example, on the rise of the Atlantic trade, it were "relatively small institutional differences in England, France, and Spain [that] led to fundamentally different development paths" (Acemoglu and Robinson 2013, 107).

After having portrayed the international system as an unpredictable complex adaptive system possibly moving into a critical juncture moment, and based on the quotations just mentioned – that critical junctures are moments of decision-making under deep uncertainty in which the existing institutional settings end up determining the decisions and therefore having a structural, lasting impact – the aim of this chapter is to devise, based on the existing literature about organizations in complex environments, a general model of institutional design best suited to complex, unpredictable environments. Later, the remaining of this thesis shall attempt to adapt this general model to the specificities of foreign policy.

2.1.1 A "many-models model" of institutional design

The aim of this chapter is to establish a general model of institutional design which might be applicable to organizations operating in complex environments. In a broad sense, by institutional design we understand "the project of examining existing arrangements to see if they are satisfactory and of altering them where necessary: the project of rethinking and reshaping things (...), [including] interventions in any of the arrangements that coordinate the behavior of individuals in society" (Pettit 1996, 55). In a more focused way, it is possible to define institutional design as "the deliberate attempt to change the set of [formal or informal] rules that structures interactions within policy networks" (Klijn and Koppenjan 2006, 149).

Among the many uses for models, it might be argued that they are useful to *design* ("to choose features of institutions, policies and rules"), to *act* ("to guide policy choices and strategic actions") and to *explore* ("to investigate possibilities and hypotheticals") (Page 2021, 15). These are of particularly interest to this research. According to this view, models are useful to design because they provide "frameworks within which we can contemplate the implications of choices", a process which is used by social scientists "to design institutions" (Page 2021, 20). Their usefulness lies on the premise that decisions based on models end up having better results than those that do not take models into consideration, because "models will oblige us to ask relevant questions" (Page 2021, 22–23). Finally, models help on exploratory endeavors because they allow us to "explore intuitions, (...)

abandoning the constraints of reality", in a line of action which has been advocated by proponents of "critical design" in search of new ideas and creative solutions (Page 2021, 24).

Nevertheless, models also suffer from shortcomings. Because they are simplifications of the world, they inevitably end up leaving apart important elements. This is especially problematic when dealing with complex phenomena, which are characterized by a large number of actors, often in direct interactions, in nonlinear ways, and in an environment in which there are emergent phenomena. As Page (2021, 11) summarizes it: "all models are wrong". Nevertheless, this does not mean they are not useful.

The solution might be to adopt a "many-models model" (Page 2011). When faced with complex problems or uncertain situations, the simultaneous employment of multiple models (rather than limiting to a single one) offers a diversity of perspectives and insights, resulting in a more comprehensive understanding of the issues. This approach also acknowledges the inherent limitations and biases of individual models while leveraging the collective wisdom of diverse viewpoints. By incorporating various models, therefore, decision-makers can better navigate uncertainty and make informed choices, ultimately leading to more effective problem-solving strategies.

Thus, this chapter shall develop a many-models model of an institutional design adapted to complex systems. It has two main axes, each directly correlated to a fundamental characteristic of complex adaptive systems: diversity and emergence. On the first axis, it discusses how complex systems are composed by numerous actors, which are considered "a crowd". This diversity element results in the incorporation of crowd-related models and tools, specifically collective intelligence. Empirically, lessons are drawn from crowd-related digital environments (Wikipedia, Google and Linux). These organizations, structured as communities (in contrast to hierarchies and markets), have as a fundamental trait their participatory nature, which allows for the integration of a large number of actors in their processes. On the second axis, it focuses on emergent phenomena and how they contribute to a complex system's unpredictability and, hence, uncertainty.

The theoretical basis for this axis comes from the "designing for emergence" and "decision making under deep uncertainty" (DMDU) approaches. Finally, it brings together these two axes in a coherent template, that of platforms. It aims to advance beyond private and for-profit platforms, including examples from the political arena (parties and the government), in order to portray platforms as both an institutional form and a type of general organizational template that, profoundly related to diversity and emergence, is suited to acting in complex systems.

2.2 Diversity: dealing with the crowd
2.2.1 What is a crowd?

Taking as a basis the definition of a complex adaptive system – "a system in which large networks of components with no central control and simple rules of operation give rise to complex collective behavior, sophisticated information processing, and adaptation via learning or evolution" (Mitchell 2009, 13) –, this section is particularly focused on its element of "large networks of components with no central control" and its defining characteristics.

When presenting a list of its defining traits, Cilliers (1998, 3) begins by stating that a "complex systems consist of a large number of elements". Similarly, a study about the relation between diversity and complexity has concluded that "systems that produce complexity consist of diverse rule-following entities", since not only "diversity can produce complexity" but also "emergent diversity is (…) required for complexity" (Page 2011, 17, 36, 43). On the same vein, a survey of different ways to define complex systems summarizes them as being composed by "usually large numbers" of elements (Davis et al. 2021). Specifically, there is a growing literature about such systems composed by large numbers of elements, which present them as the "crowd".

The crowd can be defined as "the startlingly large amount of human knowledge, expertise, and enthusiasm distributed all over the world and now available, and able to be focused, online", as well as "the new participants and practices enabled by the net and its attendant technologies" (McAfee and Brynjolfsson 2017, 14, 231). According to this view, which places the new information and communication technologies at the heart of the phenomenon, the

crowd is "an alternative to the core", understood as "the dominant organizations, institutions, groups, and processes of the pre-Internet era" (McAfee and Brynjolfsson 2017, 231).

The crowd is a large assemble of actors, characterized by lack of hierarchy, decentralization and the impossibility of control (McAfee and Brynjolfsson 2017). Even though difficult to grasp, it seems to be one of the driving forces of the contemporary world. In this role, it challenges the traditional organizations "from the core" in the shaping of every domain of human interaction and knowledge. Since much of our social world has been constructed by the "institutions from the core" – such as "government bodies, approval loops, and people and groups with the formal power to say no" (McAfee and Brynjolfsson 2017, 232) –, the rise of a multiplicity of varied actors with wide-ranging influence creates a comprehensive challenge for all of those interested in acting in this complex environment.

2.2.2 How do crowds operate?

Examples from different areas – the Internet, economics and politics – might be enlightening about how crowds operate and their impacts.

To begin with the Internet is important because it is the original *locus* of contemporary crowds. It is the Internet, after all, that created the basic necessary condition for the existence of crowds, according to the definition by McAfee and Brynjolfsson (2017) previously mentioned. Also, the Internet essentially deals with information, the very element that complex adaptive systems process. These same authors, for instance, consider that both libraries and the Internet might be considered as "large collections of information", the difference being that the formers are shaped as "core institutions", while the second is fully crowd-like. Events directly related to the Internet are, therefore, both comprehensive and paradigmatic. Among the many examples of the crowd in relation to the Internet, Wikipedia – both one of the Internet's "most distinctive landmarks" as well as "a product of the wisdom of the crowds" (Surowiecki 2005, 275) – is probably one of the most illuminating ones.

Before Wikipedia was invented, there was Nupedia. Created by Jimmy Wales and Larry Sanger in 1999, it was supposed to be the Internet's first open Encyclopedia. To ensure the quality of its content, its founders established a writing and editing process which encompassed seven steps until an article could be published online. It included multiple review levels, copyediting and approvals. Nupedia's stated goal was for its contributors to be experts, especially PhD graduates. Its creators spent almost a quarter million dollars on the project, but the results were far from what they expected (Sunstein 2006; Shirky 2009; Gleick 2011; McAfee and Brynjolfsson 2017).

Therefore, Nupedia's creators turned towards the "wiki" model: the "extremely egalitarian kind of digital whiteboard (…) in which any user could make a contribution, edit someone else's contribution, or undo any previous edit" (McAfee and Brynjolfsson 2017, 247; Leuf and Cunningham 2001). Then, academic credentials were no longer required, and everyone was invited to take part in this collaborative effort, with no mandatory request of any specific background, nor any formal review process prior to the publishing of the contribution. With this new approach, the results were astounding.

Since its establishment, Wikipedia's statistics grow on a fast pace. In less than a decade after its release, the amount of entries it achieved "dwarfs the *Encyclopedia Britannica*" (Sunstein 2006, 151). On the other hand, many people raised doubts about the quality of its content, even though some studies found Wikipedia and *Encyclopedia Britannica* average amount of errors to be similar (Giles 2005), and others even pointed to a superior quality in Wikipedia articles when compared to professional works (Reavley et al. 2012).

Therefore, Wikipedia is probably one of the most remarkable examples of the power of the crowd. By turning to the collaborative, wiki model, it was able to "activate the crowd", allowing for the emergence of a community committed to its continuous development (McAfee and Brynjolfsson 2017, 249). Year after year, it acts as a real time laboratory of how to "harness the wisdom of the crowds" (Kittur and Kraut 2008; Hill and Shaw 2020). And, probably most important of all, it has established a model collaborative process of how to work with crowds through self-

organized peer-production and mass collaboration, achieving impressive results, potentially laying the groundwork for alternative paradigms of social action, with even a remarkable utopian potential (Reagle and Koerner 2020). It has, thus, helped to redefine "the traditional knowledge hierarchy", as one of the most important open-source endeavors to advance the path of the "new collaborative society", serving also as a model to "less radical structural designs and solutions in more traditional organizations" (Jemielniak and Przegalinska 2020, 55).

Another example of how crowds have been proliferating and changing patterns comes from the economy, where through crowdfunding the impacts of the actions of the crowd encompasses not only information goods (as in Wikipedia), but also extends to real-life products. Crowdfunding platforms allow individuals or businesses to raise capital from a large number of people – even before the product or project is produced or released. This approach to financing enabled entrepreneurs, artists, and innovators to access funding for their projects without relying solely on traditional sources such as banks or finance institutions (Mollick 2014; Belleflamme et al. 2014; Onnée and Renault 2016).

Crowdfunding had profound impacts on the entire structure of goods and services production and release. Fundamentally, it alters the traditional supply-oriented paradigm, in which firms decided *a priori* what they would produce and this prior decision, for its part, was what determined the supply of goods and services available. With crowdfunding, the potential consumers are the ones who engage in funding each good or project. If the financial target is reached and the project is indeed released, the producer can be sure to have a demand for it, because from the beginning the whole endeavor was demand-determined, considering that people already prebought it (McAfee and Brynjolfsson 2017). With these, goods that would not be able to be produced if they depended on traditional financing schemes become viable.

Finally, also in the political domain there is a growing number of cases which highlight the impact of crowds. A good example is the series of political protests from the early 2010s – such as Occupy Wall Street in the United States, the Arab Spring and the 15-M in Spain. In all these "networked protests", social media

platforms (like Twitter, Facebook, Youtube and Instagram) served as powerful tools for mobilizing mass manifestations, by enabling activists to quickly disseminate information, coordinate actions, and amplify their messages. Social media, thus, facilitated horizontal communication networks that bypassed traditional hierarchies, allowing for decentralized and agile forms of organizing (Tufekci 2017).

These protests were structured through horizontal and flexible networks, in a deep challenge to institutional politics and its traditional benchmarks such as hierarchical, vertically structured political parties. They were, in sum, "leaderless movements", bred outside the established political mechanisms (Ross 2013) – and thus, according to the view of traditional political actors, difficult to understand and to interact with.

To left-wing political parties, for instance, the challenge was even more salient. These protests symbolized the demise of the networked model of political organization created in 1968 (in a similar vein to what the political events of 1989 represented to the party-centered, vertically structured movements which the 1917 Russian Revolution gave birth to) (Nunes 2021). This challenge created by the self-organized "distributed action" of the crowd again raised debates about forms of political organization and fostered reflections about new structures, such as "ecologies" and "platforms" (Nunes 2021).

As a response, there are authors who claim that some political parties have, themselves, adapted to better fit within this context, in which digitally enabled crowds fundamentally reshaped the organizational structures and practices of political parties. Thus appeared what Gerbaudo (2019) calls "digital parties": organizations that prioritize online communication, participatory decision-making, and grassroots activism, such as *Podemos* in Spain, *Movimento 5 Stelle* in Italy and all the Pirate Parties. According to him, these parties leverage digital tools such as social media, crowdfunding platforms, and online forums to expand their reach and mobilize supporters. The decentralized and fluid nature of these digital parties organization adhere to "swarm politics": they operate as dynamic networks of activists and supporters, capable of rapid coordination and adaptation (Gerbaudo 2019).

These examples demonstrate how crowds are already impacting different domains of the social life, challenging traditional organizations and institutions, be it libraries and encyclopedias as knowledge depositaries, or the supply-oriented production model and even political parties.

2.2.3 The structure of the crowd

Crowd-based phenomena are everywhere. The challenges they create are multifaceted. Many of these are related to the fundamental fact that crowds (which are complex adaptive systems) do not fit into the traditional, hierarchical and vertical structures which shaped the institutions "from the core". Instead, crowds are, if not outright amorphous, of a flexible, adaptive structure, one which is hard to identify. To deepen the discussion of these structural challenges brought by crowds (and the related one of how to classify and interact with them), it might be useful begin the analysis with purely Internet-related cases. Here, an illuminating example is the invention of Google's search engine, in comparison to the previously failed attempt by Yahoo! to externally control, curate and index the Internet.

With the invention of the Internet, webpages soon started to proliferate. The pace of the publication of new websites – and the amount of content stored in them – was impressively fast. According to rough estimates, in 1991 there were 1,000 websites. In 1992, it grew to 10,000, followed by 130,000 (1993), 2,738,000 (1994) and 23,500,000 (1995)[2]. Quickly, the Internet came to encompass more information than the previous knowledge repositories: libraries and Encyclopedias. This was a remarkable achievement, but one which also posed a new problem: how to navigate such a large amount of information? Because even though the Internet might encompass virtually all the knowledge, data and information available, if users were unable to find what they were looking for, it could end up useless, a victim to its very size.

A first attempt in solving this problem came from Yahoo!, whose full name reveals its original mission: "Yet Another Hierarchically Organized Oracle". It aimed to apply the traditional methods of knowledge curating and, thus, to act "as a sort of

---

[2] https://www.internetlivestats.com/total-number-of-websites/

card catalog for the net; a human-created and -maintained set of website categories and subcategories" (McAfee and Brynjolfsson 2017, 232). Yahoo! and other search engines, nevertheless, were unable to apply this method to the ever-growing World Wide Web. It was just too big, and its growth too fast, for it to be fully catalogued and curated from the outside.

It was facing this issue that Sergey Brin and Lawrence Page, by that time still graduate students at Stanford, developed an alternative approach: their PageRank algorithm, which would come to constitute the core of Google's search engine. It was an attempt to fully harness network effects, in line with network theory, based on the notion of "centrality measure" that captures the relative importance of nodes in a network by modeling random walks with restart (Gleich 2015).

The paper in which they present their model (Brin and Page 1998) begins with the recognition that, since "the amount of information on the Web is growing rapidly", it "creates new challenges for information retrieval", a task which so far had not been effectively handled by "high quality human maintained indices such as Yahoo!". To overcome the shortcomings of these human maintained indices they developed a large-scale search engine, based on the "structure present in hypertext". The core of the approach is the PageRank algorithm, which "makes use of the link structure of the Web to calculate a quality ranking for each Web page", thus attempting to objectively measure each page's "citation importance", from which they create a ranking that tries to correlate it "with people's subjective idea of importance". That is how Google makes use of the Web's own content to structure itself – or, how the authors put it, to "scale with the Web" (Brin and Page 1998).

The success of Google's approach lies, in part, because it was designed to be "a complete architecture for gathering Web pages, indexing them, and performing search queries over them". It does so by recognizing the Internet as "a vast collection of completely uncontrolled heterogeneous documents" and, instead of trying to control or shape it from the outside, it opted to act based on interactions both with hundreds of thousands of Web servers and with millions of users (and their unique perspectives) in order to crawl the Web and scale with it (Brin and Page 1998).

In brief, Google's revolutionary innovation was to understand that lack of control over the crowd-generated online content did not mean a lack of organization. Instead, it resorted to a different structure, one that was *emergent*, since it was not dictated by any core group but, instead, was created by the crowd itself, and it grew and evolved according to the crowd's actions (McAfee and Brynjolfsson 2017, 233–34).

The case of why Google succeeded in the same effort that Yahoo! had previously failed offers a few lessons:
- The crowd is too large to be fully, individually curated, element by element;
- The crowd structures itself (it is self-organizing) and resists to being shaped from the outside;
- Even though it does not fit into traditional/linear/vertical/controllable patterns, the crowd does have a structure, one that is networked, emergent and self-organizing.

2.2.4 Harnessing the crowd through collective intelligence

From the previous section, a few conclusions are possible. On the one hand, crowd-based phenomena are multiplying, especially because of the enhanced communication possibilities propitiated by the Internet. On the other hand, these phenomena are hard to identify and to interact with, due to the self-organizing, emergent structure of the crowd. Many of the traditional organizations have, thus, been facing challenges on how to engage with the crowd.

Nevertheless, even though the modes of action necessary are different from the standard procedures, the crowd also brings remarkable potential, for it allows of things that would not be possible without it. The main premise, here, is that "information is widely dispersed in society" (Sunstein 2006, 7). Thus, not one single agent – regardless of the degree of expertise of professionalization – is fully aware of all that there is to know about a specific issue or process.

This becomes even more pronounced in relation to issues considered "wicked problems" (Rittel and Webber 1973). As mentioned at the beginning of this chapter, in comparison to "tame problems" (which are "definable, understandable

and consensual"), wicked problems have no "'solutions' in the sense of definitive and objective answers". Often, policy planning problems are considered as wicked, for they are produced within interacting open systems (Rittel and Webber 1973, 155–56). Tame problems may be solved through the statement of "an exhaustive formulation (...) containing all the information the problem-solver needs for understanding and solving the problem", while wicked problems have "problem understanding" and "problem resolution" as concomitant tasks, making it necessary to obtain "knowledge of all conceivable solutions" (because "every specification of the problem is a specification of the direction in which a treatment is considered") (Rittel and Webber 1973, 162). Any single agent or individual organization is, therefore, uncapable of dealing with wicked problems (which usually are produced in complex systems), since they cannot gather the necessary "knowledge of all conceivable solutions". The crowd, however, seems to be fitted for this task. There is a growing field of studies devoted to study precisely this dynamic: collective intelligence (Malone and Bernstein 2015).

The idea of collective intelligence originally appeared in Lévy (1997) and refers to "the process of sharing, editing and assessing information and other crowd members' findings, in order to understand the world better" (Blesik et al. 2022, 1650). Different from similar crowd-based concepts – such as "wisdom of the crowds" (Surowiecki 2005) or "crowdsourcing" (Howe 2006) –, collective intelligence might benefit from the enhanced contacts made possible from the Internet, but this online element is not a necessary pre-requisite for it. Its fundamental element is the idea that groups of diverse people are able to accumulate information that no single actor or institution alone may dispose. What is remarkable is that research initiatives demonstrated that large groups of non-experts could outperform small groups of professionally trained experts, even in extremely technical tasks such as genome sequencing (Lakhani et al. 2013).

There are a few explanations of why non-technical crowds might outperform traditional, expert institutions by resorting to collective intelligence, and many of them refer to the nature of the crowd and its correspondence to typical dynamics of wicked (policy) problems and complex adaptive systems:

i) The crowd's large size is a decisive element, because crowds benefit from diversity: by including a big and diverse group of people and organizations with different perspectives, "multiple dissimilar backgrounds, educations, problem-solving approaches, intellectual and technical toolkits, genders and so on" (McAfee and Brynjolfsson 2017, 258), a problem is approached from different, complementary perspectives. It receives, thus, diversity bonuses (Hong and Page 2004; Woolley et al. 2010; Page 2011), which small, highly technical groups inevitably lack, in spite of their high expertise.

ii) In part as a consequence of this diversity advantage, the crowd has a "marginal advantage": "it contains huge numbers of people who are (…) quite far away – geographically, intellectually, and/or socially – from any organization's core" (McAfee and Brynjolfsson 2017, 259). Including these people increases even more the diversity of perspectives and advances the goal of having a comprehensive approach towards a system in which information is highly dispersed.

iii) Finally, the fast pace of change and evolution in complex systems also plays a role. Currently, new knowledge is rapidly created; flows of information are markedly quick. However, traditional institutions composed by experts tend to be slower to incorporate these fast-paced innovations, while the crowd – being large, encompassing and multiple – can interact with it in an faster and easier manner (McAfee and Brynjolfsson 2017, 257).

2.2.5 Crowds meet organizations, *ergo* communities

In discussions about organizational design, *communities* are presented as an organizational form adapted to the crowd, even being considered a third organizational ideal type alongside the traditional ones: hierarchy and market (Adler 2001). As such, a community can be understood as "an organizational form that enables and enhances networking among autonomous and interdependent participants", for it "entails membership, commitment to shared goals and purposes, and rules for participation" (Kolbjørnsrud 2018, 3). In a community-design, large numbers of members can "collaboratively solve problems and integrate their contributions in a self-organizing fashion", in an environment where "work is

characterized by self-assignment to tasks and commons-based peer production" (Kolbjørnsrud 2018, 3).

A hierarchy is an organizational system in which authority is the main coordination mechanism between higher-level units (which have decision-making authority) and their subordinate, lower-level ones. A market is an arena for free exchange among autonomous parties, mediated by prices (its main coordinating mechanism) (Kolbjørnsrud 2018). Even though they differ among themselves, both markets and hierarchies are private-property regimes. Communities, for their part, have the production of *commons* as its distinguished feature: shared resources (physical or intangible) commonly built, managed and used by a community, on a common-property scheme (Ostrom 1990; Benkler 2002; Kolbjørnsrud 2018).

Kolbjørnsrud (2018) synthesizes how communities deal with the four universal problems of organizational design:

i) Task division: while in hierarchies, tasks are assigned according to each actor's place in the organization's vertical structure, and in markets, buyers and suppliers have different roles and tasks, in communities, the task division is designed and elaborated by community members through self-organization in an environment of information equilibrium.

ii) Task allocation: in communities, who performs each task is decided by the users themselves (in contrast to allocation through authority or through the price mechanism, as happens respectively in hierarchies and markets). In addition, there is peer-based quality assurance in communities, something that falls upon managers (hierarchies) and customers (markets) in the other two ideal types of organizational design.

iii) Reward distribution: contrary to markets (returns and outputs are calculated based on prices) and to hierarchies (which in general has weaker incentives for participants, since it is grounded on authority), by working with commons, communities allow their members to extract value from production and use in a complementary, non-rival manner.

iv) Information processing: this is a central task of every organization (Galbraith 1974). In markets, prices are the main information processing instrument, the element which aggregates asymmetric knowledge and expectations from different, uncoordinated actors. Similarly, in hierarchies the information level of each actor is unequal: top-levels concentrate the most part of the information available, which is gradually (and discretionarily) disclosed down the hierarchy. Contrary to these two models, communities operate in an environment of information transparency and symmetry to all members, which allows for self-assignment. As a hazard-protection mechanism in such a context, communities make use (beyond transparency itself) of "shared goals, values, rules, and incentive structures", aiming to nurture "trust, reciprocity, and expectations of fairness" (Kolbjørnsrud 2018, 8).

As before, a meaningful model of community can be found in the digital environment: the collaborative effort to develop the open-source software Linux (Lee and Cole 2003). McAfee and Brynjolfsson (2017), studying the Linux case, have systematized principles for action with crowds in communities:

- Openness: when Linus Torvald, the software inventor, invited contributors to his effort, he released a call as broad as possible, to everyone interested.

- Noncredentialism: as a consequence of openness, the invitation to join the community was addressed not only people with recognized credentials, such as experts, professional technicians or academics.

- Verifiable and reversible contributions: each individual contribution to the collective good produced could be evaluated on itself and, if its impact over the general outcome was negative, it could be undone without prejudice to what had been achieved before.

- Clear outcomes: from the beginning, contributors knew what the outcome of their efforts would be (in this case, a free and open software), and this remained consistent throughout the process, providing clarity to the crowd.

- Self-organization: each contributor decided which task to handle, without centralized coordination (the system even allowed the "forking" option, in

which different, parallel versions of it were simultaneously developed by different people).

- "Geeky leadership": a technically proficient and engaged leader lends credibility to the process by articulating his vision, motivating others to join the effort[3].

Finally, the characteristics reviewed in this session describe an ideal type community, which (as is the case of every ideal type) is rare in the real world, if not outright nonexistent. When applied to concrete organizations, especially those related to government and the policy process, there are also hybrids and "plural forms", which shall be duly analyzed later.

2.3 Emergence: dealing with uncertainty

2.3.1 What is emergence?

Apart from crowd-based dynamics, another fundamental element of complex adaptive systems is the necessity of *adaptation*. From the basic definition of these systems as those "in which large networks of components with no central control and simple rules of operation give rise to complex collective behavior, sophisticated information processing, and adaptation via learning or evolution" (Mitchell 2009, 13), this section shall give special attention to the "complex collective behavior, sophisticated information processing, and adaptation via learning or evolution" part. With this, it will incorporate *emergence* (and emergent phenomena) into its proposed model, in an attempt to allow it to deal with uncertainty.

A key characteristic of complex systems is that they give rise to emergent phenomena. Emergence can be understood as "higher order structures and functionalities that arise from the interactions of the entities" (Page 2011, 25). In that sense, emergent phenomena are those "that arise from and depend on some

---

[3] There is a slight disagreement on the literature about this leadership element pointed by McAfee and Brynjolfsson (2017). Kolbjørnsrud (2018), for example, defines ideal type communities as purely decentralized and self-organized, but recognize – precisely in relation to the Linux project – that there are cases in which some actors might play a role as leader, architect or organizer of the general effort. The leadership issue will be discussed in more detail in the next chapters of this thesis, in relation to the role of the Ministries of Foreign Affairs in the process of foreign policy making.

more basic phenomena yet are simultaneously autonomous from that base" (Bedau and Humphreys 2008, 1).

A metaphor commonly used to explain emergence is the idea that "the whole is largest than the sum of its parts" (Holland 2014). That is because emergent phenomena are created by the *interaction* of the system's units, and only through this interaction can it be understood. When there are emergent phenomena, simply understanding each unit of the system on its own is not enough to understand (even less predict) a system's behavior, since it will be driven by the interaction of the parts.

Emergence in complex systems also gives rise to interactions that are non-additive (i.e., which results in phenomena not explainable by the mere summation of its original units, but by the interactions among their parts), also considered *non-linear*. For instance, a similar description of a non-linear system presents it as "one in which the whole is different from the sum of the parts" (Mitchell 2009, 23)

Furthermore, interactions in a complex system are marked by the occurrence of *feedbacks*. These can be either positive (reinforce and amplify some trends) or negative (work on the opposite direction, minimizing or extinguishing existing trends). When feedbacks are incorporated in a system, they fundamentally alter its dynamic (Miller and Page 2007), further contributing to its complexity.

As Miller and Page (2007, 45) acknowledge, "part of the innate appeal of emergence is the surprise it engenders on the part of the observer". This surprise is a direct result of emergent phenomena's characteristic independence from the system's units. From this follows that "a state or other feature of a system is emergent if it is impossible to predict the existence of that feature on the basis of a complete theory of basic phenomena in the system" (Bedau and Humphreys 2008, 10). In other words, "emergent phenomena frequently are taken to be irreducible, unpredictable or unexplainable" (Bedau and Humphreys 2008, 9).

Finally, it is possible to point that an unpredictable system is also a system filled with *uncertainty*. We can understand uncertainty both as "diffusely held information" (for which the considerations about collective intelligence on the

previous section might help) or as "the absence of information about some relevant variable or what some call the state of the world" (Page 2008, 117).

Taken together, we can see how the non-additive and non-linear interactions which define a complex adaptive system, with the combined occurrence of feedbacks, result in unpredictable phenomena, which increase the uncertainty of the system. This is another central element which has to be taken in consideration by organizations operating in such systems.

To understand how to deal with the unpredictability and the uncertainty which arise from emergence and characterize complex systems, and following our many-models foundation (Page 2021), we shall refer to two different (although complementary) lines of action which have the objective of harnessing these trends: the "designing for emergence" approach and the "decision-making under deep uncertainty" framework.

2.3.2 Designing for emergence

Design has traditionally been understood as the planning and patterning activity "toward a desired, foreseeable end", one which aims to "impose meaningful order" (Papanek 1984, 3–4). When this control-based program of projecting meets a complex system (which cannot be controlled, in which order cannot be imposed, nor has a predictable evolution), a great challenge emerges. Those who have studied this issue propose the framework of "designing for emergence" as a basic approach to the designing process in complex environments. The basic assumption of this approach is that emergent phenomena must be at the core of the design activity. A starting point is the premise that "the future cannot be designed", hence "one cannot design for absolute outcomes" (Pendleton-Jullian and Brown 2018a, 128). A few consequences emerge from this position.

The first is a bottom-up approach to designing. This means that a projected outcome should not be directly handled at its final, most comprehensive level. On the contrary, one must consider that complex systems' basic task is information processing (Mitchell 2009), and take into account that this occur at the level of the numerous interactions among the system's units. This is a process of self-

organization, one in which the local interactions end up producing systemic patterns – in other words, there is a "connection between micromotives and macro-organization" (Pendleton-Jullian and Brown 2018a, 178). The system, thus, is not directly controlled at the macro level. Instead, since it is a learning, information processing system, it results from "many low-level, pragmatic, and unmediated decisions to address the immediate problems at hand" (Pendleton-Jullian and Brown 2018b, 179).

The second is that, more than the concrete objective in sight, the context is central to the designing process. According to Pendleton-Jullian and Brown's (2018a, 231) basic definition, "designing for emergence is about understanding the propensities of the context and designing with and for those propensities". Context, itself, is a complex element, especially in social systems, since they exist at the intersection between social, material, and technical elements: they involve "people; their social systems; their ideas, beliefs, and culture; the material environment; and technology's interaction with all of these" (Pendleton-Jullian and Brown 2018b, 265). When designing for emergence, one must account simultaneously for all these levels, since they are interconnected.

In sum, in a complex system defined by emergent (unpredictable) phenomena, one in which systemic patterns are a result of these micro-level interactions, one has to work from within the system, not from outside of it. This approach fundamentally recognizes that complex systems are not controllable nor predictable, but this does not hinder the possibility of change. Even with the due centrality of a complex system's unpredictability, it *is* nevertheless possible to "design for change", in an approach that does not aims to "control change", but which works to "shape emergent actions and practices that affect long-term behavior of the system" (Pendleton-Jullian and Brown 2018a, 272).

In essence, designing for emergence might be understood as a general approach to acting within a complex system. According to Pendleton-Jullian and Brown's (2018b) definition, instead of being a framework, it is best understood as a "scaffold": itself a system, but one designed to adapt, taking emergence as its cornerstone. While a framework could be defined as "a complete structure, usually

permanent (…) [which] gives form to that which it supports, or encloses, or solves", a scaffold "is a temporary structure for supporting something until that something is able to stand on its own": it is not the primary object itself, but rather one which form "is usually dictated by the form-to-be of the primary object" (Pendleton-Jullian and Brown 2018b, 273).

When adopting the designing for emergence "scaffold", the role of the designer in the designing process (which, in this thesis, translates into the role of the organization, and its institutional design, within a complex system) also changes. The traditional view of design saw the designer as the sole author of a designing process: someone who fully understood the problem, devised the solutions to it and implemented them; the planning effort was done by controlling the system and ensuring that it achieves its goal, all as a result of the designer's efforts. In a complex system, however, a designer/organization *cannot* control the path of events. The designer/organization cannot design and implement some desired outcome alone. It cannot, therefore, be the sole author of change.

Instead, it becomes useful to see designers (and organizations) as *orchestrators*. In a complex system composed by a multitude of agents (i.e., the crowd) in which emergence fundamentally challenges the system's predictability, all relevant stakeholders must, by consequence, be involved. In this process, more than just leading or facilitating collaborative work, "an orchestrator arranges people and events so that they come together in harmony, and for effect" – in this way, working in order "to let events take their course; to let contributors do what they do best; to let the project evolve, and by listening to the feedback, to recalibrate assumptions and actions" (Pendleton-Jullian and Brown 2018b, 133–35).

To sum up, if we consider emergence as a defining characteristic of complex adaptive systems, our approach to designing – be it organizations, solutions or policies – must reflect this centrality. Designing for emergence, the basic approach (or "scaffold") to this endeavor, recognizes the impossibility of predicting the system's evolution and of controlling it. It argues that the best to way to act in this setting is from within, directly at the microlevel of interactions (which end up setting macro patterns). This is a prototypical, temporary and always

changing/adapting process (hence a scaffold and not a framework), one that constantly adapts to the unpredictable changes brought about by emergent phenomena.

From this general perspective, two approaches allow this necessary capacity of adaptation: one is to amplify the number of existing alternatives through "scenario building"; the other is to adopt "adaptive policies", ones that are themselves capable of adaptation in face of unpredicted events.

2.3.3 Decision making under deep uncertainty

The "decision making under deep uncertainty" (DMDU) approach is a field of research developed precisely to cope with the decision making challenges faced by actors operating within complex systems (Marchau et al. 2019a). In relation to policy-making, uncertainty relates to "the gap between available knowledge and the knowledge decisionmakers would need in order to make the best policy choice" (Marchau et al. 2019b, 2). In complex systems, due to emergence and other characteristics previously mentioned, actors usually face a situation of *deep uncertainty*, which is one where there is neither absolute knowledge about nor agreement on three basic features: i) the working of the system itself; ii) what is the likelihood of the system's future evolution; and iii) how to evaluate its alternative outcomes (Lempert et al. 2003).

DMDU, therefore, has aimed to create ways to deal with uncertainty. It is based upon three main ideas (Kwakkel and Haasnoot 2019):

i) Exploratory modeling: when faced with deep uncertainty, the first thing to do should be a systematic exploration of the possible consequences of the various existing uncertainties, as well as of the numerous different alternative evolution courses of the system (i.e., different "states of the world", or SoW). In DMDU, this is usually done by building *scenarios*, which can be understood as "(plausible) descriptions of what the future might look like" (Kwakkel and Haasnoot 2019, 357). For this approach, a single scenario is merely a "what-if" proposition, and thus not enough. Scenarios, also, cannot be individually understood as predictions. Rather, it calls for a comprehensive set of different possible scenarios, ideally as large as

possible, in order to incorporate the multiple alternative paths of the system. This set taken together is, then, basis of searches that seek to identify systematic regularities which might be useful to the planning process. It also helps with the formulation of alternative and adaptive policies.

ii) Adaptive planning: in DMDU, adaptation to unforeseen events must be incorporated from the beginning of the planning process. Concretely, when planning a policy, its eventually necessary adaptations must be already devised. Adaptation, therefore, is not an *ad hoc, ex post facto* response, but rather an intrinsic part of every step of the planning process. This can be done based on the scenarios generated by the exploratory modeling moment. The results are adaptive plans, able to adapt to a wide variety of possible SoWs. It is impossible, however, to plan the precise timing of these adaptations, since they are only triggered as responses to unpredictable events: it is a "planning conditional on observed developments" approach.

iii) Decision support: this is a direct consequence of the large number of actors which are part of complex systems (or, the crowd) and which must freely exchange in order allow for decisions to emerge. In traditional approaches, decisions are usually made through *a priori* agreements/impositions based on probability analysis of alternative future scenarios. According to DMDU, however, a better-suited approach is an *a posteriori* exploration of existing trade-offs among different perspectives and objectives as well as the policy's robustness. Consequently, decision support moves from an attempt at defining "the right choice" to the necessity of enabling deliberation and joint sense-making among stakeholders.

From DMDU's structure, two specific features are particularly important to this thesis: the creation of scenarios and the design of adaptive policies.

2.3.4 Scenarios, policy alternatives, flexible plans and adaptive policies

If it is impossible predict the evolution of a system, a promising option is to build possible alternative scenarios of this evolution. This "world building process" is a first step to acting in an uncertain, unpredictable environment, such as a complex system.

Linear systems behave consistently: when their units interact, the results are always the same, so they can be predicted. That is why analysts can make an effort to come up with "the" right choice, which fits into the future planning already devised. All further actions, thus, can be based on this unique and unified planning effort, built upon prediction of the system's evolution. On complex systems, due to issues such as emergent phenomena, a wide range of outcomes is possible. There is not one single path of evolution predictable, around which one single planning process can be built. The best alternative, thus, seems to be to maximize the amount of possible future states, to begin considering how to react to them. On a broad understanding, scenario thinking is an experiment in "world building" based on speculation. All begins with a "what-if" experiment, in an attempt to design all possible outcomes of a certain process or situation (Dunne and Raby 2013).

Some approaches consider that the number of possible SoWs in complex adaptive systems is so large – and, therefore, also the quantity of scenarios needed – that "human reasoning with respect to complex uncertain systems is intrinsically insufficient" (Kwakkel and Haasnoot 2019, 357–58). According to this view – which consolidated around the "exploratory modeling" framework (Bankes 1993) – it is necessary to resort to computer simulations to generate scenarios.

Another important issue is that complex systems are composed by a large number of units/actors. If this scenario-building effort aims to be representative of the possible future states, these numerous actors must be involved in the speculative process of scenario creation: it is not only a participatory effort, but also one that "invites large-scale participation" (Pendleton-Jullian and Brown 2018b, 77).

Having multiple scenarios is useful, finally, for the generation of *policy alternatives*. If the system has only one future path, there might be a single policy able to respond to it. But if there are many possible states of the world, one cannot know *a priori* what is the right policy. In this sense, scenario building "does not tie an organization's fate quite so dangerously to the linear assumptions of traditional trend extrapolating strategic planning" (Ford 2011, 3). Therefore, by creating scenarios ("particular points in the uncertainty space") one also ends up being able

to design possible policy alternatives ("particular points "in the policy lever space"") (Kwakkel and Haasnoot 2019, 364).

After considering the multiple possible scenarios and policy alternatives available, policies must be formulated and implemented to that specific case. Even then, however, DMDU points to a special characteristic of decision making within complex systems: in this complex environments where "static plans are likely to fail", plans have to be flexible and policies must be adaptive (Kwakkel and Haasnoot 2019). Flexible plans are those that can be adapted over time. They include adaptive policies, which are actions implemented only when there are signals that they are needed (some uncertainty has been "resolved") (Walker et al. 2001). This is better understood in relation to the traditional paradigm, in which "public policy is embodied in a static set of rules and regulations enacted by a legislative body at one point in time" and so it "remains in place until amended or replaced, often by different people, at some time in the future" (Walker et al. 2001, 284). On the contrary, adaptive policies are "designed to be incremental, adaptive, and conditional" (Walker et al. 2001, 284). They are also composed by "sequential combinations of policy options", some to be immediately implemented and others conditional on actual events happening (or not happening). The whole planning is contingent, including the monitoring of conditions which call for its complete review (or replacement) (Walker et al. 2001) .

According to this dynamic adaptive planning approach, a "basic policy" to be implemented in this uncertain environment must be robust: it should perform "relatively well – compared to the alternatives – across a wide range of plausible futures" (Lempert et al. 2006, 514). The chosen initial policy must also be devised based on the search for equilibrium, considering the interactive and adaptive nature of a system composed by multiple actors.

Another consequence of this approach is the necessity of a monitoring system, because adaptation lies in its core. This monitoring system includes "signposts" ("information that should be tracked in order to determine whether defensive or corrective actions or a policy reassessment is needed") and "triggers"

("critical values of the signpost variables that lead to implementation of defensive or corrective actions or to a policy reassessment") (Walker et al. 2001, 285).

Finally, there are two basic approaches to adaptive policy making. One, just presented above, argues in favor of the existence of one basic policy (immediately implemented) combined with a set of contingent actions. Another, which could be understood as "dynamic adaptivity", precludes the very existence of an initial basic plan, and instead advocates for the design of a set of actions to be implemented as the future unfolds. In this "adaptation pathway", one action is taken until an adaptation tipping point is reached, when replaced by another action, and so on successively (Haasnoot et al. 2013). For reasons which will be discussed later, this thesis includes the basic policy approach into its models, since it is considered more adequate to the foreign policy context.

2.4 Platforms: a template of complex institutional design

This section aims to sum up the previous conclusions into a single organizational form. As before, the recourse to practices from the digital domain seems useful as both a general model and a starting point. Here, the focus is on platforms.

As Nunes (2021) repeatedly points out, discussions about organizations in complex settings should focus more on forces rather than on forms, since the core of an organization is how to manage tensions among the different forces that constitute collective systems, regardless of its concrete form. He also points out that, in a world in which "to exist" means "to exist in networks", any kind of connection already presupposes the existence of an organization, independently of its form. Organization, thus, when applied to politics, refers to a structure of relations, mutually impacting one another, aimed at its mediation. Since forms are only the temporary and fragile equilibrium among these competing relations, the core of the issue is the dynamic, ever-changing *equilibrium* among forces.

This perspective rules out a fixed, unidimensional organizational form to be pointed as an ideal type to action in complex systems. More than a fixed form, what seems important, in such setting, is that an organization exists in order to facilitate

coordination and, in this sense, an example from the digital world is the platform, whose operating logic is that of creating spaces for collaboration that shape (rather than determine) the results obtained within its setting (Nunes 2021).

This is visible on the Internet, which is, itself, "a platform of platforms" (McAfee and Brynjolfsson 2017, 137). Online platforms are digital environments which allow for access, reproduction and distribution. Their building-block feature allows for "combinatorial innovation" through the assemblage, in new ways, of already existing elements. Moreover, they can "bundle and unbundle" goods and resources, which allows for even larger content creation and distribution. Among its key characteristics is being open to external contributions, at the same time that this openness is curated by the platform owner. Platforms allow for iteration and experimentation, which are the key capabilities for innovative environments. In sum, by acting as aggregators of demand and supply, by being able to scale and by generating network-effects, platforms handle huge volumes of information, as they shape its members interactions (McAfee and Brynjolfsson 2017).

Platforms might also be described as:

A programmable architecture designed to organize interactions between users [and thus] a system whose logic and logistics are about more than facilitating [since] they actually shape the way we live and how society is organized (van Dijck et al. 2018, 9).

In a similar vein, platforms have been portrayed as "governing systems that control, interact, and accumulate" (Andersson Schwarz 2017, 374). Platforms, therefore, enable transactions and exchanges and mediate social action (van Dijck 2013; Andersson Schwarz 2017).

Platforms also exist outside of the virtual domain. Fundamentally, they are mechanisms that allow for connection and exchanges between its members, based on information and interactions (Van Alstyne et al. 2016). Examples of previous, offline platforms are the shopping mall (linking consumers and sellers) and newspapers (connecting subscribers and advertisers) (Van Alstyne et al. 2016). Currently, however, most famous platforms are digital ones, which harness network effects allowed by the Internet. They are found at almost every sector.

Transportation services like Uber, Lyft and DiDi Chuxing provide ridesharing options for commuters. Food delivery platforms such as Uber Eats and Meituan offer access to a variety of dining options, delivering meals directly to customers' doorsteps. Airbnb revolutionized the hospitality industry by connecting travelers with lodging options. All these platforms exemplify how online services are reshaping industries and catering to the evolving needs of modern society.

Being shaped as a platform brings multiple impacts to an organization, from which three main "shifts" might be highlighted (Van Alstyne et al. 2016):

i) From resource control to resource orchestration: the main element in a platform is the interaction among its participants. Therefore, more than trying to control some specific element of the process, platforms act as coordinators of these exchanges.

ii) From internal optimization to external interaction: traditional organizations aim to control and optimize their processes. In platforms, what really matter is how it interacts with the external context, since this network of connections is its main asset.

iii) From a focus on user/participant to a focus on the environment: rather than acting based on maximization of individual elements, platforms focus on the process, which is often "circular, iterative, and feedback-driven".

What is more important, in this thesis, is that platforms are more than technical models: they can also be seen an institutional form, "similar to states or markets" (Bratton 2015). To advance this vision, platforms must be seen as "generative mechanisms" and, in this sense, as "engines that set the terms of participation according to fixed protocols (e.g., technical, discursive, formal protocols) but gain size and strength by mediating unplanned and perhaps even unplannable interactions" (Bratton 2015, 374). The argument goes on, pointing that a platform may also be understood "as a standards-based technical-economic system that may simultaneously distribute interfaces into that system through their remote coordination and centralize their integrated control through that same coordination" (Bratton 2015, 374).

It can be argued that, with the proliferation of digital platforms, a "platform society" has appeared: "platforms have penetrated the heart of societies — affecting institutions, economic transactions, and social and cultural practices — hence forcing governments and states to adjust their legal and democratic structures" (van Dijck et al. 2018, 2). In this context, rather than just reflecting the social, these platforms "*produce* the social structures we live in" (van Dijck et al. 2018, 2). In the heart of this macro-setting lies a "platform ecosystem", composed by "an assemblage of networked platforms, governed by a particular set of mechanisms (...) that shapes everyday practices" (van Dijck et al. 2018, 4). A platform society is influenced not only by digital, private platforms *per se*, but rather by a large number of social actors, including "governments, incumbent (small and large) businesses, individual entrepreneurs, nongovernmental organizations, cooperatives, consumers, and citizens" (van Dijck et al. 2018, 4).

Similarly, we have witnessed the rise of a "platform logic", which results from the entanglement of technocentric control and geopolitical domination, producing an arrange of "generative outcomes" (Andersson Schwarz 2017). This platform logic refers to the underlying "grammar" of how digital platforms operate as systems of governance and power (and, in the case of private, for-profit ones, also for value extraction). Platforms might act as governing systems: they not only mediate exchange but also control, interact, and accumulate data, thereby shaping how markets and social relations are structured. At the micro-level, platform logic manifests in design choices, algorithmic rules, and interface architectures that control what is allowed, what is prioritized, and how users interact. At the macro-level, it is expressesd in geopolitical, economic, and institutional power. In short, platform logic refers to the combined technical, economic, and political machinery through which platforms govern, structure interactions, extract value, and reproduce power relations, a multidimensional lens linking micro design to macro structures.

From these observations, we might conclude that organizations better suited to operate in complex systems and, within this context, to harness complexity, are those structured as platforms. Even though, as already mentioned, today's most evident examples come from the economic realm and refer to private, digital

platforms, we also witness different types of organizations adapting to a platform model. In the policy arena, two important examples are parties and the government, which illustrate what it means for (political) organizations to be modeled as platforms.

The previously mentioned "digital parties" might also be understood as "platform parties", in the sense that they are based on the adoption of the "platform logic of social media" (Gerbaudo 2019). A few commonalities among these new political formations allow for their classification as "platform parties", according to Gerbaudo's (2019) narrative:

- They aim to integrate "the data-driven logic of social networks in its very decision-making structure";

- They adopt a "philosophy of 'distributed organizing'", hence they are "more open to civil society and the active intervention of ordinary citizens", especially through social media and digital platforms;

- They have a "diffuse support base" and "constantly seek to expand its database", i.e., the ensemble of its contacts;

- They can grow very quickly;

- They depend on engagement with its members: feedbacks, crowdsourced ideas, opinion polls;

- They constantly adapt their strategy according to this engagement;

- They minimize as much as possible the entry cost, as well as facilitate communication among its members;

- They are grounded on "participationism", which unfolds from their "obsessive emphasis on participation".

These platform parties make use of digital technologies with the aim of achieving "new forms of political participation and democratic decision-making". They usually have digital platforms (the Rousseau system for the *Movimento 5 Stelle* and the *Participa* portal for *Podemos*, for example), in which members can not only discuss issues but also collectively make important decisions ("decision-making softwares").

Hence, more than just using social media as a tool for external communication, platform parties "bring digital transformation to their very core, to their internal structure of decision-making" (Gerbaudo 2019, 13–14). They are also based on a "logic of interactivity and participation, popularized by social media platforms, as a way to deliver a more direct democracy" (Gerbaudo 2019, 14). In sum, when shaped as a platform, a political party "becomes process-oriented, the temporary and never finished product of an ever-changing dynamic, constantly responding and adapting to the transformation of the environment" (Gerbaudo 2019, 78).

Another application of the platform logic to political organizations is the idea of "government as a platform", originally proposed by O'Reilly (2011). The main assumption is that governments are fundamentally mechanisms for collective action. Considering that the Internet created new methods to harness collective action, mainly through platforms, the consequence is to apply this digital logic to the government realm. Government as a platform (or "Government 2.0", as O'Reilly also labels it) is presented in contrast to the traditional version of government, in which social participation is limited: citizens only pay taxes and in return expect for public policies. In this setting, possibility of participation seems restricted to eventual protests in cases of public dissatisfaction, since "collective action has been watered down to collective complaint" (O'Reilly 2011, 15).

Differently, government as a platform is fully participatory: citizens "see and share in the deliberations of government" (O'Reilly 2011, 14), having a say at the policy-making process. To better solve collective problems through a participatory approach, government must make full use of collaborative technologies. This new approach changes the very nature of government, which becomes "a convenor and an enabler rather than the first mover of civic action" (O'Reilly 2011, 15). Moreover, people from inside and outside of government are called to join this open platform, aiming at innovative policies and solutions. These, for their turn, are not fully planed or specified *a priori* but, instead, appear through the constant interactions between government and citizens. Therefore, this approach depends on an adaptive version of policies, which must be constantly revised, since "platforms lose their power when they fail to adapt"(O'Reilly 2011, 16).

This proposal also considers that there are seven lessons drawn from the evolution of digital platforms that are applicable to the idea of government as a platform (O'Reilly 2011):

i) "Open standards spark innovation and growth": open platforms, with very low (almost minimal) entry barriers, tend to perform better than closed ones;

ii) "Build a simple system and let it evolve": the idea is to create a simple starting point (i.e., an initial template), from which others can build, reuse and extend (these new, creative uses which outgrow the original, simple template are labeled "generativity");

iii) "Design for participation": the Internet itself is simply an "architecture of participation" (a system designed for the purpose of user contribution). The design of a participatory system should be simple and only encompass "clear rules for cooperation and interoperability";

iv) "Learn from your hackers": the history of the Internet shows that "most creative ideas for how a new platform can be used don't necessarily come from the creators of the platform" (O'Reilly 2011, 30). Users, even those whose action aims to stretch the limits of the system, end up discovering best applications for the platforms;

v) "Data mining allows you to harness implicit participation": the model here is Google, which harness all its users' data to improve its search engine and to target its adds. Applied to government, this means that "rather than attempting to enforce better practices through detailed regulations, a Government 2.0 approach would use open government data to enable innovative private sector participants to improve their products and services" (O'Reilly 2011, 35);

vi) "Lower the barriers to experimentation": digital platforms do not avoid making mistakes but, instead, "embrace failure" through an experimental, rapid and iterative approach. The cost of experimentation (and failure) should be reduced. This implies that government programs and policies should not be considered fixed and finished products, but initially designed as ongoing experiments to be tried "as open-ended platforms that allow for extensibility and revision" (O'Reilly 2011, 36);

vii) "Lead by example": a platform is not built on an empty space, so its developers should demonstrate "what can be done" in and with it.

A final observation must highlight the fact that platforms are being portrayed here simply as an organizational model, as neutral as it possibly could be. It follows the basic understanding that it is essentially a type of organizational template better suited to acting in complex systems. In doing so, this thesis adopts a parallel to the concept of self-organized networks, which are axiologically neutral but, for this very reason, have been associated with disparate political and ideological positions (from Hayek's libertarianism to the application on revolution studies by Hardt and Negri, including also the Cybersyn project in Chile, the "Californian ideology" and the "1968 left movements") (Nunes 2021).

There is a growing field of critical studies about the impacts that (mainly digital and private) platforms have been generating in the world, including (but not limited to) analysis of platform capitalism (Srnicek 2017), labor relations (van Doorn 2017) and threats to democracy (Taplin 2017). Here, however, platforms are only considered as this general organizational template, which can be differently applied to specific areas and domains, both by private and public actors. This is especially relevant considering the fundamental impact that curatorial and moderation efforts by the platform's "owner" have upon its functioning (Gillespie 2018), a crucial element which shall be duly analyzed in later sections of this thesis.

2.5 Conclusion

Departing from the conclusion of chapter one (that the increasing complexity of the international system might be leading it to a condition of systemic change, also known as a critical junctures), this chapter is grounded on the premise that these moments of profound transformation deeply influence the ensuing period of relative stability. In this context, institutional settings are key. It then resorted to the proposal of a "many-models model" of institutional design adapted to complex systems. The two main axes of this model derive from key characteristics of this kind of system: diversity and emergence.

Following lessons drawn from the Internet, crowd-based organizations (such as communities) operate better when they adopt the following principles: openness (every actor is welcomed to be incorporated in the process); noncredentialism (experts and non-experts alike give important contributions); verifiable and reversible contributions (it is possible to evaluate each contribution, and to revert, without prejudice, in case its impact is not positive); clear outcomes (goals are known by everyone from the start, and do not change); self-organization (each actor is free to choose its desired contribution); and leadership (a proficient leader able to articulate its vision for the process might be a motivating and unifying force).

The second key characteristic of complex systems is the existence of emergent phenomena, which are fundamentally unpredictable. Their existence increases the system's uncertainty. To deal with it, this chapter presented lessons from the "designing from emergence" approach and the DMDU framework. The main idea is that, contrary to linear systems, complex systems are not predictable. It is impossible to plan your actions in it based on a prior prediction of the system's future outcomes. This does not mean, however, that any planning effort is useless. Rather, they have to embrace emergence in order to harness unpredictability.

To do that, a bottom-up approach is necessary, one that takes the context into special consideration. Here, again, large participation is also fundamental, and organizations are considered as orchestrators (rather than leaders or conductors which have full control). Since it is impossible to predict the single future evolution path of the system (and, thus, formulate a single "right policy" to it), the best alternative is to begin the planning process developing a large set of future scenarios (what-if speculations), trying to systematically explore all the possible consequences of the present uncertainties. Based on this exploration, adaptation has to be inserted into the planning effort from the beginning, through flexible plans (can be adapted over time) with adaptive policies (actions only implemented when they are needed, constantly monitored and revised). This whole process must be participatory and include space for deliberation among stakeholders.

Finally, this chapter presented platforms as the template of institutional design which better incorporate these elements related to diversity and emergence.

A platform is an open environment designed to organize, mediate and facilitate interactions, allowing for connections and exchanges. This approach is more concerned with forces than with forms. Platforms are also considered as coordinators (orchestrators), rather than leaders with full control over the process and other actors. Once more, important characteristics of open platforms is that they allow large-scale participation, are decentralized or distributed, and adapt to emergent phenomena.

03. Bringing complexity to foreign policy

After the previous chapters of this thesis defined the international system as a complex adaptive system – one whose complexity is rising, potentially leading it to a critical juncture point (chapter one) – and proposed a general model of institutional design to harness complexity (chapter two), the aim of this chapter is to bring this framework to the foreign policy domain, which will allow for the later development of a foreign policy planning model aligned with complexity.

To do that, it analyzes foreign policy's fundamental object (the concept of "national interest") and actors (states and MFAs), in an attempt to: i) systematize how they were traditionally conceptualized; ii) demonstrate how this classical understanding has been gradually challenged and eroded and; iii) suggest an alternative approach based on the proposed framework. Broadly, this structure departs from an analysis of the traditional approaches grounded on linear premises (i), then aims to demonstrate how they are not suitable to explain complex, dynamic phenomena (ii) and finally concludes with an alternative framework, one which explicitly incorporates complexity (iii).

The objective of this chapter is to demonstrate how both the concept of national interest and the role of Ministries of Foreign Affairs have been undergoing deep transformations, which brought them out of an original context of supposed isolation directly into the fragmented, politically disputed and complex environment of contemporary societies. It proposes, as well, possible framings adapted to complexity which would allow not only to better understand these two key elements, but also to deal with them in the years to come (which will be further discussed on chapter four)

3.1 Object: the national interest
3.1.1 How it supposedly was: a fixed object

The "standard narrative" portrays the contemporary international system as a result of the evolution of the European states system (Watson 1992). According to this approach, some of the characteristic traits of contemporary foreign policy are heirs to practices and framings which date back to that point in time. Fundamentally,

foreign policy was traditionally understood as the defense and the pursuit of the national interest, which was itself usually viewed as heir to older concepts, such as "the will of the prince" and *raison d'état*, in an "evolution of the international system". These ideas were closely connected to the prevailing understanding about the polity, its nature and goals. In this sense, the will of the prince was a suitable approach to an era of absolutism and the doctrine of the "divine right of kings". With the creation of the nation state, the main rationale for foreign action became aligned with this political form. It also reflected general changes in science and its application to political issues. Concretely, we can understand the emergence of *raison d'état* as "reason expertly applied to all matters of state" (Church 1973, 496).

The consolidation of states as leading international actors (Sassen 2008) has reinforced this approach. Again, an import of ideas from hard and natural sciences into the political arena took place. In this sense, the rationalist, positivist approach kept advancing and shaping social understandings. According to Watson (1992, 200), "the eighteenth century was the age of reason and of mathematics [and] reason in public affairs meant the *calculation of self-interest*" (emphasis ours). This calculation, in the aforementioned context of "the age of reason and of mathematics" of the 18th century, was thought of as a mathematical optimization effort, according to the general Newtonian paradigm.

When calculating its self-interest, states also took into consideration the distribution of power in the system, and this is another realm in which linear, mechanicist notions provided the general approach to the understanding of the international system:

> A balance of power between states in a system corresponded to the parallel ideas of a multilateral balance of trade and to the multiple checks and balances which constitutionalists thought should operate within a state, and indeed to *the laws of physics*. European statesmen recognized that affairs of state, both domestic and external, involved power. *Power was in principle measurable*, and the states system could be *portrayed mathematically as a diagram of forces, analogous to the solar system revealed by Newton's discoveries*. States great and small exercised attraction and pressure on each other, in proportion to their mass and the distance they kept from one another (Watson 1992, 200, emphasis ours).

On the twentieth century, these older approaches converged to the concept of "national interest", adapted to the contemporary international system (Beard

1934). Even though designed to fit these new circumstances, once again the parallel with the premises of the hard and natural sciences remained, and national interest was presented "as if it were a fixed principle, *somewhat like the law of gravitation*" (Beard 1934, 4). In sum, the idea of national interest, understood as having "a clear and positive relation to the tangibles which are the major concern of the modern world", has traditionally been presented as "the prime consideration of diplomacy" (Beard 1934, 22, 21).

This traditional approach was previously labeled "objectivist", for it is based on the fundamental assumption that the national interest is "a matter of objective reality" which could, thus, be "objectively determined" (Rosenau 1980). On the 20th century, along with the establishment of International Relations as an autonomous field of study, the concept has also been employed as the crucial benchmark to evaluate foreign policy choices, mainly those decisions which led to World War II.

A central reference of this traditional, objectivist approach was the work of Hans Morgenthau, who led the groundwork of political Realism, which would for a long-time influence (and even shape) the study of international politics. A core tenet of his approach was the "concept of interest defined as power" (Morgenthau 1985[1948]). He understood power as a concrete element, which is demonstrated by his list of the "elements of national power": geography, natural resources, industrial capacity, military preparedness, population, national character, national morale and the quality of diplomacy and of government (Morgenthau 1985[1948]). An ensuing consequence was the immutability of the national interest, because, given its relation to these structural elements, it could be seen as a "perennial standard by which political action must be judged and directed".

Morgenthau, as the most representative scholar of this objectivist tradition, even dedicated a work especially to the exam of the national interest. He presented his approach in opposition to a "moralist perspective" and tried to advocate its superiority. His conclusion can be read as a call to action directed at policymakers: "it is not only a political necessity but also a moral duty for a nation to follow in its dealings with other nations but one guiding star, one standard for thought, one rule for action: the national interest" (Morgenthau 1951, 242).

It is not a coincidence that Morgenthau's objectivist approach to the national interest also drew inspiration from the positivist, linear scientific paradigm. As already mentioned in chapter one, Morgenthau claimed to be "trying to shuffle all the quirks of the global system into some sensible order, to explain wars with the precision that Darwin, say, had brought to Biology or Newton to Physics", aiming at devising "an entire Physics of global affairs based on the idea that power worked in such direct and almost predictable ways," in "a system of power that reflected the Physics of Newton: capable of equilibrium, predictability, linearity" (Ramo 2009, 27–28).

According to this approach, the national interest could be understood as having a twofold nature, acting both as an analytic tool ("employed to describe, explain, or evaluate the sources or the adequacy of a nation's foreign policy") and, more traditionally, as an instrument of political action ("a means of justifying, denouncing or proposing policies") (Rosenau 1980, 283). These two share the common element of understanding the national interest as "what is best for a national society" and "for a nation in foreign affairs".

From these two perspectives, its usage as a political tool, even though with problematic issues of structure and content, besides benefitting from this longer history (including considered as an heir to much older approaches to international affairs), also seems to retain "a prominent place in the dialogue on public affairs", for the foreseeable future. However, the concept received a series of criticisms over the past few decades which demonstrate some of the main fragilities of this traditional conception, which was based on supposedly concrete, self-evident and permanent elements. Taking them into consideration is important in order to approach this politically relevant concept in a more appropriate fashion, in the light of complexity's lessons.

3.1.2 How it has been: a politically and socially disputed idea

An important critique to the objectivist portrait of the national interest comes from the behavioral approach to foreign policy analysis and was explained by Rosenau (1980). His main argument is that, even though the national interest was traditionally depicted as self-evident and objective, as a formulation which aims to

capture and define "what is best", it is in essence "rooted in values". According to him, traditional objectivists have tried to overlook this and, instead, paint a correspondence between their descriptions and the objective situation as self-evident, one which lacked justification and systematic elaboration of their methodology and philosophical foundations.

Rosenau (1980) also claimed that objectivists insert their own values in their analyses, without explicitly recognizing it. In this process, they come to the assumption that some values (such as the polity's survival, for example) are always and invariably desirable, preferable to others. He contended, however, that "what is best for a nation in foreign affairs is never self-evident" and, moreover, that "it is not even potentially knowable as a singular objective truth", since it is rooted in values and people have different sets of values (Rosenau 1980, 287).

A third conceptual point of critique presented by Rosenau is that Morgenthau, when describing interest as consequence of power, has not taken into due consideration that they are "elusive and ambiguous" concepts: both are composed mostly by intangible elements, difficult to measure, especially when someone tries to aggregate them with tangible ones to obtain a measure of the power of the nation and its correlating national interest (Rosenau 1980, 288). His conclusion, therefore, was that "a description of the national interest can never be more than a set of conclusions derived from the analytic and evaluative framework of the describer" (Rosenau 1980).

Rosenau also analyzed an alternative approach to the national interest, which he labeled "subjectivist": it denies the "existence of an objective reality which is discoverable through systematic inquiry" and considers the national interest to be "a pluralistic set of subjective preferences that change whenever the requirements and aspirations of the nation's members change" (Rosenau 1980, 286). He contends, however, that the subjectivists share with objectivists the acceptance of "the appropriateness of analyzing foreign policy and international politics in terms of the national interest" (Rosenau 1980, 286–87).

In sum, what was more problematic, according to Rosenau, was how to truly operationalize the concept of national interest, not (as it had been the case) as an *ad*

hoc political and self-fulfilling instrumentalization. This difficulty would be present both in objectivist and subjectivist approaches. The main problems are (Rosenau 1980, 287):

– the "ambiguous nature of the nation and the difficulty of specifying whose interests it encompasses";

– the "elusiveness of criteria for determining the existence of interests and for tracing their presence in substantive policies";

– the "absence of procedures for cumulating interests [into a coherent whole] once they have been identified";

– how to identify and to classify which groups constitute a national society and what are their interests;

– how to determine the relative weight of the conflicting existing interests.

Another major critique came from the constructivist approach to International Relations, from which a good example is Finnemore (1996). Rather than viewing national interests as inherent or immutable, she posited that they are socially constructed entities, molded and influenced by the complex interactions among states within the broader framework of international society. Central to this argument is the idea that states do not simply pursue their interests in isolation but are deeply embedded in a network of international norms, institutions, and practices. These elements of international society play a crucial role in shaping states' perceptions of their interests and guiding their behavior on the global stage. She especially highlights the role of international norms in influencing states' understanding of their interests.

Additionally, Finnemore emphasizes the role of historical context and social interactions in shaping states' perceptions of their interests. Through diplomatic exchanges, negotiations, and conflicts, states continually reassess and redefine their interests in response to changing circumstances and emerging challenges. This dynamic process underscores the fluidity and contingency of national interests within the broader tapestry of international society.

In sum, Finnemore (1996) reevaluated the concept of national interest from a constructivist approach, and her main contributions were:

– national interests are not concrete, permanent or self-evident, but socially constructed within the framework of the international society;

– states perceptions of their interests are shaped by their participation in international norms, institutions, and practices;

– historical context and social interactions continually shape and redefine states' perceptions of their interests.

While the constructivist approach advocated by Finnemore (1996) emphasizes external interactions and their impact upon the definition of national interest, a third major critique to the traditional approach came from foreign policy analysis and highlighted domestic elements. In sum, this approach was structured around the core understanding that "foreign policy has domestic sources" and "every state has multiple interests" (Hill 2013, 1,4). This would be even more challenging in multicultural societies.

In this sense, Hill (2013) presented three main critiques to the traditional concept of the national interest:

i) it would be a top-down set of prescriptions created by the political élites;

ii) according to a constructivist perspective, it could only be seen as "sets of ideas, preferences and prejudices";

iii) it could be seen as a "political football", an object suffering pressures from different political groups, that resort to appropriations of it as a way to achieve internal self-legitimation.

Hill's (2013, 8) conclusion is that "the idea of the national interest is both inherently unsatisfactory and rendered even more difficult in contemporary [multicultural] conditions".

3.1.3 How it could be: a collective assemblage mediated in a platform-setting

As highlighted by the above sections, even though approached (and criticized) in different ways, the idea of "national interest" seems to remain central to foreign policy. Therefore, an attempt to develop a general model of foreign policy planning in a complex system must inevitably deal with it. Considering, as even Rosenau (1980) acknowledged amid his critiques, that the idea of the national interest remains a central tenet of action in international affairs, the main goal, thus,

should be to incorporate the critiques to the concept as an analytic tool (which reveal its mains shortcomings and challenges) also into its usage as a political tool, trying to make it better fit into a complex system.

In the first place, the purely objectivist position does not seem to fit the characteristics and requirements of a complex system. As argued in chapter one, in essence, a complex system is dynamic. In such a setting, it is unconceivable that something might be fixed, self-evident and objective. As discussed before, the traditional approaches to the national interest and its predecessors (as *raison d'état*, for example) were inspired by the positivist paradigm of science, one which aims to explain mechanical, linear systems. The translation of this scientific paradigm into the policy arena brought with it its main assumptions (linear and mechanical, as well), but these do not apply equally well to complex, non-linear systems (as is the international system). The notion of a supposedly unitary, concrete, objective, self-evident and fixed national interest is, thus, not viable in a complex system.

Taking that into consideration, we might then resort to the opposing perspective of the "subjectivists", accepting the national interest as "a pluralistic set of subjective preferences that change whenever the requirements and aspirations of the nation's members change" (Rosenau 1980, 286). This seems to be a more adequate approach than the rigid, supposedly objective one that was traditionally used. However, as already mentioned, it brings new challenges which must be dealt with.

Here, a lesson reviewed on the previous chapter is especially useful. When Linus Torvald was developing his open-source software, he issued a call as broad as possible. He did not *a priori* select actors or limit who could join his effort (as had been tried previously, in unsuccessful attempts). He did not even ask for credentials of any type. This was later considered one of the main strengths of his approach and one of the reasons why Linux has been a successful project. The same open, noncredentialist dynamic, as also already discussed, was present in Wikipedia, with results equally positive.

Trying to translate this into international affairs, the main lesson might be that no a priori restrictions about stakeholders could be set in a planning process.

There is not one single actor capable of fully identifying and selecting with accuracy all representative actors in a complex system, which is fundamentally one composed by a large number of actors.

The same rationale also applies to the challenge of how to determine the relative weight of the conflicting existing interests. These cannot be previously determined. As Nunes (2021) highlights, questions about organization have to do more with forces than with specific forms. Concretely, it is not to be *a priori* determined who will be able to take part in this collective, deliberative effort of identifying and interpreting the national interest, neither the relative weight each actor or group shall take in this process.

Additionally, since we are working with this pluralistic definition of the national interest, one must also reject easy, automatic translation proposals regarding how to identify the national interest. Faced with the challenge of how to identify and interpret the national interest in a pluralistic environment, some authors have adopted simple solutions based on already established decision-making bureaucracies. That is how Furniss and Snyder (1955, 17) were able to conclude that "the national interest is what the nation, i.e., the decision-maker, decides it is".

In sum, if the national interest is plural (thus, itself also a complex system), no one has a monopoly over it. Neither there are self-evident, automatic "translations" of it. Being plural and complex, it should be systematically and coherently addressed as such. As already mentioned earlier in this thesis, the framework of the platform has been developed precisely as a flexible mediation space for wide-ranging participation. Therefore, trying to think how the idea of the national interest could be approached in a complex system, these general guidelines seem to be a useful start.

It is interesting to note that one of the most traditional statesmen who influenced international relations, especially the idea of *raison d'état* which would be considered as a predecessor to the contemporary notion of the national interest, offered some conclusions that might be of use to our proposal of adapting it to complex systems. Cardinal Richelieu has written that, in international affairs, "it is

absolutely necessary to the well-being of the state to *negotiate ceaselessly*, either openly or secretly, and in all places, even in those from which no present fruits are reaped and still more in those for which no future prospects as yet seem likely" (Watson 1991, 218, emphasis ours). Richelieu was evidently thinking about the external side of foreign policy. However, considering that foreign policy has deep domestic sources and, especially, pluralistic ones, this could also apply to the process of internally identifying and interpreting the national interest, which must include as many actors as possible and be based on ongoing dialogue and negotiation. We have, thus, arrived at the point of considering the national interest as something to be consciously, continuously and collectively worked on by a multitude of stakeholders, possibly in a platform-like framework, with no *a priori* restrictions.

A final observation must be made about the stability of this process. The examples of complex systems and of organizations dealing with them previously mentioned in this work are characteristically dynamic and fast evolving. Even though we understand the international system to be an example of such a pattern, a few considerations might be made also about the importance of relative stability regarding the national interest. In this case, one the main references is the idea, from the "decision making under deep uncertainty" approach, that, in adaptive planning, there might be a basic plan/policy (to be implemented) combined with a set of contingent, adaptive actions. The defense of the national interest can be seen as this basic policy, which is more coherent and more permanent (even though not fixed nor perennial) than the ensuing adaptive actions.

The other main reference relates to Linux Torvald's leadership role in the process of developing Linux. As previously argued, in this role, he established clear outcomes, making clear, from the beginning, what would result from the contributors' efforts (in his case, a free and open software), and this kept unchanged throughout the process, providing clarity to the crowd. Similarly, he himself provided the leadership to this process, ensuring it had a coherent vision around which people could coalesce.

Therefore, considering the centrality of the national interest to foreign policy, the main outcome is that it is important for it be clearly articulated and relatively stable. Furthermore, these considerations about how to handle the notion of the national interest in a complex system are just a first approach to this issue. The following sections will deal in more detail about the actors involved and the whole foreign policy planning process, and the practical ramifications of this issue shall be therefore discussed in more detail. What is fundamentally important, to begin, is this conception of the national interest as a plural object, one which should be dealt with by a large number of stakeholders, with no a priori restrictions, in a platform-like setting.

3.2 Actors: the Ministry of Foreign Affairs
3.2.1 How it supposedly was: a gatekeeper with monopoly over foreign policy

Even though criticized and portrayed as a declining entity over the last few decades, the Ministry of Foreign Affairs (MFA) remains a central bureaucracy in the national government machinery dedicated to dealing with foreign affairs (Lequesne 2020). This is, for example, recognized by the Vienna Convention on Diplomatic Relations, which provides the legal framework for contemporary, official, inter-state relations. In its Article 41, for instance, the Convention states the primacy of the MFA as a channel for international communications: "All official business with the receiving State entrusted to the mission by the sending State shall be conducted with or through the Ministry for Foreign Affairs of the receiving State or such other ministry as may be agreed"[4].

It is not by coincidence that the creation of a Ministry solely devoted to the handling of diplomacy and international affairs was contemporary to the previously mentioned development of the *raison d'état* concept and approach. About this, Watson (1991, 97) writes that the institution of "something like regular ministries of foreign affairs" in the eighteenth century was probably more consequential to diplomacy than the invention of resident envoys. It happened in a moment in which "the [international] dialogue, the reporting and the negotiation, reached a volume

---

[4] The full text of the Convention can be accessed on:
https://legal.un.org/ilc/texts/instruments/english/conventions/9_1_1961.pdf

which made it necessary to appoint a special minister in the government to conduct day-to-day business and to supervise the implementation of the main lines of the policy laid down from above". With the ministry, as a bureaucratic unit, came the professional diplomatic corps (also at the capital headquarters): "ministers of foreign affairs wanted to have as their assistants not only clerks but men with some experience of diplomacy, including some who had served as secretaries at posts abroad, knew the countries concerned and had seen the game from the other side". In consequence, continues Watson (1991, 97), "as such ministries became organized, the statesmen who had to make the final decisions naturally turned to them for information about the consequences of different options, and so gave them a role in shaping decisions".

According to this traditional narrative, with this historical origin, MFAs became "the state institutions *par excellence*", one that "incarnate continuity" (Lequesne 2020). In this sense, at that same point in time, if Richelieu's legacy shaped the notions of *raison d'état* and national interest, his approach was also influential regarding the newly created MFA. Following Richelieu, to whom "anything diplomatic worthy of being called a grand design must be conceived in secrecy", also the newly created Ministries of Foreign Affairs were designed in such a way as to isolate themselves and their decision-making processes from outside actors, processes and interests. It was in the this context that the traditional view about MFA's role and structure consolidated, one according to which "decisions in foreign affairs have such serious consequences that (…) [they] should be in the hands of only one man" (de Bourbon-Busset 1959, 80–81), namely the minister of foreign affairs. Moreover, this isolation and secrecy, as holds this traditional view, should be maintained even within the realm of the diplomatic corps: "a foreign minister may, therefore, keep his collaborators in the dark concerning his inner thoughts out of prudence as well as of distrust" (de Bourbon-Busset 1959, 83).

Another feature of the centrality of isolation to the traditional view of MFAs becomes evident in relation to the broader public opinion. In a fierce defense that matters of foreign affairs should be exclusively dealt with by professional diplomats, Nicolson (1950, 90) argued that, even in the post-World War I context, "the most potent source of danger in democratic diplomacy is the irresponsibility of the

sovereign people", which leads him to conclude that "although the people are now the sovereign authority which ultimately controls foreign policy, yet they are almost wholly unaware of the responsibilities which this entails".

As a result of these approaches, traditionally MFAs have been portrayed as pivotal gatekeepers in the realm of international relations, serving as the primary – and sometimes sole – interface between a state and the global community. This gatekeeping role entailed autonomously managing and regulating the flow of information, diplomatic initiatives, and international negotiations. According to proponents of this framework, this centralization of diplomatic efforts would allow for a coherent and strategic international engagement, reinforcing a country's position on the global stage (Nicolson 1950).

Furthermore, as insulated bureaucracies, MFAs would operate with a degree of separation from other governmental departments and the general political sphere. This insulation is understood as crucial for maintaining the professionalism and objectivity required for effective diplomacy. Some authors conclude that "foreign ministries with high policymaking capacity are capable of insulating themselves from the policy preferences of other government agencies" (Amorim Neto and Malamud 2020, 124), echoing the fundamental belief that "agencies that are insulated from other bureaucracies have a better chance of surviving" (Drezner 2000, 733). The traditional narrative advanced that this relative autonomy of MFAs would also enable them to focus on long-term strategic goals and to maintain continuity in foreign policy, even amidst domestic political changes.

Finally, the insulated nature of the traditional MFA was seen as a buffer against immediate pressures of public opinion and partisan politics, allowing them to pursue nuanced and sometimes sensitive diplomatic initiatives that might be unpopular domestically but are deemed necessary for the pursuit of national interests – which are by them interpreted.

In sum, this traditional view of the ministry of foreign affairs as a gatekeeper, composed by a fixed corps of public servants and with its decision-making process insulated from external pressures, might be understood as a translation into bureaucratic design of the same core principles which grounded the traditional,

"objectivist" conception of the national interest. If one considers the national interest as something fixed and perennial, the professional, and especially insulated MFA is probably the best actor to perceive, interpret and defend it – a job that can be better conducted if there is no interference from outside.

3.2.2 How it has been: diffusion, decentralization

The traditional view of the MFA portrayed it as a centralized and insulated bureaucracy, with complete control over its country's foreign policy (Hocking 1999; Lequesne 2020). This might have never been truly accurate, but there seems to be a virtual agreement on the recent literature that even those MFAs more closely aligned to this gatekeeper-style have come under attack over the last few decades (Lequesne 2020). We therefore arrived in a situation in which not only "MFAs could not pretend anymore to hold the monopoly of state diplomacy", but also their role is better "understood in relation to a number of other actors – both state and non-state – which are clearly in competition to formulate and implement diplomacy" (Lequesne 2020, 3).

This not so precise use of the term "diplomacy" in the above quotation might be helpful to understand some of the origins of this process of foreign policy agency diffusion under analysis. In this regard, it is useful first to distinguish between diplomacy and foreign policy before reflecting upon the relevant actors on the conduction of each one of them. Foreign policy might be understood as "the sum of official external relations conducted by an independent actor (usually but not exclusively a state) in international relations", therefore consisting in "a huge variety of activity (...) conducted by a wide range of state and para-state actors" (Hill 2016, 4). Following this definition, we conclude that "foreign offices do not monopolize external relations" (Hill 2016, 5). Diplomacy, however, was portrayed by the same author as "the human face of protecting interests in international politics, as well as a crucial instrument for building international stability" (Hill 2016, 158). According to this approach, diplomacy today comprises four main tasks, all related to the MFA, in close interaction with a country's overseas diplomatic representations: communication, negotiation, participation in multilateral institutions and the

promotion of economic goods (Hill 2016, 158). In sum, it is "an instrument of policy" (Hill 2016, 159).

Other authors converge on the same direction. Berridge (2015, 1–3), for instance, depicts diplomacy as "an essentially political activity", whose "chief purpose is to enable states to secure the objectives of their foreign policies without resort to force, propaganda, or law (...) [but rather] by communication between professional diplomatic agents and other officials designed to secure agreements". He also claims that "diplomacy is the most important institution of our society of states". To conclude, he contends that "diplomacy is an important *means* by which states pursue their foreign policies" (emphasis ours) – and, even though he concedes that "it is not merely what professional diplomatic agents do", he points to the fact that "in many states these are still shaped in significant degree in a ministry of foreign affairs".

This difference between diplomacy and foreign policy – and its ensuing impact on the changing role of the MFA – might be easily understood by today's observers, but it has not always been totally true. It is, after all, a result of changes that took place throughout the last century. As recounted by Berridge (2011, 1):

> It is an axiom of the history of diplomacy that the first half of the twentieth century witnessed a revolution in diplomatic practice unprecedented since the resident mission was invented half a millennium earlier. Stimulated by the pressures of alliance politics in World War I and a rising enthusiasm for popular control of foreign policy, and facilitated by dramatic advances in transport and telecommunications, the 'old diplomacy' – a secretive world of negotiations between embassies and foreign ministries – was seriously challenged by a thoroughly 'new diplomacy'. Associated with the name of US president Woodrow Wilson, the centerpiece of this was multilateralism, but it also witnessed much greater emphasis on openness and – before too long – on summitry and *direct communication between domestic ministries which bypassed foreign ministries altogether*. (emphasis ours)

As seen, the separation between foreign policy and diplomacy was not always self-evident or fully true. In previous times, with fewer actors involved in international politics, MFAs could centralize most (if not all) of the conduction of a state's external relations, or at least their official, protocolar version of it. There would indeed be, in this case, a considerable overlap between diplomacy and foreign policy. The increase in the number of actors relevant to international politics, in

response to structural changes throughout the world, turned foreign policy into a much more encompassing phenomenon, challenging the role of the MFA.

The specific case-study of Brazil might be illuminating about this comprehensive trend, which the literature concludes to have had simultaneously taken place in countries around the world (Hocking 1999; Berridge 2015; Hill 2016; Lequesne 2020). Brazil's MFA, popularly known as Itamaraty, has gone through a process of institutionalization and gradual bureaucratic strengthening – a process of "a slow and gradual rationalization and bureaucratization"(Cheibub 2024). Within Brazil's government structure, Itamaraty achieved a prominent place, with a high degree of autonomy in formulating, conducting and controlling foreign policy (Cheibub 2024). Itamaraty became "not just a Ministry among others, [for] it is an institutional line of continuity from the very conception of the Brazilian state (...), and expresses this as a watchdog of national foreign policy" (Puntigliano 2008, 30).

Nevertheless, not even Itamaraty, after having achieved this centrality within the Brazilian government, managed to avoid the structural changes of the 20th century, and their ensuing challenges to MFAs place and role within the foreign policy. In part because of its own previous success, there unfolded a process of Itamaraty's expansion, i.e., a wide movement of diplomats to other governmental agencies (Milani and Pinheiro 2013). This process helped reinforce the trend towards diffusion of agency, or "pluralization", which, alongside the process of "presidentialization" (the increasing personal role of the President in shaping Brazil's foreign policy, previously under full control of Itamaraty) led to a situation which some author have considered to be a "rollback" of Brazil's MFA (Cason and Power 2009). This was the reflection, in Brazil, of the more comprehensive, global trend of the post-Cold War period, which witnessed "an erosion of state centeredness due to the strengthening of new kind of inter- and transnational 'spheres of authority'" (Puntigliano 2008, 28).

Before this process, Brazil's MFA might have been portrayed according to the traditional lenses previously mentioned, especially as a gatekeeper of the national interest (Escorel de Moraes 1986). After the changes throughout the second half of the 20th century and the beginning of the 21st, analysts point to a very different

situation: on in which Brazilian foreign policy must be understood not as a special, insulated policy, bur, rather, as a public policy (Milani and Pinheiro 2016). In this new setting, foreign policy is "brought down" from its previous supposedly insulated place as a "state policy" in the domain of "high politics" directly into the field of politics, locating its formulation and implementation "into the dynamics of governmental choices which, in turn, stem from negotiations within coalitions, bargaining, disputes, and agreements between representatives of diverse interests", including non-state actors (Milani and Pinheiro 2016, 1).

3.2.3 How it could be: MFA as an orchestrator and platform curator

This brief overview demonstrates that the discussion about role played by the MFA in regard to other actors relevant to international politics revolves around the question of centralization *vs* decentralization. The classical view of the MFA portrayed it (somehow normatively) as a necessary gatekeeper, capable of interpreting the national interest and of formulating and implementing policies to defend it. A review of recent trends, however, shows a different scenario, one in which the rise of competing actors (internally and externally) has been challenging the centrality the MFA. To this thesis, which is grounded on the premise that the international system is a complex system and which aims to reflect upon how to better devise an institutional design more in line with this conception, the central issue is: in a complex system (as is the international system), would the conduct of foreign policy be better done by a centralized or a decentralized actor/organization?

To begin, it seems evident that, in a complex system, a fully centralized structure is highly inefficient. As previously discussed, these systems are essentially decentralized. Furthermore, they are composed by large numbers of actors and their system's dynamic is influenced not merely by the units, but rather by their interaction. Due to emergence and feedback effects, these systems are characteristically unpredictable and uncontrollable. The centralized structure which might be efficient in linear, mechanical systems is obsolete and inadequate in complex ones.

Accepting this conclusion, which follows from the theoretical assumptions discussed in the first two chapters, it still is necessary to analyze which not fully

centralized organizational model is better suited to operating in a complex international system. One alternative would be a fully decentralized foreign policy structure which prescinds of the existence of an MFA, an approach that has been called – in a rather provocatively fashion – "foreign policy *sans* MFA" (Dittmer 2019). To make his case, Dittmer resorts to the "assemblage" (the Deleuzian interpretation of complex systems, further elaborated by DeLanda (2006)) as the main structure of foreign policy. By doing so, he is connecting his argument to a burgeoning line of IR scholarship which understand assemblages as the union of heterogeneous elements and which "treats entities not as homogeneous bounded wholes, but as relational entanglements that are always changing and in production" (Carter and Harris 2020, 15). This approach also understands that "each concrete social assemblage is the result of a set of historical processes that have worked to construct a synthesis of organic, non-organic and social elements into a whole (...), a synthetic account of both the material and socially constructed elements of entities" (Bousquet and Curtis 2011, 53).

In his argument, Dittmer (2019, 155) aims to fully overcome the "foundational myth" of the MFA "as a black box in which the state determines its interests in the external realm and selects strategies through which to enact them". He does so by contraposing the "more than rational nature of diplomacy as actually practiced by human beings" to the "assumption of rational states as autonomous actors" (Dittmer 2019, 155). He argues that MFAs are not isolated or insulated but rather *enmeshed* into the larger state apparatus and the wider diplomatic system. He defines the MFA therefore as "an emergent agency that is performed into existence by ongoing relations among people, objects and energies" (Dittmer 2019, 158).

He takes his argument to the extreme and discusses a fully decentralized foreign policymaking model, by proposing a "mini case study" of the actions by Gibraltar (which, as a British Overseas Territory, does not control its foreign policy and therefore does not possess an MFA) on the "Grace 1" controversy. His conclusion is that, even in absence of such a ministry, this episode witnessed the enactment of "a kind of distributed agency" which might be interpreted as "a virtual MFA", enmeshed in different bureaucracies and which "points us to a different way

of thinking about diplomacy" (Dittmer 2019, 161). Even Dittmer, however, recognizes that his study case of a polity without an MFA is "pretty unusual" and that nowadays "MFAs are, of course, part of the world of forces" (Dittmer 2019, 161–62), which leads us to explore different alternatives outside of the fully decentralized end of the spectrum.

Furthermore, another issue to be weighed against a fully decentralized model are the particularities of foreign policy and diplomacy, something that is recognized even by authors who fully embrace the idea of foreign policy as a public policy. This burgeoning field of research has been arguing that, just as other forms of public policy, foreign policy is a product of political institutions, public opinion, interest groups, and bureaucratic processes – and therefore should be considered a public policy in itself. Common assumptions of this perspective are the ideas that foreign policy cannot be isolated from internal political pressures, that decision-making processes in foreign policy often mirror those of other policy areas (involving negotiation, compromise, and competition among multiple agencies and stakeholders within the state), and that governments are held accountable to domestic constituencies for foreign policy outcomes—just as they are for domestic ones. This conceptual approach aims, therefore, to insert the analysis of foreign policy within this common and shared public policy framework.

Nevertheless, there might be some foreign policy specificities worthy of consideration. Even when arguing against those authors who highlight the "peculiarities" of foreign policy *vis-à-vis* traditional public policies, Soares de Lima (2013, 152–53), for example, recognizes that "foreign policy, like defense policy, has certain characteristics, particularly the commitments undertaken by each State toward other States and international organizations, that *set it apart from other public policies* and tend to generate greater inertia"[5] [emphasis ours]. According to her, this dual condition is the foundation of the distinction "between 'foreign policy' and 'international policy'". These particularities, for their part, make elements of centralization (in some degree) a necessity for foreign policy decision making's organizational design. Therefore, having ruled out both a fully centralized model

---

[5] Citation freely translated from the original Portuguese.

(inept to act within a complex system, as previously argued) and a fully decentralized model, one should consider templates that somehow combine centralized and decentralized features.

There is no intrinsic contradiction between a decentralized form of organization and some level of control, authority or governance. Traditional hierarchical forms of organization, for example, have been gradually incorporating democratic and participatory elements which were traditionally absent (Billinger and Workiewicz 2019; Kettl 2022). As already briefly mentioned on chapter two, this process gave rise to a growing number of hybrid forms of organizations, that combine governance and coordination mechanisms from two or more of the ideal types (markets, hierarchies, and communities). These forms often blend features to address the trade-offs and challenges associated with purely market-driven, hierarchical, or community-based structures (Kolbjørnsrud 2018).

Therefore, as discussed by Kolbjørnsrud (2018), the inclusion of participatory and democratic mechanisms in hierarchical organizations gives rise to "hierarchy-community hybrids", such as "adhocracy" (flexible, team-based structures with shared goals) and "holacracy" (self-organizing teams within a hierarchical framework). "Market-hierarchy hybrids", for its turn, include joint ventures (shared ownership and profit distribution), franchising arrangements (centralized brand control with decentralized operational autonomy) and strategic alliances (collaboration between firms while maintaining autonomy), with the aim of sourcing diverse solutions and enhancing creativity through competition and collaboration. Finally, "market-community hybrids" merge market-based competition with community-oriented collaboration, and the main examples are "crowd contests" (competitions incentivized by monetary prizes, status, and learning benefits) and industry clusters (regions where firms collaborate and compete simultaneously, fostering shared knowledge and innovation).

A special note must be made regarding the centrality of new information technologies, especially artificial intelligence (AI) and "blockchain"/distributed ledger technology (DLT), as central enablers of these hybrid organizational models, since they are reshaping organizational design by enhancing transparency, trust,

and self-organization (Kolbjørnsrud 2018). AI, for example, empowers decision-making and collaboration through data-driven insights, automates routine tasks, and enables distributed work, fostering autonomy and efficiency. Blockchain, on the other hand, ensures transparency through immutable, decentralized ledgers, establishing trust without intermediaries, "and may lessen the need for hierarchical control in collective action and exchange" (Kolbjørnsrud 2018, 17). It also facilitates smart contracts for automated agreements, securely manages resources and incentives, and safeguards data integrity. Together, these technologies have the potential to support scalable self-organization, decentralized governance, and innovative models, driving adaptability and collaboration in modern organizations, in favor of decentralized, actor-oriented work and governance.[6]

Finally, studies show that even communities devoted to the production of collective goods (in the case, an open-source software) have ended up, autonomously, crafting some form of governance and "a shared basis of formal authority", limited by "democratic mechanisms" and without reference to traditional forms of hierarchy (O'Mahony and Ferraro 2007, 1079).

The question, therefore, moves beyond the mere dichotomy between fully centralized and decentralized format and seems to be better framed as: which kind of hybrid model would be better suited to foreign policy decision making.

Remembering some aspects discussed in chapter two, according to the "designing for emergence" approach, organizations embedded in complex settings should aim to act rather as orchestrators instead of sole authors. Their work within systems composed by a multitude of agents and characterized by emergent phenomena should have as its main goal involving all relevant stakeholders. (Pendleton-Jullian and Brown 2018b, 133–35). This is especially relevant, for instance, in the work of platforms, which function not by controlling resources but

---

[6] As Kolbjørnsrud (2018, 17) cautions, "organization design is still the outcome of deliberate choices and the patterns emerging from the interactions among organizational actors". In this way, these discussed effects must be understood as potential outcomes, which might or might not be implemented, depending on the aforementioned "deliberate choices and patterns".

rather by orchestrating them through the coordination of the exchanges amongst its multiple participants.

An important contribution comes from Kornberger (2022). By tackling the issue of how decentralized actors can coordinate effectively without a centralized authority, the author concludes that traditional forms of organization (to him: markets, hierarchies, institutions and movements) are insufficient, and new forms are thus required. These innovative organizational forms are characteristically open, polycentric and pluralistic and he concurs with authors previously quoted in this thesis by pointing to digital platforms as their most representative example.

What is more significant is what Kornberger (2022) labels as the four "key ideas" of these new ways of connecting people in decentralized environments. He begins with a "shared purpose" (called by him "a north star"), capable of unifying different people and organizations (similar to the functions deployed by the "geek leadership" and the "clear outcomes" in the Linux development process, as reviewed in chapter two). Additionally, he includes "participatory architectures", or systems' design that allow diverse people to collaborate without centralized control (similar to the ideal format of the platform, as seen in chapter two), and "network strategies" (which are close to the proposals of aiming more at adaptation and flexibility, as presented earlier in this thesis with the "design for emergence" and "decision making under deep uncertainty" frameworks). Finally comes the most important element to this thesis: a "diplomatic leadership".

Kornberger (2022, 172) argues that "the diplomat is the historical figure that emerges at that point in history when the sovereign realizes that they can neither successfully suppress nor safely ignore the Other". It is the actor responsible with the central tasks of translation and mediation between heterogenous, distributed actors, a configuration inherent to a polycentric, uncontrollable environment. In sum, the diplomat (and, hence, diplomacy) is:

> A figure of leadership in polycentric networks — a figure that uses multiple levels of rules and ceremonies (institutional complexity) to create room to maneuver; a figure that translates between language games (and thus forms of life) and introduces system-wide subtle change; a figure that uses tact to make decisions (…);

a figure of thought that lives in the in-between; a figure of thought that is constituted by, and in turn constitutes, polycentric orders (Kornberger 2022, 189–90).

Kornberger (2022), in sum, highlights how diplomacy has historically been shaped as process centered around mediation, translation and collaboration. This was as necessary for the survival of the state in the "international anarchy" context, as it currently is for an organization to harness the specificities of complex systems.

The issue becomes, then, how can diplomacy (and hence MFAs, the institution which embodies it in its official form in the contemporary world) better perform this intrinsic mediation role in a complex system with such characteristics as previously discussed in this thesis. Here, once again, as has been the case before, it might be useful to resort to successful experiences from the Internet, given the centrality of this complex system to the contemporary world. And, again, as discussed in chapter two, we can take inspiration from the platform as an organizational model, with a special emphasis to the platform's owner and curator role in its functioning.

Platforms were already presented as an organizing model suitable for a complex system. One of their most consequential features is that moderation is fundamental to their operation, even to those that disavow it to maintain the illusion of an "open" and "neutral" platform (Gillespie 2018). This is because platforms are neither mere conduits nor traditional media but hybrid entities shaping public discourse – and much of this shaping potential comes from their moderation policies (Gillespie 2018). And it is here that might be found the best answer to the question of what would be an adequate format of MFAs in complex environments.

Considering the previous conclusion that the national interest is a plural object, which should be dealt with by a large number of stakeholders, with no a priori restrictions in a platform-like setting, we could conceptualize the MFA as the platform owner and mediator, the one responsible for setting the guidelines and to ensuring the ongoing compliance throughout the process. This allows for the combination of the necessary level of control/centralization (which foreign policy requires) with the imperative of wide-participation, central to complex systems. It is also noteworthy that, even though this view of the MFA as coordinator is not an

innovation *per se* (Hocking 1999; Rana 2011), the present proposal – by embracing full openness and participation in a "noncredentialist" manner – advances it by radically increasing the number of actors involved in the policy process, therefore under the coordination of the MFA. It is not a coordination of only other governmental or official bodies, but of the whole spectrum of foreign policy actors (which, as highlighted in chapter two, is by definition very large). Furthermore, it also innovates by explicitly advocating that this coordination should occur through the use (and according to the principles and methods) of new technologies, as will be duly discussed in the next chapter.

Being the "owner" of the platform would put MFAs in a position to set up the rules of engagement as well as its main protocols, guidelines and policies. This would end up structuring its whole functioning. As noted by Gillespie's (2018) study of digital platforms, their rules often embody the cultural and ideological leanings of their owners and their teams, and this shapes their behavior. For instance, the personal and ideological beliefs of the platform's executives often shape content policies, as was the case with Facebook's "real-name policy", which reflected Mark Zuckerberg's belief in transparency but has been criticized for marginalizing vulnerable users (Gillespie 2018). In that sense, the owners of the platform enjoy a particular form of social power: by defining what is acceptable, they have the possibility to influence how people communicate and what ideas gain visibility.

If we consider the MFA as the platform owner, therefore, it is possible to imagine it as being able to bring together a wide variety of actors to discuss and reflect about the country's interest and challenges, to propose alternative approaches and policies and to review ongoing practices. The way the MFA structures these interactions (i.e., impose the guidelines of the platform) gives it a control about its priorities and general functioning, in line with the idea of inserting some level of governance/control in a decentralized structure. This would therefore allow the MFA to be structured as a network, an "assemblage" and a platform, giving it the possibility to be adequately inserted into the complex system which is the international system. At the same time, by "curating" the platform, it would have some level of control over it, especially in the fundamental issue of making decisions and political judgements, which will be object of the next chapter.

3.3 Conclusion

This chapter aimed to demonstrate that both the main object (the "national interest") and the main actor (the Foreign Affairs Ministry) of foreign policy have been initially conceptualized according to a linear, mechanical approach, which understood them as fixed and isolated from external pressures and influences.

The national interest was originally considered a matter of objective reality which should be "objectively determined". It was also viewed as immutable, self-evident and objective. Nevertheless, a series of critiques began to deconstruct this portraying. Some authors highlighted how it was composed mostly by intangible, difficult to measure elements, making it in essence "a pluralistic set of subjective preferences that change whenever the requirements and aspirations of the nation's members change" (Rosenau 1980, 286). Others, from the constructivist approach, highlighted that the national interest was a socially constructed entity, influenced by the complex interactions among states and deeply embedded in a network of international norms, institutions, and practices. Finally, the approach of foreign policy analysis underscored the domestic sources of foreign policy and the multiple, conflicting and contradictory interests of every state. The result was the understanding that it is unconceivable that the national interest might be fixed, self-evident and objective, and this is especially true when we understand the international system to be a complex one.

It has thus been proposed that, in such a setting, the national interest would be better understood as a plural entity, never self-evident and from which there are no automatic translations. Therefore, it would be more adequate if a participatory setting was established, with the platform presented as a corresponding organizational template. In this deliberative effort of identifying and interpreting the national interest, participation could not be settled *a priori*. In sum, the national interest was presented as something to be consciously, continuously and collectively worked on by a multitude of stakeholders, possibly in a platform-like framework (a flexible mediation space which permits wide-ranging participation), with no *a priori* restrictions.

Similarly, the Ministry of Foreign Affairs was presented as an institution created with the purpose of isolating itself and its decision-making processes from outside actors, processes and interests, which has become widely viewed as "the state institution *par excellence*". Furthermore, MFAs have traditionally been portrayed as gatekeepers by design, following the logic that the centralization of diplomatic efforts would allow for a coherent and strategic international engagement. This traditional view of MFAs followed the same core principles which grounded the traditional, "objectivist" conception of the national interest, and can therefore be understood as the translation of its principles into bureaucratic design.

Nevertheless, the historical record of the last decades registers a process of foreign policy agency diffusion, one through which the increased number of international actors turned foreign policy into a much more encompassing phenomenon, while domestically it was gradually brought "into the field of politics" and governmental choices, as was already the situation of different public policies. This represented a deep challenge to the role of the MFA.

The mismatch is even more pronounced when we consider the international system to be complex, since this means that, in this setting, a fully centralized structure is highly inefficient. Even though some authors have considered the possibility of a fully decentralized approach to foreign policy, it has been argued that its peculiarities make a hybrid model more desirable, mixing elements of governance/centralization in decentralized structures. The new information technologies are central enablers to the efficient operating of these hybrid models, of which, once again, the platform is the main organizational model.

Finally, this chapter proposed how the MFA could be understood as the owner, curator and moderator of the platform. Platforms have the power to shape public discourse, and this power is highly influenced by the guidelines and moderation policies adopted by the owner of the platform. If we think of the MFA as the owner of the platform-like approach to foreign policy, we, thus, see it as capable of influencing how people communicate and what ideas gain visibility: it has some control over this decentralized structure.

4. Foreign policy planning in a complex environment: a prototype

The objective of this chapter is to outline the general contours of a prototype of foreign policy planning process designed to harness complexity. It shall be built upon on the conclusions at which this thesis arrived earlier and encompass illustrative empirical examples of already existing processes in different countries, to shed a light on possible ways of its implementation.

4.1 About prototypes

In previous sections, this thesis argued for the necessity of combining multiple models in a "many-models model" approach as the most suited way for dealing with complex systems. It then systematized the main features of some models already developed about organizations could harness complexity. According to Page (2021), "models are formal structures represented in mathematics and diagrams that help us to understand the world". There is a broad literature about the use of models, their potential and limitations – as, for example, in Ashworth, Berry, and Bueno de Mesquita (2021). Proposing to develop a model entails, therefore, a correlated set of expectations, assumptions and requirements, as well as discussions about correlation/causation, about testing and about general applicability, according to previously well-established, widely tried and accepted methodological criteria. By contrast, what will be developed in this chapter might be better understood as a *prototype*. Broadly defined, a prototype is an early model, sample, or representation of an idea, product, or system, built to test and refine concepts before full-scale implementation. Prototypes might function as both tangible artifacts and conceptual frameworks.

It must be noted that the literature on public policy contains concepts whose nature is similar to this proposed prototype: "pilot", "trial", "experimental design" or "test case", for example (Jowell 2003; Haynes et al. 2012; Varazzani et al. 2023; Zurbriggen and González Lago 2024). Nevertheless, the proposal of this thesis is presented as a prototype rather than one of these well-established concepts as an attempt to highlight its markedly preliminary nature. It is simply an idea developed in a thesis with no backing by a government and no immediate prospect of implementation. In the eventuality that someday a framework like this would

indeed be provisionally implemented somewhere, then it could become a "pilot", "trial", "experimental design" or "test case". Meanwhile, it is here presented as a prototype following the lines of "a 'new spirit' of policy-making": greater flexibility, provisionality and anticipation in responding to public issues (Kimbell and Bailey 2017).

In engineering and product design, for example, a prototype is a preliminary version of a device or system used to evaluate feasibility, functionality and user interaction, allowing its developers to identify flaws *before* mass production (Ulrich and Eppinger 2012). Similarly, in design thinking, prototypes are iterative, low-fidelity models that facilitate creativity and user feedback. As Brown (2008) notes, prototypes are "quick and dirty tools" to "fail forward", enabling designers to refine ideas through experimentation. This duality – both physical and conceptual – reveals the prototype's capacity to bridge abstract ideas and practical implementation.

The usefulness of prototypes, therefore, lies in their capacity to mediate between imagination and reality. They serve as communication tools, capable of translating abstract concepts into tangible forms that stakeholders can interact with and critique (Houde and Hill 1997). Also, prototypes enable experiential learning: as Schrage (2000) argues, "prototypes are conversation pieces" that can foster dialogue to uncover latent needs and trends. Bringing the discussion to the realm covered by this thesis, it is noteworthy that there are also experiments with prototypes in public policy, i.e., the idea of "policy prototyping", which its advocates argue would allow governments to pilot interventions on a small scale, minimizing unintended consequences (Bason 2017).

The present proposal to elaborate a prototype inevitably has a speculative nature, open to trial and error. This prototype is, after all, something designed to be tried, iterated and changed. It is not a formal model which can be fully tested to be proved right or wrong, among other reasons because of its innovative essence. Many of is elements are new, and there is no place in which it has been fully implemented. It also relies on contemporary elements, such as digital technologies, which fundamentally limits the possibility even of comparative evaluation based on

earlier, historical precedents. In sum, in a way similar to what was proposed by Bratton (2015, 4), "it handles slippery problems in ways that are provisional, prototypical, and provocative – not necessarily policy (yet)".

4.2 Strategy, grand strategy and diplomacy/foreign policy planning

What is being proposed is a prototype of a foreign policy planning process whose institutional design has consciously been crafted to harness the complexity of the contemporary international system. It might be useful, therefore, to first contextualize the main ideas related to diplomatic and foreign policy planning, before describing the aforementioned prototype.

4.2.1 National interests, strategy and grand strategy

On the previous chapter, this thesis reviewed how the national interest is traditionally portrayed as the main object and objective of foreign policy, whose primary goal should be its defense. The way through which national interests are systematically and comprehensively addressed constitutes the basis of ideas such as strategy, grand strategy and statecraft. Zelikow (1994) demonstrated how this passage from national interests to strategy is commonly operated. He conceptualizes foreign policymaking as the interaction of three constantly moving streams: i) problem recognition (identifying and diagnosing issues requiring policy action); ii) politics (the bureaucratic and political environment in which decisions are made); and iii) policy engineering (the structured application of knowledge and methods to solve problems).

Furthermore, he structures policy engineering into seven key components, which interact with political and problem recognition streams. Significantly, the first one is precisely the "national interest", defined as "a 'non-operational goal' which is often used as a general rationalization for whatever preferences actually undergird a policy" (Zelikow 1994, 160). He argues that each of these national interests, however, has a specific importance, and this relative assessment may give origin to the second element: "objectives", understood as more concrete, prioritized goals derived from national interest. The objectives, thus, provide operational guidance

to the national interests. In this sense, they are distinct from mere desires, which are restricted to non-operational aspirations.

From objectives arise the third element of the foreign policy engineering stream, the "strategy"*:* "those mechanisms, those theories of the relation between government action and the behavior of others, by which it is hoped that the policy will act upon its object to produce the desired result" (Zelikow 1994, 164–65). It is, therefore, an overarching plan for achieving these objectives and a pathway to it.

Having set the objectives and the strategy, the stream then follows to its "design" moment, when "the policymaker must decide just what the government is going to do". The design phase, therefore, is "when a strategy is converted into operational plans that specify just what should happen in the real world" (Zelikow 1994, 166). To be successful, this policy design should consider institutional capabilities, political feasibility, and implementation constraints. In this moment, the government lays out specific policies to implement the strategy, to achieve the objectives, based on the national interests. This policymaking might be multifold, being gradually transmuted from a primary policy into secondary, tertiary ones, and so forth, as long as necessary to encompass all necessary elements.

Since "policy, like any product, must be produced, maintained, and eventually either replaced or discarded", the following (and final) phases of the stream are "implementation" (execution of the designed policy), "maintenance" (adjustments and refinements over time) and "review" (periodic evaluation of success or failure) (Zelikow 1994).

Rather than being restricted to a fixed set of principles, strategy might be better understood as a continuous process of adaptation to uncertainty, chance, and the actions of others (Murray and Grimsley 1994). It is deeply influenced by its context, including political objectives, geography, historical experience, ideology, and culture – factors that shape how decision-makers perceive threats and opportunities (Murray and Grimsley 1994). Specifically, strategic thinking has a long history (Freedman 2013). The contemporary approach to strategic planning, particularly, was very much influenced by the two World Wars and the Cold War

(Baylis et al. 2002). The contemporary discussion, for its part, has revolved around the concept of grand strategy.

A basic premise of the strategic approach comes from the realization of the inevitability of scarcity. According to utilitarian assumptions, actors tend to always want and desire (or, in other words, to have interests) as much as possible. There is a tendency to maximization. Nevertheless, real life resources are not unlimited. From this contradiction comes Gaddis' (2018, 21) succinct definition of grand strategy as "the alignment of potentially unlimited aspirations with necessarily limited capabilities". Given that one actor is inevitably unable to do, achieve or conquer everything they want, they must choose. Hence, the need for a strategy: a means for prioritization and decision-making.

The specificity of a grand strategy is that, with the concept gaining prominence on the post-World War I context, it initially referred to the integration of all forms of national power to achieve victory in war. Early theorists like Fuller and Liddell-Hart explored this path and expanded the concept to include both military and non-military activities (Brands 2014). Grand strategy, therefore, connects daily foreign policy actions with medium- and long-term objectives, in an act that involves balancing resources and objectives, ensuring that the pursuit of goals does not overextend a nation's capabilities. It requires making sense of a multitude of unpredictable international events and aligning them with national interests (Brands 2014).

Miller (2016), for example, portrays grand strategy as something which unfolds from strategy. He remembers classical definitions of strategy, from Clausewitz ("the use of the engagement for the purpose of the war"), to Liddell-Hart ("the art of distributing and applying military means to fulfill the ends of policy") and Betts ("the link between military means and political ends"), in order to argue that grand strategy's differing peculiarity lies in the fact that it expands beyond military concerns into political objectives and long-term national priorities (Miller 2016, 239–42). It might, thus, be portrayed as a framework that organizes *all* national resources (diplomatic, military, economic and moral) to achieve long-term goals. Therefore, grand strategy should be distinct from strategy in that it include

political goals (not only military objectives), aims to integrate multiple tools of power (considering, for example, diplomatic pressure alongside military issues), is characteristically long-term (necessary also in times of peace) and encourages coherence in foreign policy by integrating all instruments of statecraft (Miller 2016).

In a similar approach, grand strategy might be defined as "the intellectual architecture that lends structure to foreign policy" and "the logic that helps states navigate a complex and dangerous world" (Brands 2014, 1). It also involves a coherent set of ideas about a nation's goals and how to achieve them, considering the international environment, threats, and finite resources. Specifically, "every grand strategy rests on an intellectual foundation made up of critical assumptions" – with assumptions being "the strongly, if often implicitly, held ideas that policymakers have regarding the nature of the international environment and the role that their country plays in that environment" (Brands et al. 2017, 1). These assumptions act as "theories of how the world works" as well as theories of action (how some action will produce some desired outcome or reaction, that undergird purposeful initiatives in international affairs). Even though assumptions always ground grand strategies, not in every case is this done explicitly, with Brands et al. (2017) arguing that it is always better to approach assumptions conscientiously, allowing for them to be interrogated and put to test.

Being "the intellectual architecture that gives form and structure to foreign policy", grand strategy is certainly related to it, but simultaneously distinct: grand strategy is foreign policy's "conceptual logic that ensures that such instruments [from diplomacy to foreign aid to humanitarian relief to the use of military force] are employed in ways that maximize the benefits for a nation's core interests" (Brands 2014, 3–4).

In her evaluation about grand strategy, Lissner (2018) considers it a crucial framework for helping define a state's international role, align means and ends, and serve as a guide for decision-making. She also points to three ways through which it is usually approached: as a variable (analysis about the origins and determinants of grand strategy), as a blueprint (a focus on prescriptive visions for future policy) and – the one more relevant to this thesis – as a process. Approaching grand strategy as

a *process* entails an examination of the methods and mechanisms of strategic planning and emphasizes the formulation and implementation of grand strategy rather than its specific content.

4.2.2 Foreign policy planning

The possibility of planning foreign policy is something distinct from, although intimately connected to, the discussions about strategy and grand strategy just reviewed. For its part, it has a long history, most of it centered around the experience of the United States in the second half of the 20th century. This is because a contemporary milestone to the field was the creation of the Policy Planning Staff within the United States' Department of State in 1947. The work developed by S/P (the organ's famous acronym in the DoS bureaucratic structure) is often presented as paradigmatic (if not sometimes even synonymous) of foreign policy planning as an activity itself.

The creation of S/P and its first years is a recurrent mention in the literature about foreign policy planning, receiving in some cases almost a mythological aura. Its first director was George Kennan, who assumed the office soon after issuing his notorious "long telegram" and the subsequent publication of his "X article" in *Foreign Affairs* (Gaddis 2011), and led the S/P from 1947 until 1949. According to his own words, the establishment of the policy planning staff in the Department of State represented an innovation, for it allowed for the first time for an autonomous, independent and devoted only to this end team to take into account, in their advice to the Secretary:

> The entire range of the problems of our foreign relations (…) [having] both the time and the facilities to give careful and exhaustive study to long-range problems of policy or to problems of exceptional intricacy, involving the orderly assembling of information from a wide variety of sources" (Kennan et al. 1961, 22).

This task of providing information was previously done by the heads of the specialized sections of the DoS, which often presented conflicting, particular (regional, thematic) views. The new S/P constituted, therefore, a forum for prior balancing and reconciliation of these contrasting approaches, and Kennan argued that it was useful in providing "a continuous series of advisory opinions,

representing the expression of consistent and disciplined point of view, based on the obligation to consider all aspects of national policy, and applied to a variety and succession of international problems" (Kennan et al. 1961, 22).

According to the "Departmental Order" which formally established S/P, its purpose was to "assure the development within the Department of long-range policy which would serve as a framework for program planning and a guide for current policy decisions and operations" (Adams 1947, 7). The document recognizes that, even though there were previous, ad-hoc planning exercises, it became necessary (due to "the growth and complexity of postwar problems") to establish a permanent planning mechanism, designed to deal with "the fundamental, all-pervading questions which confront the Secretary", so that the Department could fulfill its "responsibilities resulting from the change in the role of the United States in international affairs from that of a largely passive observer to that of active participation and leadership" (Adams 1947, 7).

The "Departmental Order" assigns five basic functions to the S/P (Adams 1947, 8):

> (1) Formulating and developing, for the consideration and approval of appropriate officials of the Department, long term programs for the achievement of American foreign-policy objectives.
>
> (2) Anticipating problems which the Department may encounter in the discharge of its mission.
>
> (3) Undertaking studies and preparing reports on broad politico-military problems which the Department may submit for consideration by SWNCC [State-War-Navy Coordinating Committee], the Committee of Three, or other similar bodies.
>
> (4) Examining, independently or upon reference by the Secretary or the Under Secretary, problems and developments affecting United States foreign policy in order to evaluate the adequacy of current policy and making advisory recommendations pertaining thereto.
>
> (5) Coordinating planning activities within the Department of State.

Even though the S/P has gone through many changes in its configuration, these functions had a lasting impact in shaping the core of its functions (Pugliaresi and Berliner 1989).

It is noteworthy that Kennan wrote, in his diary, that he saw the purpose of the Policy Planning Staff to "bring *order and foresight* into the designing of foreign policy by special institutional arrangements within the department" (Kennan 2014 [1949], 232, emphasis ours). He was, therefore, working withing a linear framework. This is especially relevant because his time as director of S/P became a paradigm of foreign policy planning itself (Pugliaresi and Berliner 1989), influencing later experiences in it both in the United States and in other countries. According to Drezner (2009, 12), there is a "mythology that surrounds strategic planning [and which] stretches back to Kennan and his formidable intellectual shadow". It is therefore useful to review the main characteristics of the American S/P, especially in its original version under Kennan.

In general terms across the literature, the purpose and functioning of S/P is described as a small, idea-driven, Secretary-focused highly specialized team, whose goal lies in looking forward in the future, aiming to coordinate different bureaus and to inject strategic view into US diplomacy (Kennan et al. 1961; Brzezinski 1969; Bloomfield 1977; Kalicki 1977; Drezner 2009; Brands 2014). This can be better understood in an analytical division into four key characteristics.

First, regarding the size of the staff, it is a relatively small team. There has been a growth in the size of the S/P since its creation: under Kennan it had 5 people (Kennan et al. 1961), growing to involve around 12-15 through the 1970s and 1980s (Bloomfield 1977; Kalicki 1977; Pugliaresi and Berliner 1989), finally doubling to around 30 in the first decade of the current century (Drezner 2009). Nevertheless, there seems to be a desired goal of keeping the staff small. Even before this increase of the S/P staff, Christian Herter, who was Secretary of State from 1959 to 1961, defended that it should be a "small advisory staff" (Kennan et al. 1961, 24). Similarly, when noting that the Secretary of State might "be more inclined to meet regularly with a smaller and a more clearly senior body", and considering that such a direct contact with the highest decision levels was crucial to the work of S/P, Zbgniew Brezinzski (who led S/P from 1966 to 1968) proposed the reduction "by roughly one-half the size of the council" (Brzezinski 1969, 66).

Second, it is a highly specialized staff, decidedly following a "credentialist" approach, even though there are differences of views about the desired areas of expertise. Pugliaresi and Berliner (1989) summarize the profile which became identified as the typical S/P staff: mostly senior analysts, with strong inter-agency networks and relevant background. Be it the "intellectual heavyweights" with deep historical sense of the Kennan era (Brands 2014), the group of "rigorous analytic thinkers" under Brzezinski (1969) or the deliberate mix of diplomats, academics and think-tankers as proposed by Drezner (2009), all these configurations seem to be attached to the necessity of proving your credentials as a prior requisite for someone to join the foreign policy planning effort. As put by Pugliaresi and Berliner (1989, 381), what matters is that "each member of the staff is a specialist".

Third, it usually works aiming to foresight future developments. Prediction, defined and approach in slightly different manners, lies on the center of the policy planning effort, following the premise that "sensible decision-making is impossible without a serious commitment to planning, and planning is impossible without a serious commitment to prediction" (Rothstein 1972, 190). To the advocates of this approach, "the policymaker wants a specific, unconditional forecast 'about possible consequences of given lines of action under probable circumstances of the historical world of politics'" (Rothstein 1972, 163). This is based on the premise that it is possible to determine the future outcome of a system (something which follows the traditional linear and mechanicist paradigm).

Fourth, it has a special place in the information chain within the Department of State. The proximity of the director of S/P to the Secretary of State (and of the Secretary to the President) has been repeatedly highlighted by the literature as a key explanation for a successful policy planning impact on the overall American foreign policy. Once again, Kennan is the model in this regard, notably due to his close connection to Secretary Marshall (Drezner 2009; Brands 2014). It seems, thus, to be a personalized approach, subject to political considerations even in the institutionalized setting that the planning effort has achieved with the S/P.

With these characteristics, the United States S/P laid the groundwork for diplomatic planning. At the same time, it also demonstrated the main fragilities of

the traditional approach, which led to the conclusion among different authors (both academic and practitioners) that "strategic planning for American foreign policy is dead, dying, or moribund" (Drezner 2009, 3). A main line of critique centers around the famous image as recounted by the boxer Mike Tyson and often alluded by in the strategic studies literature, according to which "everyone has a plan until gets punched in the mouth" (Freedman 2013, xi). What is at stake here is fundamentally the inability of a prediction-centered strategic planning process of dealing with unpredictable events, something which lies at the core of a complex system.

Already in the 1970's, Bloomfield (1977) pointed to four problems faced by S/P's planning process, the first of them being precisely a failure to anticipate the future adequately. In addition, he mentions a neglect of broader international issues (such as food, energy, and resources), a lack of comprehensive national goals and strategies and insufficient internal critique of past and ongoing policies, with Vietnam as a prime example. This led him to conclude that, despite notable policy successes (such as its influence in the U.S.-China rapprochement and in arms control agreements with the Soviet Union), the overall planning process was ineffective.

In a more contemporary evaluation effort, Drezner (2009) recognized that in spite of the need for coherent planning recent administrations struggled to implement a structured approach. He notes that S/P influence diminished over time due to such different aspects as a reliance on ad-hoc decision-making (Clinton administration), lack of effective planning mechanisms (George W. Bush administration), and a deteriorating planning culture in a context of rising global complexities (Obama administration). Furthermore, he claims that strategic planning is also constrained by bureaucratic inertia, shifting power dynamics within the government, and a tendency to focus on immediate crises rather than a long-term vision, in a process aggravated by the "multipolar shift" in global politics, the erosion of international institutions, the rise of non-state actors and economic and environmental shocks (Drezner 2009). Finally, he highlights that even though these problems have intensified with the gradual loss of influence by S/P, Kennan himself was already deeply frustrated with the process.

Considering the centrality of an effective planning process to the strategic considerations discussed earlier in this chapter, as well as in chapter one, it is essential to recognize these shortcomings. At the same time, the dismissal altogether of the planning process seems to be a mistake, considering this very relevance already mentioned. The key to solving this difficulty might be to assume that "grand strategy [and hence the planning process related to it] is a *tool*, rather than an automatic output, and therefore can be manipulated by agents who enact intentional designs" (Lissner 2018, 65). In that case, it is possible to design a different approach to the process, one which takes into account the shortcomings of the existing model, as well as the possible benefits from a different perspective. In sum, a prototype which brings complexity to the foreign policy planning process.

4.3 Two already existing proposals that incorporate complexity into policy planning: a general overview

Some authors developed ideas similar to those put forward by this thesis, trying to bridge the gap between complexity studies and international politics, with a special emphasis on international strategy and foreign policy planning. In this section, we review some of the most significant attempts in this area, before we present our own proposal.

Slaughter (2017) is a particularly relevant reference. She embodies the figure of the "scholar-practitioner": a university professor with an established academic career who wrote this book as a result of her time as – precisely – director of the S/P during Hillary Clinton's tenure as Secretary of State. Slaughter's core premise is that "what foreign policy makers today lack is not simple foresight. It is an entire way of seeing and understanding the real world we live in" (Slaughter 2017, 5). According to her, traditional analysis of international politics relies on chess as the explanatory metaphor for world politics. In Academia, that translates into the full range of analyses grounded in the premises of game theory; in foreign policy practice, it appears in the "bargaining games" that dictate whether actors choose strategies of conflict or cooperation.

Slaughter argues, however, that today's world is better captured by two simultaneous images, since the chessboard logic (state-centered) necessarily

coexists with the image of a network, a metaphor she deems more adequate to the contemporary reality (and in line with complexity's conceptual framework). In this network image and logic, there is a broad and diverse array of global stakeholders beyond the state whose influence on international politics is no less than that of state actors and not subordinate to state interests. Medium-reach "connective strategies" assert themselves alongside, and in some cases above, the classic strategies of conflict and cooperation.

The fundamental fact underpinning this new network image is the dramatic expansion in the number of people capable of influencing international politics. Slaughter (2017) acknowledges that the academic literature has already been discussing these issues in considerable depth, but argues that there are no concrete tools proposed to translate those ideas into policy options, and she sets out to fill that gap with her book, in which she develops three "connection strategies" for operating in a networked world:

i) Resilience networks: these are purpose-built webs whose primary function is to absorb shocks and bounce back fast when responding to disasters, attacks and other threats. Drawing on complexity and resilience theory, Slaughter argues that robustness in a volatile environment comes from redundancy, diversity and modularity: instead of a single chain of command, you need a "diverse and layered civic web" in which many nodes can route around damage and keep core services alive (Slaughter 2017, 103). In practice that means overlapping networks for early warning (for example, local sensors or volunteers), reinforced by more hierarchical links for rapid logistics once a crisis hits. In sum, it refers to "connecting the right actors for the right purposes" (Slaughter 2017, 103), thus building resilience and the capacity to withstand crises.

ii) Task networks: these networks are designed for executing specific objectives on a deadline, so they privilege coordination over redundancy. Network-science research on centrality underlies Slaughter's claim that these structures almost always resolve into some variant of a "hub-and-spoke": a clearly identified orchestrator allocates roles, sets milestones and integrates results. These could be "cooperation networks" ("islands of agreement" among adversaries, as what

happened in U.S.-Iran nuclear deal teams), "collaboration "networks" ("team of teams" structures, as general Stanley McChrystal's Joint Special Operations Command in Iraq, which combined centralized intelligence with decentralized execution) and "innovation networks" (open-source platforms to crowdsource solutions) (Slaughter 2017, 114–33).

iii) Scale networks: these networks aim to scale and amplify solutions, so they tackle problems of reach and diffusion by spreading a good idea, norm or product far and fast. Slaughter breaks them into three tactical logics: replication (copying a model), gathering-in (aggregating dispersed resources or data) and parceling-out (distributing micro-tasks) (Slaughter 2017, 135–57).

Slaughter (2017) core argument is that the three "strategies of connection" function as the operational "ways" of grand strategy, complementing the "ends" (national interests and global order) and the "means" (military, economic and diplomatic assets). In this way, a state can use resilience networks to keep critical systems functioning under stress, task networks to achieve tightly defined objectives quickly and scale networks to diffuse its preferred norms, technologies or business models so widely that they restructure the strategic landscape itself.

A similar, more recent proposal is the idea of "strategic diplomacy" as presented by Prantl (2021). Strategic diplomacy, as Prantl conceives it, is both a concept and a method: it is "the process by which state and non-state actors socially construct and frame their view of the world, set their agendas, and communicate, contest and negotiate diverging core interests and goals" (Prantl 2021, 1). It adopts a constructivist stance by claiming that, unlike traditional foreign policy lenses that privilege either systemic constraints or unit-level agency, it begins from a "level playing-field", insisting that effective analysis must give equal weight to how actors shape and are shaped by a complex adaptive international system marked by interconnectedness, non-linearity and emergence.

While Slaughter's (2017) main theoretical reference is network theory (which is part, but not the whole of, the conceptual framework of complexity), "strategic diplomacy" shares this thesis perspective that "contemporary international order is best understood as a *complex adaptive system*, with three key

properties: interconnectedness, non-linearity, and emergence" (Prantl 2021, 8, emphasis on the original). It proposes the adoption of non-linear thinking, to avoid zero-sum approaches, to "satisfice" rather than maximize core national interests ("by engaging deeper with the *Raison de Système*") and to be "innovative and adaptive" (Prantl 2021, 10–11).

Prantl's "strategic diplomacy" operates through a dual toolkit. First, it encompasses a "diagnostic framework" that "disaggregates complex policy problems within their systemic context across multiple levels – domestic, regional, and global" (Prantl 2021, 9). In this diagnostic step, it aims to "map borders" (i.e., identify "key nodes/actors, key flows and relationships, and feedback mechanisms that hold the system together") and "frame issues" (in a complex setting, this framing represents a strategic and political choice of how analysts and policymakers define and represent a problem inside the boundaries of the complex adaptive system they have first mapped; it establishes the conditions for agenda-setting and subsequent policy design, decides who gains voice, what policy levers become visible, and which "tipping points" might be leveraged for system maintenance or change) (Prantl 2021, 10). Framing, therefore, is not a neutral analytical step but rather a political exercise of statecraft: it is entrepreneurial, iterative, and constantly reviewed, enabling diplomats to maximize a shrinking policy space by aligning narratives, entry points and objectives with the dynamic logic of the wider system.

In addition to the diagnostic framework, it encompasses a "policy framework" that provides "guidelines for diplomatic statecraft" and represents the practice-oriented element of the concept: once analysts have mapped borders and framed issues, the framework guides diplomats in how to act so that a state (or coalition) regains and enlarges its shrinking policy space within a tightly coupled global system. It is driven by a double strategic rationale. First, actors must decide whether their long-term objective is system maintenance or system change (the former implies classic balancing or containment, while the latter seeks out stress points and tipping points that can nudge, or even flip, the architecture of the system). Second, they must manage the short-term diplomacy of contesting and negotiating ideas and priorities that flow from that long-term stance. To operationalize these aims, the framework poses three organizing questions: i) "what

is the final objective, that is, the endpoint"?; ii) "what is or what are the most appropriate strategic entry point(s) from which to influence the complex adaptive system?"; and iii) "what are the tipping points, if any, that may either maintain or change the complex system?" (Prantl 2021, 10).

Because complex systems generate nonlinear, delayed and often unintended effects, the "strategic diplomacy" framework treats implementation as an adaptive, trial-and-error process, for which practitioners iteratively adjust the mix of structural leverage, facilitation and direct action as feedback from the system unfolds (Prantl 2021).

These proposals by Slaughter and Prantl have, thus, already begun the work of bridging complexity and foreign policy planning. At the same time, they still seem restricted to a more illustrative level, focused more on developing concepts, rather than putting forward comprehensive ways for it to be concretely implemented in the policy planning realm. Therefore, this thesis – which has already been trying to advance this research agenda by proposing, in the previous chapters, a systematic approach to the relation between complexity and foreign policy – will aim, based on this systematization, to contribute by providing a specific, concrete, institutional design-focused prototype, in terms of a comprehensive institutional design of diplomacy planning suited to complex systems.

4.4 The digital imperative (or the inescapable digital nature)

The first element of this prototype is crosscutting, transversal and, somehow, might even be considered its very "essence" due to its nature as a "means": it is the digital imperative. The policy planning process adapted to a complex environment needs to fully embrace and make the best use of digital technologies. There are five main reasons for this.

First, as already discussed previously in this thesis, technology currently exerts a comprehensive, restructuring impact in the most different domains of socio-political life. It has been pointed out in chapter one, for example, the many comprehensive impacts we can currently witness: on power dynamics, with shifts of power from states to tech companies (Morozov 2017) and network-based

organizations replacing hierarchical models (Slaughter 2017); on the state, with traditional conceptions of sovereignty being challenged by cyber realities (Choucri 2012; Bratton 2015) and the states being faced with challenges to adapt to digital governance and algorithmic regulation (Braman 2006; Bratton 2015); on the debate about the possibility of the "big tech" companies gradually replacing the state and typical state functions (Bremmer 2013; Walt 2021); on political participation, with the rise of the "networked public sphere" (Benkler 2006); and on cybersecurity and information warfare (Demchak and Dombrowski 2011; Ronfeldt and Arquilla 2020). In sum, new digital technologies are fundamentally reshaping the world and inescapably are, therefore, an integral part for any process which aims to interpret and engage with it.

Second, the basis for a process of policy planning is information, and digital technologies have profoundly expanded the amount of available information, as well as the ways to engaging with it, be its handling, processing or interpreting. It was previously discussed here that information processing is a key element of a complex system (Gell-Mann 1994; Mitchell 2009), such as the international system. Therefore, a fundamental change in the way information is produced, spread, received and analyzed, such as the one made possible by new technologies, must also be a central feature of our prototype.

This is not a new phenomenon, but one which keeps evolving. Back in the 1990s John Archibald Wheeler developed his famous "it from bit" hypothesis, according to which the most basic ingredient of reality was not matter, but information, especially highlighting its digital nature: "every it – every particle, every field of force, even space-time itself – derives its existence from answered yes-or-no questions, from bits" (Wheeler 1990, 5). At around the same time, Negroponte (1996) argued that the shift from atoms to bits was a "civilizational watershed", because when information is stripped of physical mass its supply-side limits virtually disappear, and, due to the "weightless, copyable, and teleportable" nature of any digital object, they could be replicated at a negligible cost and transmitted instantly to anyone on the network.

If that was the scenario on the early years of the Internet, things have changed significantly since then. With the evolution of the Internet from an initial era of read-only protocols (Web1), going through a second phase dominated by read-write platforms run by large corporations (Web2), we are currently witnessing an emerging phase in which blockchain technology adds the "own" dimension by embedding transferable, programmable tokens directly into network infrastructure, making the Internet a "read-write-own" domain: the "Web3" (Dixon 2024). This architecture restores the low-barrier creativity and edge-driven innovation of the early web and complete the shift to a world where information flows friction-free across borders and devices, even though it now carries built-in mechanisms for value distribution, which enable a more resilient, participatory, and equitable digital environment (Dixon 2024). At the same time, as a result of this overflow of information, most of which digital, we have entered a context of "information overload" in which an excess of potentially useful data potentially hampers rather than aids decision-making, making it even more important to develop deliberate strategies to deal with this phenomenon, like filtering, satisficing, thoughtful system design (Bawden and Robinson 2020). At the core, it is crucial to incorporate the perspective that the digital domain is behind this information explosion, so it must also be at the center of any planning process which fundamentally deals with information flows.

Third, digital technologies are already being incorporated into traditional diplomatic routine activities, in a process that was labeled "digital diplomacy". One famous definition presents it as

> The use of digital technologies, such as social media and other online platforms, including virtual communication channels and the metaverse, by ministries of foreign affairs (MFAs) and international organizations (IOs) to communicate with each other and the general public, conduct diplomacy, and advance their foreign policy goals (Bjola and Manor 2024, 18–19).

By that means, rapid digitalization is already reshaping both the processes (negotiation, communication, service delivery) and the structures (MFAs, embassies, multi-stakeholder networks) of contemporary diplomacy, turning networking among state and non-state actors into the organizing logic of foreign policy (Hocking and Melissen 2015). In this context, according to these authors, for

a country's foreign policy to successfully engage with the "digital diplomacy" paradigm it must ensure continuous skills upgrading (diplomats must expect constant flux in platforms and norms), work for network literacy (guarantee understanding of stakeholder ecosystems and data flows), assure balanced transparency (leverage openness without sacrificing confidentiality) and make an strategic investment, with the risk being that governments which neglect digital adaptation will quickly fall behind its peers.

Fourth, as previously argued, besides this already ongoing use of the digital technologies by MFAs, new technologies have empowered the crowd (McAfee and Brynjolfsson 2017). Therefore, as a means, they allow for the incorporation of a virtually unlimited number of stakeholders into the policy process, which will be a central feature of the prototype here proposed. We have previously extensively analyzed the platform as an institutional model well-suited to complex systems, for it facilitates coordination, exchange, and self-organization. As discussed, platforms (especially through digital means) allow for the transition from resource control to resource orchestration, from internal optimization to external interaction and from individual focus to environmental adaptability. In sum, taking into consideration McLuhan and Fiore's (1969) perspective that every communication technology subtly but decisively re-patterns how human beings perceive, think, and organize themselves, and in doing so re-shapes culture, politics, and social relations, it is impossible to disentangle digital platforms as the means for stakeholder connections from our proposed prototype.

Finally, new technologies represent the possibility of acting as assistants to the humans conducting the policy process by performing tasks themselves. In this "information overload" context, for example, MFAs could resort to "big data" in different ways to help them muddle through it. Options available with the use of "big data" range from "crisis management support to speeding up policy-making and negotiation processes, mapping social movements in the interests of tailoring diplomatic initiatives to local needs, policy evaluation with real-time feedback, and using big data for policy planning purposes" (Hocking and Melissen 2015, 16). Furthermore, as discussed in chapter two, some approaches to scenario building within the "decision-making under deep uncertainty" approach consider that the

number of possible "states of the world" in complex adaptive systems is so large –
and, therefore, also the quantity of scenarios needed – that "human reasoning with
respect to complex uncertain systems is intrinsically insufficient" (Kwakkel and
Haasnoot 2019, 357–58). According to this view, which consolidated around the
"exploratory modeling" framework (Bankes 1993), it is necessary to resort to
computer simulations to generate the appropriate amount scenarios necessary for
the planning effort in such a context. Additionally, we are currently witnessing the
growing capabilities of artificial intelligence models, which is fostering a growing
literature about the many possible – even though for the moment, still in its early
stages – ways in which AI could be inserted into the diplomatic routines of MFAs
(Roumate 2021; Vota 2024; Mostafaei et al. 2025).

4.5 A prototype of foreign policy planning to harness complexity

This section is finally brings all the previously elements together and present
the outlines of the proposed prototype. Apart from the above describe digital nature,
it is comprised of two axes, along the same lines of what was discussed in chapter
two: one dealing with diversity (and the multiplicity of stakeholders), while the
other is devoted to emergence (and the necessity of adaptation arising from
unpredictable change). In each subsection, we first review the conceptual approach,
based on the theoretical discussions of chapter two but now applied to foreign policy
planning, and then show recent empirical examples which illustrate possible ways
this element could be implemented. Significantly, these examples are closely linked
to the two factors discussed in chapter one about the elements that are increasing
the international system's complexity: the rise of China and the rapid evolution and
diffusion of new technologies. The prototype also includes considerations about the
role of MFAs, here presented as the leaders of the process and the owners and
curators of the platform, responsible for the political judgement and the acts of
translation which conclude the planning process.

4.5.1 The "diversity" axis: engaging the largest number of stakeholders

Conceptual approach

While the standard model of diplomatic planning was characteristically restricted to the small, expert staff in charge of its conduction, the prototype here proposed must be fully participatory and aim to involve as large a number of stakeholders as possible, with no *a priori* "credentialist" restrictions.

The theoretical premises for this were discussed in chapters two and three. A key defining element of a complex system is its diversity, for it is composed by a large number of actors with constant, mutual interactions (Cilliers 1998; Mitchell 2009; Page 2011; Davis et al. 2021). This multiplicity of diverse actors is considered to be the crowd, which is characterized by lack of hierarchy, decentralization and impossibility of being controlled (McAfee and Brynjolfsson 2017), for it is self-organized. In this structure, information – the central element of a complex system and of the planning process – is widely dispersed throughout it (Sunstein 2006).

Therefore, in such a setting, a restricted, small group of experts – no matter how deeply specialized and connected each one of its members might individually be – will not be able to grasp all the relevant elements in constant interaction and evolution. To harness the crowd, it is necessary to devise ways to deal with collective intelligence, and this includes adopting the lessons learned from previous successful experiences, mostly those related to the Internet (a model network).

In this sense, we can take as a starting point the principles for action with crowds in communities, as systematized by McAfee and Brynjolfsson (2017): openness (an as broad as possible call to everyone interested), "noncredentialism" (everyone is invited to join the common effort, rather than only people with recognized credentials, such as experts, professional technicians or academics), verifiable and reversible contributions (each individual contribution to the collective good being produced should be evaluated on itself and, if its impact over the general outcome was negative, it could be undone without prejudice to what had been achieved before), clear outcomes (a previously advertised common objective, constant throughout the process), self-organization (each contributor might decide

which task to handle, without centralized coordination) and "geeky leadership" (a technically proficient and engaged leader that lends credibility to the process by articulating a vision, motivating others to join the effort).

We have also seen that the traditional view of the MFA as a gatekeeper and an insulated actor is currently fundamentally questioned and undermined. Alternatively, we proposed to approach it in a different way, namely, the MFA as a platform. This allows for a networked structure in which the MFA is constantly in contact with a wide array of stakeholders, orchestrating this platform. This is a central tenet for the proposed prototype, especially if the platform is built according to the above-mentioned principles for action with crowds in communities.

Considering this prototype as an ideal type, the best way for this platform to be built would be digitally, following the successful models previously analyzed, especially the Linux development effort and Wikipedia's collaborative template. As mentioned, digital technologies allow the engagement of an unlimited number of stakeholders, which is precisely the goal. Furthermore, this collective intelligence effort should be continuous. It cannot be restricted to moments of crises or situations in which the MFA actively seeks outside inputs, for it would fall victim to the previous selective work of a restricted staff, therefore limiting its potentiality.

Concretely, what is proposed here is that the MFAs establish *an online platform* in which they can freely interact with any interested part about issues relevant to foreign policy. This interaction space should be permanent and not restricted to moments of crises or efforts of outreach. It should be fully open and "noncredentialist", allowing free participation. It should allow for the MFA to ask for inputs and reactions to already existing proposals and policies, during the different stages of the policy cycle. Furthermore, there should also be a space for receiving autonomous proposals and suggestions by individuals and organizations, which would allow for the MFA to gain inputs about issues relevant to citizens and social groups previously outside of its attention.

Fundamentally, there are three main tasks for the "MFA digital platform":

i) Monitoring: by engaging with the crowd digitally, the MFA platform should be able to monitor events and perspectives in real time. It would allow it to perceive trends, challenges and crises with relative anticipation, as well as to receive a diverse array of inputs about each event. Recent analyses about the use of crowdsourcing in situations of crises demonstrate, for example, that it can quickly provide real-time, citizen-generated data that official sensors and expert staff alone cannot match (Boersma et al. 2024).

ii) Guiding: the diverse connections through a digital platform allows the MFA to receive varying inputs about what its population and social groups, in all its diversity, understand to be their interests. With this, the MFA receives information about the changing and competing elements which build the national interest, which represents a fundamental input to the planning process. Research initiatives on the area of climate policy have concluded that crowdsource approaches allow for citizens to "delineate important values and principles that can be used as guidelines by policymakers, through a socially responsible decision-making process" (Perlaviciute 2024, 1232–1233). These exercises can contribute by "eliciting and distilling the core societal values that underpin public perceptions and acceptability of (…) policies" (Perlaviciute 2024, 1229).

iii) Proposing/evaluating: the crowd could also suggest alternative policies, with the possibility of the MFA receiving innovative ideas absent from the traditional lines of action, but which could have positive results if tried. It can similarly be useful in the effort of evaluating policies already being implemented, with distinct feedback and opinions aggregated into the planning process. According to the "citizen engagement" framework developed by the Organization for Economic Cooperation and Development (OECD), in such settings "citizens and stakeholders are given the opportunity and the necessary resources (e.g., information, data, and digital tools) to collaborate during all phases of the policy cycle and in service design and delivery", including the possibility of citizen participation in "setting the agenda, proposing project or policy options and shaping the dialogue" (OECD 2024, 33). The OECD (2024) also registers multiple countries that already adopt crowdsource initiatives of this kind in different policy domains.

Finally, the MFA ought not to be restricted to this official digital platform alone. It should also develop forms of keeping track of online discussions that take place in other digital spaces, in order to enhance its monitoring and engagement capabilities. In addition, MFAs could also complement the online interaction with resort to specific approaches of consultation, involving, for example, structured in-person mechanisms such as "Public Councils". Among the different possibilities of citizens participation in foreign policy compiled by Headley and van Wyk (2012), besides forms of digital engagement such as "electronic feedback channels" and "eDiscussions", there are "travelling deliberative hearings" (when draft policies are debated by citizens in multiple locations), "deliberative polls" (when representative groups debate with experts before forming opinions and voting on it), "voter juries" (when representative citizen panels systematically evaluate policies) and even referenda on foreign policy issues. Similar evaluation efforts about citizens participation concluded that is has "transformative potential" (Geis et al. 2022).

Empirical example 1: the "ideas channel" at the US Department of State

In October 2021, then US Secretary of State Antony Blinken gave a speech to the Foreign Service Institute in which he presented a comprehensive modernization agenda for the US State Department. The plan had five pillars and included proposals such as expanding capacity in "critical areas" (climate, global health security, cyberspace and emerging technologies), taking actions related to personnel (especially focused on increasing the diversity of the working force) and modernizing data and technology communications (turning the DoS into a "learning institution") (Blinken 2021). These actions already advance the overall proposals from this thesis, but one stands out as an example: the creation of the "ideas channel".

In that speech, besides suggestions to the inclusion of new technologies and the focus on critical areas, Blinken made a concrete proposal aiming to increase the number of inputs to the policy process. With the aim to "elevate new voices and encourage more initiative and more innovation", he announced the launching of this channel by which "employees at any level anywhere in the world will be able to share their policy ideas directly with department leaders" (Blinken 2021). At that

moment, these were the only available information, presented alongside a push to "hear more from the American people (...) [by] asking all senior officials to make domestic travel and engagement a greater priority" (Blinken 2021). This specific engagement effort would not be so structured as the ideas channel, relying instead on an *ad-hoc* basis of consultations by which the State Department would:

> Reach out much more regularly to civil society groups, private companies, state and local governments, community organizations, universities, and (...) make sure that (...) [it is] connecting with people from different parts of the country – urban and rural – because our mission isn't to serve some Americans, but all Americans. We're diplomats, and we're going to focus more of our diplomacy here at home to make sure our policies reflect the needs, the aspirations, the values of the American people. (Blinken 2021)

The ideas channel would complement and expand the previous tradition of "inside consulting" at the State Department, until then centered on the "Open Forum". This is a mechanism created in 1967 and since then operational (Slany 1983). It serves as the US Department of State's in-house "ideas and dissent" incubator, with a volunteer body (originally ten people, later increased to around 20) that reports directly to the Secretary and is structurally located within S/P. Its goal is to give employees, especially junior and mid-level officers, a channel to present new policy ideas, through open seminars, brown-bag debates, and written submissions ("idea memos") that may be shared across the DoS (GAO 2005; DoS 2025; Jones 2000).

The innovation, therefore, brought by the "ideas channel" is the establishment of a permanent, virtual forum for a widespread (global) participation, offering the possibility of inputs to the policy planning process from diverse actors. It is codified in Chapter 2 ("2 FAM 080: Policy Ideas Channel") of the *Foreign Affairs Manual*, which structures the State Department's organization, policies, and procedures (DoS 2024). The *Manual* presents the "Policy Ideas Channel" as "a platform for Department employees to submit ideas that offer fresh approaches to diplomatic challenges, introduce creative ways to improve diplomatic tradecraft, and/or propose modifications to existing foreign policy decisions, directions, and programs". Participation, however, is limited to "any U.S. citizen who is a U.S. direct hire or re-employed annuitant employee of the Department of State".

The objective is to "ensure that employees can put forward to Department leadership policy ideas and solutions-oriented initiatives to advance (...) diplomatic priorities that might otherwise have gotten stuck or lost in the bureaucracy" (DoS 2024). S/P is the unit responsible for the management of the ideas channel, whose submissions involves only sending an e-mail:

> Policy Ideas Channel messages must be submitted to the Policy Ideas Channel email address IdeasChannel@state.gov or IdeasChannel@state.sgov.gov. Submitters should use the template provided on the Policy Ideas Channel SharePoint site. If needed, submitters may also attach supplemental documents or materials with the template via email. The Subject Line of Policy Ideas Channel submissions must have the words "Ideas Channel," followed by a brief description of the idea being offered. (DoS 2024)

There are similarities between the prototype here proposed and the the ideas channel. As our proposal, the channel is a permanent, online platform which aims to increase the number of actors involved in providing inputs to the policy planning process. It is grounded, as revealed in Blinken's (2021) speech, in a conscious objective to increase the diversity of the stakeholders in this process. Nevertheless, it is still a closed, non-interactive and "credentialist" platform, which allows only for the one-sided participation of the Department's employees, leaving the interactions with outside actors to the *ad-hoc* process of consultations.

Empirical example 2: the German consultative process to develop its new "China strategy"

Ever since a mismatch between elite aspirations and public opinions became evident at the 2014 edition of the Munich Security Conference, Germany has been systematically developing a structure of public consultation to its foreign policy making process (Bagger 2015; Oppermann 2019). The initial response by the Federal Foreign Office (AA, in the German acronym) came with the "Review 2014", which institutionalized outreach activities and created a "Citizens' Dialogue and Domestic Public Diplomacy" unit to embed participation in everyday diplomatic practice (Geis et al. 2022). One of its flagship initiatives is the "'Citizen Workshop on Foreign Policy', which convenes 100 citizens to discuss broad foreign policy questions for one day in Berlin", but it also implements projects such as "'Diplomats in Dialogue' and 'Open Situation Rooms', typically gathering about twenty citizens

for a couple of hours and focused on a topical issue such as Brexit" (Geis et al. 2022, 619).

Research about the effectiveness of these practices has concluded that while early dialogues often adopted a "professorial" tone, many officials now value them as a reality check capable of infiltrating the diplomatic bubble (Opitz 2024). Additionally, it has been demonstrated that AA pursued four main motivations with these initiatives, namely "image campaigning, educating citizens, listening to citizens, and changing the citizens' role" (Opitz et al. 2021).

Important foreign policy subjects in Germany have since been approached through public participation, from which we highlight the country's 2023 China Strategy. As discussed in chapter one of this thesis, the rise of China is one of the most consequential events for the international system, responsible for the increase of its complexity. It also creates a situation which forces countries, still in a situation of deep uncertainty about the future (and facing the possibility of a critical juncture in the system), to make decisions and take sides. That makes it even more relevant that Germany has resorted to public participation in crafting its new strategy towards China, which came up in a moment of deep social polarization regarding this relationship.

China is often presented as one of the main variables responsible for Germany's economic success (the second "Wirtschaftswunder") in the 21st century (Münchau 2024). On Germany's export-driven economic model, China played a double key role, simultaneously supplying a torrent of relatively cheap consumer goods, electronics and critical inputs while absorbing a large share of German exports, especially of cars, machinery and chemicals (Münchau 2024). If this has generated prosperity, in recent years, amid growing geopolitical tensions, critics have been pointing out to increased dependence, which they see as an almost existential risk to the country's political and economic model (Benner and Fix 2022). As the argument goes, the original idea that economic exchange would bring about political convergence proved to be an illusion, resulting, instead, in a one-sided dependence on China (Benner and Fix 2022). According to the critics, this would not have been solved even with recent changes in the narrative of strategic culture by

chancellor Olaf Scholz, and the reason would be the ongoing privileging of business ties with Beijing, given the interest of the CEO's of Germany's largest companies, such as BASF and Volkswagen. The resulting scenario is one of polarization around an issue as central as it is divisive: while powerful economic sectors claim for the perpetuation and deepening of the ties with China, others demand urgent "de-risking", by which they intend to diminish relations through diversification of trade and investments, "selective tech decoupling", alignment with US incentives and strengthening of deterrence. In this divisive and challenging situation, how could the country's MFA, the AA, plan its China policy?

The coalition agreement reached in December 2021 between the Social Democratic Party (SPD), the Greens and the Free Democratic Party (FDP), which established the basis for the Scholz government, included the compromise of developing a "comprehensive China strategy" (SPD et al. 2021, 147). The crafting of such document took around one and a half years of "extensive consultations with stakeholders and intense negotiations between ministries" (Bartsch and Wessling 2023).

Even though the complete structure of the multitrack consultations was not publicly disclosed, as well as the way the strategy was being crafted and adapted throughout it, important information about this process has come from selective leaks to the press and the analysis of secondary documents, generating a few important milestones. A "Bundestag" cost report registers two "stakeholder roundtables" ("Fachgespräche China-Strategie"), between November and December 2022, held within AA premises (Deutscher Bundestag 2021b). These occasions involved consultations with business and civil-society associations, such as BDI (the Federation of German Industries), DIHK (the Association of German Chambers of Commerce and Industry), VDA (the German Association of the Automotive Industry), DGB, (the German Trade Union Confederation), BUND (Friends of the Earth Germany) and NGO networks. Furthermore, there was a cross-government and social-partner outreach workshop, in December 2022, under the coordination of the BMAS (the Ministry of Labor and Social Affairs), in which all ministries took part, together with the Federal Chancellery and both DGB (trade-unions) and BDA (the Federal Association of German Employers' Associations) (Deutscher Bundestag

2021a). Finally, even though it is not possible, according to the available open-source documents, to specify how many meetings in total took place and how they were structured, then German Foreign Minister Annalena Baerbock (2023) acknowledged the existence of "countless discussions (...) among the federal ministries, with colleagues in the German Bundestag, with representatives of the German business community, with all parts of the scientific and academic community, with NGOs and above all with our international partners, worldwide".

The comparison between a leaked draft of the strategy and its final version reveals that it has been substantially modified by this consultative process. Among the main changes there was an increase of the "mandatory investment screening threshold" from € 10 million to € 16 million and the softening of the language referring to Huawei participation in Germany's 5G network, away from the initial full "ban in core and edge" (von der Burchard 2022; Government of the Federal Republic of Germany 2023).

In conclusion, faced with one of the central issues of contemporary international politics, in a divided social environment, the government of Germany resorted to a systematic public consultation, from which not all details are known. It had a clear focus on engagement with key economic and political actors with diverging views, which shaped the final document. At the same time, however, the government did not make direct use of its already existing citizens engagement channels to this specific strategy, as it had previously done in other areas, such as the 2021 climate law (Bürgerrat Klima 2021). Even in these cases, Germany was mostly doing consultations with a limited number of citizens randomly chosen, which made it stop short of harnessing the full potential from collective intelligence that would come from a more comprehensive, "non-credentialist" and open approach.

4.5.2 The "emergence" axis: crafting adaptive policies

Conceptual approach

Besides the collective intelligence axis related to the diversity of the complex system, the proposed prototype should also deal with emergence. In this sense, in

addition to its fully participatory approach, it should also aim to be flexible and adaptive, so it can better respond to the unpredictable changes which inevitably arise in this kind of uncontrollable setting.

As previously discussed, a key characteristic of complex systems is that they give rise to emergent phenomena, which can be understood as "higher order structures and functionalities that arise from the interactions of the entities" (Page 2011, 25). These phenomena are created by the interaction of a system's units, and only through this interaction can be understood. Because they are characteristically non-additive and non-linear, emergent phenomena are unpredictable and surprising (Miller and Page 2007), as well as irreducible and unexplainable (Bedau and Humphreys 2008). Emergence, thus, makes a complex system unpredictable and uncertain, a setting in which prediction is impossible. It is, therefore, not possible to base a planning effort in future foresight. How, then, can a planning process unfold?

While traditional approaches to planning were based on the predict-then-plan approach, our proposed prototype embraces the development of capacities which allow for quick adaptation in face of unforeseen changes as its main feature. Therefore, based on the "designing for emergence" framework, a starting point must be the idea that "the future cannot be designed" (Pendleton-Jullian and Brown 2018a, 128). This approach also recommends the adoption of a bottom-up approach (not focusing on the end goal, but rather systematically engaging with as many units of the systems as possible) and the centrality of taking into consideration the context with its many, simultaneous elements (social, material, and technical), so the planner can work from "within" the system (Pendleton-Jullian and Brown 2018b; 2018a). Organizationally, this means abandoning the previous paradigm of the planner as a sole author and embracing, instead, its function as an orchestrator, whose primary goal is to coordinate the large number of stakeholders involved in the process (Pendleton-Jullian and Brown 2018a).

A core feature of the prototype is that it consciously includes the need for adaptation from the beginning of the planning process instead of just as a response

to a specific unpredictable event already unfolding). For that, two moments are crucial.

First, there is an exploratory stage, in which a comprehensive set of multiple scenarios must be developed as a basis for posterior adaptation. The goal is to systematically explore the possible consequences of the various uncertainties present, as well as the numerous different alternative evolution courses of the system (Kwakkel and Haasnoot 2019). As previously noted, due to the requirement of a high quantity of scenarios, this is a step which might benefit from the inclusion of new technologies into the planning effort. Given the diversity which characterize complex systems, this scenario-building effort should also be fully participatory, including large-scale participation (Pendleton-Jullian and Brown 2018a). These multiple scenarios will present an overview of the diversity of possible future paths, which allows for the generation of policy alternatives.

Second, from this set of policy alternatives, the planning process must develop flexible plans (which can be adapted over time) and adaptive policies (alternative actions implemented only when there are signals that they are needed) (Walker et al. 2001; Kwakkel and Haasnoot 2019). The plan should reflect the "basic policy", namely its main objectives (Walker et al. 2001). Ideally, this basic policy should be robust, i.e., it should perform "relatively well – compared to the alternatives – across a wide range of plausible futures" (Lempert et al. 2006, 514). Furthermore, in addition to this plan, it should be devised a set of adaptive policies, composed by "sequential combinations of policy options", "designed to be incremental, adaptive, and conditional" (Walker et al. 2001, 284). From this set of policies, some are to be immediately implemented while others are conditional on actual events happening (or not happening). Because the whole planning is contingent, it depends on constant monitoring, based on signposts ("information that should be tracked in order to determine whether defensive or corrective actions or a policy reassessment is needed") and triggers ("critical values of the signpost variables that lead to implementation of defensive or corrective actions or to a policy reassessment") (Walker et al. 2001).

The virtual, multistakeholder platform of the prototype can also be deployed to achieve these goals:

a) Flexible plan/basic policy: in the diplomatic planning, these should reflect the national interests. It is important, however, to understand it – as discussed in chapter three – as something plural, over which no single actor or organization has a monopoly. Thus, through collective engagement it is possible to perceive how the national interests are being understood by the country's population and then structure the planning for how to pursue them. These national interests that compose the flexible plan of the basic policy are, nevertheless, relatively more constant, due to the particularities of foreign policy previously discussed. Therefore, it is important that they are a result of this consultative process and that they might adapt from time to time, but ideally this adaptation should not be so fast, since they form the core of the planning.

b) Adaptive policies: on the other hand, the policies designed to achieve this basic policy (the national interests) are supposed to be fully flexible and adaptive. As discussed before, the whole planning should be contingent. According to what is in fact happening in the world, one or another set of possible policies end up implemented. Additionally, it should also be possible to stop this implementation and change course with no delay.

c) Monitoring: on this continuous, multistakeholder platform, monitoring happens nonstop. It is through monitoring that the planning process receives the inputs from the triggers and signposts which are responsible to implementing or changing certain policies. It also allows for quick adaptation and to understand trends and processes before they reach a defining moment.

By implementing this prototype, it would be possible to consider grand strategy as *a strategy of adaptation* built on a deliberative effort and constantly adapted to the ongoing events. This could help to advance in the direction of aiming towards not only collective intelligence, but also collective adaptation: the ever-evolving dynamic between the entangled components of a group that constantly change (and change each other), forcing the collective to keep adjusting through a continually moving "adaptive landscape" (Galesic et al. 2023).

By openly embracing adaptation, the foreign policy planning process can free itself from the pretense divide between grand strategy (the traditional top-down, control- and prediction-focused approach) and "emergent strategy" (based on learning, adaptation, and incremental decisions) (Popescu 2017). The adaptive model of planning, as proposed in our prototype, would, thus, revitalize grand strategy's core, at least as described by Rosecrance and Stein (1993, 3), according to whom "grand strategy came to mean the *adaptation* of domestic and international resources to achieve security for a state" (emphasis ours). After all, even Kennan, considered the godfather of foreign policy planning, recognized that "American policy since World War II was not based 'on any global plan,' but owed much to a great deal of improvisation" (Miscamble 1993, 348).

In sum, to find ways to systematically address unpredictability and develop a capacity to respond to it properly is the main goal of this prototype. As the next subsections demonstrate, some of the tools which assist in this goal are already being deployed.

Empirical example 1: use of scenarios in policy planning

Many governments around the world are already deploying multiple-scenarios tools to assist them in their policymaking efforts. From them, Singapore offers perhaps one of the most mature examples of whole-of-government foresight feeding foreign policy. Singapore's Public Service evolved its strategic-planning practice since the late-1980s, based on the premises that its small size and vulnerability make not planning too risky, and that resilience comes from continuously managing uncertainty (Prime Minister's Office - Singapore 2011). It adopted as a goal that the public sector must shift from rule-based efficiency to adaptive, networked governance capable of handling ambiguity and complexity (Prime Minister's Office - Singapore 2011).

The country's experience consolidated with the institutionalization of the Centre for Strategic Futures (CSF), in 2009, whose mandate (especially the task of long-term, open-ended research and method experimentation) was later embedded into the Prime Minister's Office (Prime Minister's Office - Singapore 2018). It explicitly aims to harness complexity through scenario building in a comprehensive

approach, which includes participatory mechanisms to future building in many different exercises (Prime Minister's Office - Singapore 2018). Among them, it is worthy to mention CSF's "FutureCraft workshops", which happen twice a year for senior officials (CSF 2025). In these meetings, participants take part in exercises in scenario construction and stress-testing of policy levers. It is attended by Ministry of Foreign Affairs' staff alongside economic, defense and climate negotiators. CSF analysts then maintain an "emerging issues radar" that flags weak signals (for example, AI governance norms) for ASEAN working groups, and senior CSF advisers brief the ASEAN Secretary-General to translate strategic insights into regional diplomacy (CSF 2025). The result is a live, continuously updated sense-making system that lets Singapore pivot quickly when power balances or technology trajectories shift.

In the United Kingdom, the Government Office for Science has developed the "Futures Toolkit", which puts a DMDU-style discipline at the center of its policy craft (UK Government Office for Science 2024). It is a set of 12 different "futures thinking tools", which conducts officials through scenario-building and horizon-scanning in search of drivers of change. To do that, it constructs multiple divergent scenarios, and then "policy stress-tests" each option across those to see where it still works or fails. Templates, facilitator guides and worked examples are published openly, enabling any department to run workshops without hiring outside consultants.

In the United States, every five years the National Intelligence Council produces an assessment report that frames policy debate around five divergent geopolitical scenarios, the last of which is "Global Trends 2040" (National Intelligence Council 2021). Its scenario matrix is then used by the National Security Council to stress-test strategy options before they reach the President. In addition, inside the Department of State and USAID, the "Project Horizon" program translates those scenarios into inter-agency war-games and "capability sprints" that aim to identify policies that stay viable across thousands of futures (Grieco 2015). According to Fedoroff (2008), it has three main goals: to develop strategic interagency capabilities to prepare for the threats and opportunities over the next 20 years; provide participating agencies with a scenario-planning toolset that can

be used to support both internal agency planning and planning across agencies; and to provide a starting point for an institutionalized interagency planning process.

To conclude, these above-mentioned examples all demonstrate the current use of scenarios in exercises of policy planning. At the same time, it must be noted that the theoretical approach of DMDU highlights that, due to the complexity of the system, an extremely large set of scenarios should be included, being this a main point of difference among the proposed prototype and the existing empirical examples.

Empirical example 2: the adaptive strategy of AI regulation in China

Even though not explicitly a foreign policy issue *per se*, the way China has been approaching the regulation of artificial intelligence is a good example of adaptive planning. Furthermore, as previously discussed in-depth, new technologies (among them chiefly AI) are deeply interconnected to the current developments of the international order, and China has a special role in this regard.

Fundamentally, analysts point to the deeply participatory and iterative nature of the process, which seeks to incorporate revisions from various actors demands, including nongovernmental ones, such as technology companies. It is dynamic and allows for adaptation: an initial regulatory impetus, founded on the imperative of content control, was later combined with economic issues and incentives to innovation, to answer to the inputs received. In sum, "if the government deems a regulation it has issued to be flawed or insufficient, it will simply release a new one that plugs holes or expands the scope, as it did with the generative AI draft regulation expanding on the deep synthesis measures", an approach Chinese regulators seem to consider necessary to regulate a fast-changing technology environment (Sheehan 2023, 16).

In the first place, it is noteworthy that the AI regulation process is mirroring the approach adopted by the development of Internet regulations in the country, which took place through the decades of 2000 and 2010. At that moment, the government originally adopted an exploratory approach, throughout several years, during which it encouraged various public discussions on the topic. Gradually, it

began to create more-specific regulations on some issues, which later unfolded into a national regulatory framework: the 2017 Cybersecurity Law (Sheehan 2023). It is, thus, possible to perceive a tradition of adaptive, iterative approaches to regulation of new technology consolidating in China, constantly generating new lessons that are included in later processes.

A similar approach is currently unfolding regarding AI, but this time with a faster-paced rhythm. The starting milestone was the launch, in 2017, of the "Plan for New-Generation AI Development", whose aim is to encourage the development of artificial intelligence in China and which established a timetable of regulatory evolution up to the 2030s (State Council of the People's Republic of China 2017).

China is building algorithm governance layer by layer with an adaptive, iterative strategy: each new regulation reuses and refines the registry mechanism to address emerging algorithmic risks and progressively tighten oversight. In 2021, for example, it released the "Provisions on the Administration of Algorithmic-Recommendations", the country's first binding rules for "recommendation engines that can shape public debate" (CAC 2021). Developers whose systems have "public-opinion properties" or "social-mobilization capabilities" were obliged to enter detailed training-data and deployment information into a new government-run "algorithm registry": a database explicitly designed to support future rules.

Following this effort, on the next year, the release of the "Provisions on the Administration of 'Deep Synthesis' of Internet Information Services" was adopted, building on that previous foundation to tackle "deepfakes" (i.e., algorithmically generated or altered video, audio, images, or text) (CAC 2022). Among other measures, they require synthetic media to carry labels, mandate platforms to police abusive or misleading uses, and compel both service providers and content creators to register their real identities. Importantly, the AI models must likewise be filed in the previously established "algorithm registry", demonstrating a continuity among these different pieces of regulation.

Even though the 2022 "Provisions" already regulate AI-generated content, it was not the end of the regulatory effort of the matter in China. Part of the explanation lies on the launch of ChatGPT by the US company OpenAI in November

2022, which took China's technology sector by surprise. Up until that moment, the country seemed to follow the hypothesis developed by Lee (2021), according to whom even though it lagged behind Western countries (mainly US, UK and Canada) on the invention of new AI models, it would ultimately win this technological race, mainly due to its incomparably vast amount of available data in a period in which most (if not all) breakthrough innovations had already come to life. The unpredicted release of ChatGPT fundamentally challenged this approach and released a shock wave around the country (Li 2023).

Therefore, in part as an adaptive response to this unforeseen event, in April 2023, the Cyberspace Administration of China (CAC) published a preliminary version ("draft") of the "Interim Measures for the administration of generative artificial-intelligence services", opening them to public debate (CAC et al. 2023b). These "draft measures" became famous by their regulatory rigor, which reached the point, in many cases, of making them impossible to implement. Among the provisions of the text, for example, it was included that: providers of generative AI should guarantee the "truth, accuracy, objectivity and diversity" of the data used to train the models, which should also respect intellectual-property rights; generative-AI models could not be discriminatory with regard to issues such as gender and race; AI-generated content should be "true and accurate"; and providers of generative AI should carry out the "algorithm registry" of their creations (an element from previous regulations).

These "draft measures" were put on a period of open debate, which revealed public concerns, especially on the part of Chinese technology companies, who demonstrated the fear that the excessive rigor of the measures could stifle the AI industry in China. The challenge would be, therefore, how to balance the government guideline of guaranteeing content control with the harnessing of the economic gains arising from new technologies based on artificial intelligence.

As a result, the government adapted its approach and developed another version (this time not a "draft") of the "Interim Measures", incorporating key insights from that consultative process (CAC et al. 2023a). In general lines, they kept the objectives of the "draft" version, but in a markedly softer form. The scope of

regulation was narrowed to cover only the use of generative AI technologies for public services, while innovation was emphasized alongside security. Obligations for content accuracy were eased, shifting from strict guarantees of truth and objectivity to calls for measures improving transparency, reliability, and data quality. Finally, instead of requiring real-name registration of users, the rules called for terms-of-agreement between providers and users to define rights and responsibilities (China Law Translates 2023).

These changes reveal the fundamentally adaptive nature of the Chinese approach to AI regulation. It must be also taken into account that this later AI-regulatory measure, even though itself a reviewed/adapted document compared to of the initial version ("draft"), constitutes another provisional document, whose terms must be reviewed over time. In sum, China's unfolding AI rule-making process illustrates adaptive planning in action: a governance style that treats regulation not as a single, static decree but as a living architecture built for continuous upgrade. Each regulatory layer, from the 2017 Plan, through the 2021 and 2022 rules, to the two-step Interim Measures, functions almost like software versions: they are released, stress-tested by market and society, then patched or re-compiled to close the gaps revealed in real time.

Furthermore, the recurrent use of an algorithm registry, the regular openings of public-comment periods and the willingness to relax or strengthen regulations after feedback are responsible for embedding response loops directly into the rule-making cycle, mirroring the experimental governance China pioneered during earlier Internet regulation. Crucially, this cycle is not purely top-down: input from tech firms, academics, and consumers is routinized, allowing the country to recalibrate the perennial tension between content control and innovation incentives. Particularly, the swift pivot after the surprise of ChatGPT's debut shows the system's capacity to absorb exogenous shocks without grinding to a halt.

Taken together, these features exemplify adaptive planning's core virtues: iterative learning, modular policy design, and institutionalized flexibility. As AI capabilities and risks evolve, China's model suggests that the regulators most likely to keep pace will be those that build revision into their rulebooks from the start and

treat every piece of legislation as a draft whose real test begins only after it is released.

4.5.3 The owner and curator of the platform: political judgement and translation

On chapter three, this thesis discussed how the MFA could act as the owner and curator of its platform, a role by which it can structure, shape and influence the discussion that take part in it. This subsection aims to further demonstrate how, by acting as such, the MFA can fulfill two central roles: performing both political judgement and acts of translation.

First, it must be taken into consideration the perspective that diplomacy is, fundamentally, an exercise of political judgement (Belli 2018). According to this view:

> Diplomacy [is] not a technical discipline, derived from Political Science or from its younger sister, International Relations, but [rather] the exercise of political judgement over particular situations, a judgement that, although it takes into account and is influenced by values and interests, does not derive from them general principles or comprehensive recipes capable of guiding specific decisions. (...) In this exercise of political judgement that is the central core of diplomatic activity, the ethics of responsibility and the ability to respond to concrete interests and combine them with values that are the pillars of a society and confer on it its own identity play a central role. It is a complex, non-automatic process that requires not only profound knowledge of the subjects dealt with but also the exercise of a faculty of judgement that keeps very much in mind the consequences of the decisions and of the possible paths taken, without ceasing to be guided by the legitimacy and exemplary validity that those decisions must enjoy in order to be sustainable and ethically acceptable (Belli 2018, 15).[7]

As Belli's (2018) argument goes, diplomats are capable of relying on their previous practice to develop a capability of exercising political judgement. This goes in line with the already discussed concept by Kornberger (2022) of the diplomat as the actor responsible with the central tasks of translation and mediation between heterogenous, distributed actors.

This particular trait shall be especially useful for our prototype for two main reasons. First is the premise that, being implemented in an international system of foreign affairs, diplomacy is inevitably constrained by network effects, or "network

---

[7] Free translation.

externalities". In a classic analysis about the "QWERTY keyboard", for example, David (1985) shows that once a product becomes part of a technically interrelated system (in his analysis, typewriters, typists, and training schools), each new purchaser makes the same choice more attractive for the next, generating a positive feedback (economies of scale). This means that every incremental adoption of QWERTY lowers its user-costs and raises the probability that the following adopter will also pick QWERTY. Once expectations converge onto the idea that a certain pattern will dominate, the system converges on a single standard, in a way that sunk costs of learning and conversion end up creating "quasi-irreversibility". In such a context, network externalities arise because value grows with collective adoption, and that same mechanism "locks in" the early winner, obliging everyone thereafter to abide by its pattern (David 1985). Once this system, and its lock-in, is in place, all actors have to abide by its rules and patterns if they want to be a part of the system and act in it efficiently. Thus, considering that there is a global diplomatic system, the same logic applies: for a country to have an effective diplomacy, it should abide by the rules and patterns recognized by the system.

In this sense, considering that diplomats (and MFAs, therefore) are the actors with the best knowledge of the diplomatic system's network externalities and that it is their core function to exercise political judgement, we can conclude that after receiving the inputs from the proposed multi-stakeholder platform, it falls upon them to finalize the decision-making process. This also takes into consideration, for example, the also previously discussed peculiarities of foreign policy in regard to other public policies, especially in connection to its special relation to national interests and their defense, with an emphasis on continuity and the necessity of being careful when adopting profound changes (Soares de Lima 2013), which call for heightened levels of political judgement.

A similar perspective was recognized by studies about citizen participation in the policy cycle, which reserve a final decision-making stage for the "public authorities". According to an OECD analysis, for example:

> When citizens and stakeholders are given the opportunity and the necessary resources (e.g., information, data, and digital tools) to collaborate during all phases of the policy cycle and in service design and delivery (...), it acknowledges equal

standing for citizens in setting the agenda, proposing project or policy options and shaping the dialogue – although the responsibility for the final decision or policy formulation in many cases rests with public authorities (OECD 2024, 33).

A note of caution is, however, necessary. If in this moment of decision-making, based on its political judgement nature, the MFA ends up reversing the core inputs it received from the platform, this would be a fundamental failure of the proposed prototype. To argue that it has this capacity is not to confer to it an unchecked power to ignore the previous process. Rather, what seems to be necessary (and the second reason why the perspective of diplomacy as an act of political judgement is important for this thesis) is for the MFA to act as a faithful *translator*, in an act of transmitting the same message on a different context, and by doing this shaping it to be better understood in this new, different setting.

According to Walter Benjamin (2022, 254), "translation is a form" that, to be understood as such, "one must go back to the original, for the laws governing the translation lie within the original". Furthermore, he argues that "all translation is only (...) an instant and final [attempt] rather than a temporary and provisional solution to this foreignness [that] remains out of the reach of mankind" (Benjamin 2022, 257). In such a setting, the task of the translator "consists in finding the particular intention toward the target language which produces in that language the echo of the original" (Benjamin 2022, 258). In general, this is how he portrays the translation's relation to the original:

> A translation, instead of imitating the sense of the original, must lovingly and in detail incorporate the original's way of meaning, thus making both the original and the translation recognizable as fragments of a greater language (...). For this very reason translation must in large measure refrain from wanting to communicate something, from rendering the sense, and in this the original is important to it only insofar as it has already relieved the translator and his translation of the effort of assembling and expressing what is to be conveyed. In the realm of translation, too, the words *En archei en ho logos* ["In the beginning was the word"] apply. On the other hand, as regards the meaning, the language of a translation can – in fact, must – let itself go, so that it gives voice to the *intentio* of the original not as reproduction but as harmony, as a supplement to the language in which it expresses itself, as its own kind of *intentio*. (...) A real translation is transparent; it does not cover the

original, does not block its light, but allows the pure language, as though reinforced by its own medium, to shine upon the original all the more fully.

To be efficient and to not subvert the whole process proposed by the prototype here presented, the final translation by the MFA should aim to abide by Benjamin's standard. It must faithfully convey the original intention which resulted from the proposed process and stick to it at the same time that translates it to the necessary form to be rightly received in the global diplomatic system and its locked-in standards, norms and rules.

This is, evidently, a point of tension. This tension is crucial to this prototype, and it cannot be avoided or excluded, so the better way to deal with it is explicitly and consciously. Fundamentally, it refers to dispute between technique and politics, as famously studied by Max Weber (2004). The proposed prototype is derived from the field of studies of complexity and organizations in complex systems. It also uncommonly invites a large-scale participation in foreign policy. However, it is designed already considering that its implementation would occur in an essentially political environment, a space defined by contradictions and clashes of interests. Nevertheless, this act of translation, for the reasons mentioned above, is indispensable, and will be better performed when professionally done by public servants committed to the parameters of the prototype.

4.6 Conclusion

This chapter is the culmination of the argument being developed throughout this thesis. It presents, in the form of a prototype (provisional, built to test and refine concepts before full-scale implementation, open to error and adaptation), a proposal of how to structure a process of foreign policy planning with the purpose of harnessing the complexity inherent to the international system.

First, it locates the prototype within the field of strategic planning, in close relation to the concepts of national interest, strategy and grand strategy. It reviews the paradigmatic model of policy planning created by Kennan in the US, discussing both its innovative contribution and its shortcomings. These are portrayed especially for its connection to the traditional, linear model of planning, whose main

goal was to bring order and foresight into foreign policy (a doomed attempt according to the complexity framework). As the critiques presented here claim, this has weakened the capacity of the whole planning process, which ended up considered "dead, dying or moribund" (Drezner 2009, 3).

To overcome it, the main proposal was to consciously incorporate complexity into the planning process. A key premise here was the idea that grand strategy is "a tool, rather than an automatic output, and therefore can be manipulated by agents who enact intentional designs" (Lissner 2018, 65). It was shown that some authors already argued in favor of bridging the gap between planning/strategy and complexity, notably Slaughter (2017) and Prantl (2021). Nevertheless, these proposals seem to still be in an illustrative approach. What was, thus, attempted was to advance this agenda by proposing concrete design and implementation alternatives.

The resulting prototype is composed by a cross-cutting imperative (incorporation of digital technologies), two axis (maximizing as much as possible the number of stakeholders through a platform approach and explicitly developing adaptive plans) and an enhanced role for the MFA (traditionally tasked with the exercise of political judgement, it should also be a translator of the process results into recognizable and effective diplomatic practice). Empirical examples in which important parts of the prototype are already on display in real-life situations were discussed, even though it was also demonstrated how they fall back from fully advancing the proposals of the prototype.

Taken together, these elements of the prototype recast foreign policy planning as an effort of collective adaptation: a conversation that never ends, with full use of digital technologies, moderated and translated by the MFA into the idiom of diplomatic practice. If the classical, prediction-centric model pioneered by Kennan's Policy Planning Staff can no longer cope with a hyper-connected, fast-moving international system, consciously designing for complexity seems to be a promising alternative. Thus, if planning is to remain useful, it must evolve from its traditional approach (small and "credentialist" teams, linear information chains and faith in foresight) into an open, adaptive ecosystem: digitally harness the crowd and

its collective intelligence and address emergence through built-in adaptability, while also strengthening the MFA's translation capabilities.

The eventual implementation of this prototype would undoubtedly require an extremely high degree of experimentation and political will. Yet, failing to do so and sticking to the old methods risks repeating the pattern of action which was leading policy planning to the harsh critics it currently faces (with serious, concrete consequences to a country's foreign policy, in cases of ineffective planning). Complexity is, after all, not a temporary aberration, but a defining feature of the contemporary international system. Therefore, a planning process that harnesses it, rather than attempt to resist it, offers a path to purposeful statecraft in today's deeply unpredictable world.

Conclusion

This thesis began with the acknowledgement that, amid a series of unpredictable events with structural impact, the world is defined by uncertainty. It made reference in its introduction, for instance, to a survey of contemporary art and architecture which concluded that the blur is the defining trend of today's world, a sign of the difficulty of clearly understanding, analyzing and navigating it (Wisnik 2018).

Not many years after that specific survey was published, it is significant that the 2025 edition of the Venice Biennale of Architecture, under the direction of Carlo Ratti, from the Massachusetts Institute of Technology (MIT), fully embraced complexity as its curatorial foundation. Titled *"Intelligens.* Natural. Artificial. Collective*"*, the most important international architecture event of the world was curated in a close dialogue with the issues discussed in this thesis. As Ratti wrote in his "Introduction" to the Biennale concept:

> When the systems that have long guided our understanding begin to fail, new forms of thinking are needed. (...) The time has come for architecture to embrace adaptation: rethinking how we design for an altered world. Adaptation demands a fundamental shift in our practice. This year's Exhibition (...) invites different types of intelligence to work together to rethink the built environment. The very Latin title *Intelligens* contains the word "gens" ("people") – inviting us to experiment beyond today's limited focus on AI and digital technologies. In the time of adaptation, architecture is at the center and must lead with optimism. In the time of adaptation, architecture needs to draw on all forms of intelligence – natural, artificial, collective. In the time of adaptation, architecture needs to reach out across generations and across disciplines - from the hard sciences to the arts. In the time of adaptation, architecture must rethink authorship and become more inclusive, learning from science. Architecture must become as flexible and dynamic as the world we are now designing for (Ratti 2025).

What the 2025 Venice Biennale proposal demonstrates is that architecture – the original art of the *progetto* and the *disegno,* historically grounded on the premises of control – not only evolved from recognizing the complexity which makes today's world unpredictable and uncontrollable (the blur), but is already

coming up with concrete proposals on how to handle and harness it. Not coincidentally, these proposals fall under the same framework of this thesis, putting adaptation up center and consciously including elements such as digital technologies and collective intelligence.

Faced with a similar challenge, this thesis set out to address a fundamental question: how can states plan their foreign policy in an international system characterized by complexity, with increasing unpredictability, turbulence, and structural change? The core argument was that, because the international system is best understood as a complex adaptive system, traditional linear and mechanistic approaches to planning are inadequate. Instead, embracing complexity, by harnessing diversity, emergence, and adaptive institutional design, offers a more productive way forward.

The contributions of this research are threefold. First, it consolidates and advances the application of complexity theory to the study of international relations, stressing that unpredictability is not an anomaly to be controlled but a constitutive feature of global politics. Second, it proposes a general model of institutional design that explicitly incorporates complexity, through the axes of diversity and emergence. Third, it develops a prototype for foreign policy planning, centered on digital platforms, broad stakeholder engagement, adaptive policymaking, and a renewed role for Ministries of Foreign Affairs as interpreters and curators rather than monopolistic gatekeepers.

This prototype is not presented here as a definitive solution, but rather as an exploratory design. By consciously naming it a prototype, the thesis underscores both its experimental nature and the expectation that it should be iterated, adapted, and improved through practice. The adoption of such a model would demand high levels of political will and institutional openness, as well as the recognition that legitimacy in a complex environment derives from inclusiveness and adaptability.

Beyond its immediate scope, the thesis also highlights broader implications. The proposed model resonates with wider debates about governance and policymaking in an age of networks and platforms. It suggests that planning under complexity is not about achieving certainty, but rather about fostering resilience and

learning. By reframing foreign policy planning as a fully open and participatory process of continuous collective adaptation, states may transform uncertainty from a liability into a resource.

Future research might pursue three distinct but interrelated avenues. First, empirical testing: applying the prototype in different national contexts to assess feasibility, performance, and limitations. Second, comparative studies: examining how states are currently experimenting with adaptive approaches, and what lessons can be drawn. Third, political inquiry: further exploring the implications of digital, platform-based planning and the tension between inclusiveness and effectiveness, as well as between technique and politics. This final notion of political judgement and translation as the key mediating processes, only briefly mentioned, deserves particular attention.

As proposed in chapter four, the platform-based prototype does not aim to dissolve political decision-making into consultative processes or to equate participation with the direct transfer of public input into policy. Instead, it conceives the Ministry of Foreign Affairs as a translator: an actor responsible for political judgement, which involves interpreting, filtering, and synthesizing the multiplicity of voices that arise from participatory and digital environments. This translation should not be understood as a bureaucratic function, but rather as a fundamentally political task. It is through translation that coherence is built into the prototype.

This conception highlights a productive tension that runs through the entire thesis: that between politics and technical systems. On the one hand, digital platforms expand the reach and inclusiveness of participation, offering new tools for sensing and processing complexity, as was repeatedly advocated in the previous chapters. On the other hand, they could risk replacing judgment with automated aggregation. The thesis recognizes this tension but does not claim to resolve it. Instead, it argues that the very act of translation must remain a conscious and deliberative effort to reconnect the technical infrastructure of participation with the political essence of foreign policy. Without such mediation, foreign policy would risk becoming populist, if it were reduced to the unfiltered immediacy of public sentiment. The challenge lies in maintaining a space where the political essence of

foreign policy retains its autonomy *while* remaining fully participatory and informed by the distributed intelligence of society. Further study is therefore necessary to refine the concept and practice of translation within the proposed model.

Such analysis about the *political dimensions* of implementing such a prototype, which is still pending, should be considered as integral part of the proposal advocated by this thesis. In doing so, this political analysis should aim to address and incorporate crucial issues such as: how to deal with conflicting views around fundamental issues, especially in environments of political polarization? In such a context, how should the act of political judgment and decision-making be performed by the "MFA as translator and orchestrator"? Can MFAs be "neutral judges" in this setting, or should they bring their own preferences into play – and, in this case, how should these bureaucratic preferences be handled? How to deal with the increased power of the MFAs which could ensue from its reformulation according to this proposal (as owner and curator of the platform)? Finally, what could be the implications of the implementation of such a prototype in different kinds of political regime, including non-democratic ones?

Ultimately, this thesis advocates for a profound shift in approaches and mindsets, which follows the realization of the international system's growing complexity. The search for prediction and control, inherited from Newtonian and realist traditions, gives way to an acceptance of complexity and uncertainty as permanent features of world politics. In this light, planning becomes not an attempt to forecast the future but a continuous exercise in adaptation, orchestration, and translation. To recall Axelrod and Cohen (2000), the challenge is not to escape complexity but to harness it.

In closing, the argument here advanced is that the 21st century demands a foreign policy architecture attuned to the dynamics of a complex, interconnected, and uncertain world. If the 20th century sought order amidst chaos, the 21st must inevitably learn how to navigate complexity. By consciously designing institutions and planning processes that embrace, rather than resist, unpredictability, states can better equip themselves to act with purpose and creativity in this world that defies certainty.

References

Acemoglu, Daron, and James A. Robinson. 2013. *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. Profile Books.

Adams, Ware. 1947. *The Policy Planning Staff: Departmental Order Establishing the Policy Planning Staff (May 5, 1947)*. 24 (9): 7–9.

Adler, Paul S. 2001. "Market, Hierarchy, and Trust: The Knowledge Economy and the Future of Capitalism." *Organization Science* 12 (2): 215–34.

Allison, Graham. 2017. *Destined for War: Can America and China Escape Thucydides's Trap?* Houghton Mifflin Harcourt.

Amorim Neto, Octavio, and Andrés Malamud. 2020. "Presidential Delegation to Foreign Ministries: A Study of Argentina, Brazil, and Mexico (1946–2015)." *Journal of Politics in Latin America* 12 (2): 123–54. https://doi.org/10.1177/1866802X20944184.

Andersson Schwarz, Jonas. 2017. "Platform Logic: An Interdisciplinary Approach to the Platform-Based Economy." *Policy & Internet* 9 (4): 374–94. https://doi.org/10.1002/poi3.159.

Ashworth, Scott, Christopher R. Berry, and Ethan Bueno de Mesquita. 2021. *Theory and Credibility: Integrating Theoretical and Empirical Social Science*. Princeton University Press.

Axelrod, Robert, and Michael Cohen. 2000. *Harnessing Complexity: Organizational implications for a scientific frontier*. The Free Press.

Baerbock, Annalena. 2023. "Speech by Foreign Minister Baerbock at MERICS on the Future of Germany's Policy on China." July 13. https://www.auswaertiges-amt.de/en/newsroom/news/policy-on-china-2608766.

Bagger, Thomas. 2015. "'Review2014': A Project of Reflection and Change in German Foreign Policy." *The Hague Journal of Diplomacy* 10 (4): 421–29. https://doi.org/10.1163/1871191X-12341322.

Bak, Per. 1996. *How Nature Works: The Science of Self-Organized Criticality*. Springer Science+Business Media.

Baldwin, David A. 2016. *Power and International Relations: A Conceptual Approach*. Princeton University Press.

Bankes, Steve. 1993. "Exploratory Modeling for Policy Analysis." *Operations Research* 41 (3): 435–49. https://doi.org/10.1287/opre.41.3.435.

Bartsch, Bernhard, and Claudia Wessling. 2023. "Germany's New China Strategy: Ambitious Language, Ambiguous Course." In *From a China Strategy to No Strategy at All: Exploring the Diversity of European Approaches*, edited by Bernhard Bartsch and Claudia Wessling. ETNC Report. Mercator Institute for

China Studies. https://merics.org/sites/default/files/2023-08/ETNC_Report_2023_final.pdf.

Bason, Christian. 2017. *Leading Public Design: Discovering Human-Centred Governance*. Policy Press.

Basrur, Rajesh, and Frederick Kliem. 2021. "Covid-19 and International Cooperation: IR Paradigms at Odds." *SN Social Sciences* 1 (1): 7. https://doi.org/10.1007/s43545-020-00006-4.

Bawden, David, and Lyn Robinson. 2020. "Information Overload: An Introduction." In *Oxford Research Encyclopedia of Politics*, by David Bawden and Lyn Robinson. Oxford University Press. https://doi.org/10.1093/acrefore/9780190228637.013.1360.

Baylis, John, James Wirtz, Eliot Cohen, and Colin Gray, eds. 2002. *Strategy in the Contemporary World: An Introduction to Strategic Studies*. Oxford University Press.

Beard, Charles. 1934. *The Idea of National Interest: An Analytical Study in American Foreign Policy*. The Macmillan Company.

Bedau, Mark, and Paul Humphreys, eds. 2008. *Emergence: Contemporary Readings in Philosophy and Science*. MIT Press.

Belleflamme, Paul, Thomas Lambert, and Armin Schwienbacher. 2014. "Crowdfunding: Tapping the Right Crowd." *Journal of Business Venturing* 29 (5): 585–609. https://doi.org/10.1016/j.jbusvent.2013.07.003.

Belli, Benoni. 2018. "Diplomacia e Discernimento Político: Reflexão Acerca Da Natureza Da Atividade Diplomática." *Cadernos de Política Exterior* 4 (7): 13–40.

Benjamin, Walter. 2022. "The Task of the Translator." In *Walter Benjamin Selected Writings - Volume 1, 1913-1926*, edited by Marcus Bullock and Michael Jennings, translated by Harry Zohn. The Belknap Press of Harvard University Press.

Benkler, Yochai. 2002. "Coase's Penguin, or, Linux and 'The Nature of the Firm.'" *The Yale Law Journal* 112 (3): 369. https://doi.org/10.2307/1562247.

Benkler, Yochai. 2006. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. Yale University Press.

Benner, Thorsten, and Liana Fix. 2022. "Germany's Unlearned Lessons: Berlin Must Reduce Its Dependence Not Just on Russia but on China, Too." *Foreign Affairs*, December 15. https://www.foreignaffairs.com/china/germanys-unlearned-lessons.

Bernstein, Steven, Richard Ned Lebow, Janice Gross Stein, and Steven Weber. 2000. "God Gave Physics the Easy Problems: Adapting Social Science to an

Unpredictable World." *European Journal of International Relations* 6 (1): 43–76. https://doi.org/10.1177/1354066100006001003.

Berridge, Geoff. 2011. *The Counter-Revolution in Diplomacy and Other Essays*. Palgrave Macmillan.

Berridge, Geoff. 2015. *Diplomacy: Theory and Practice*. Palgrave Macmillan UK. https://doi.org/10.1057/9781137445520.

Billinger, Stephan, and Maciej Workiewicz. 2019. "Fading Hierarchies and the Emergence of New Forms of Organization." *Journal of Organization Design* 8 (1): 17. https://doi.org/10.1186/s41469-019-0057-6.

Bisley, Nick. 2013. "Emerging Powers and the Changing Landscape of World Politics." In *Issues in 21st Century World Politics*, Second Edition, edited by Mark Beeson and Nick Bisley. Palgrave.

Bjola, Corneliu, and Ilan Manor. 2024. "Introduction: Understanding Digital DIplomacy - The Grammar Rules and Patterns of Disruption." In *The Oxford Handbook of Digital Diplomacy*, edited by Corneliu Bjola and Ilan Manor. Oxford Handbooks. Oxford university press.

Blesik, Till, Markus Bick, and Tyge-F. Kummer. 2022. "A Conceptualisation of Crowd Knowledge." *Information Systems Frontiers* 24 (5): 1647–65. https://doi.org/10.1007/s10796-021-10176-y.

Blinken, Antony. 2021. "Secretary Antony J. Blinken on the Modernization of American Diplomacy - Speech at the Foreign Service Institute." https://2021-2025.state.gov/secretary-antony-j-blinken-on-the-modernization-of-american-diplomacy/?safe=1.

Bloomfield, Lincoln. 1977. "Policy Planning Redefined: What the Planners Really Think." *International Journal* 32 (4): 813–28.

Boersma, Kees, Nathan Clark, and Caroline Rizza. 2024. "Governing the Uses of Social Media and Crowdsourcing in Crisis and Disaster (Risk) Management." *Risk, Hazards & Crisis in Public Policy* 15 (2): 94–103. https://doi.org/10.1002/rhc3.12310.

Bourbon-Busset, Jacques de. 1959. "Decision-Making in Foreign Policy." In *Diplomacy in a Changing World*, edited by Stephen Kertesz and Matthew Anthony Fitzsimons. University of Notre Dame Press.

Bousquet, Antoine, and Simon Curtis. 2011. "Beyond Models and Metaphors: Complexity Theory, Systems Thinking and International Relations." *Cambridge Review of International Affairs* 24 (1): 43–62.

Braman, Sandra. 2006. *Change of State: Information, Policy, and Power*. MIT Press.

Brands, Hal. 2014. "Introduction: The Meaning and Challenge of Grand Strategy." In *What Good Is Grand Strategy? Power and Purpose in American Statecraft from*

Harry S. Truman to George W. Bush, edited by Hal Brands. Cornell University Press.

Brands, Hal. 2022. "The Dangers of China's Decline: As China's Economic Miracle Fades, Its Leaders May Become More Inclined to Take Risks." *Foreign Policy*, April 14, 46–51.

Brands, Hal, Peter Feaver, William Inboden, and Paul D. Miller. 2017. "Critical Assumptions and American Grand Strategy." Center for Strategic and Budgetary Assessments. https://csbaonline.org/uploads/documents/CSBA6245_(Critical_Planning_Assumptions)v2.pdf.

Brands, Hal, and Francis J. Gavin, eds. 2020. *COVID-19 and World Order: The Future of Conflict, Competition, and Cooperation*. Johns Hopkins University Press.

Bratton, Benjamin. 2015. *The Stack: On software and sovereignty*. The MIT Press.

Bremmer, Ian. 2013. *Every Nation for Itself: What Happens When No One Leads the World*. Portfolio/Penguin.

Bremmer, Ian. 2021. "The Technopolar Moment: How Digital Powers Will Reshape the Global Order." *Foreign Affairs* 100: 112–28.

Brin, Sergey, and Lawrence Page. 1998. "The Anatomy of a Large-Scale Hypertextual Web Search Engine." *Computer Networks and ISDN Systems* 30 (1–7): 107–17. https://doi.org/10.1016/S0169-7552(98)00110-X.

Brown, Kerry. 2017. *China's World: What Does China Want?* I.B. Tauris.

Brown, Tim. 2008. "Design Thinking." *Harvard Business Review* 86 (6): 84–92.

Brzezinski, Zbignew. 1969. "Purpose and Planning in Foreign Policy." *The Public Interest* 47: 52–73.

Burchard, Hans von der. 2022. "Germany Weighs Harder Line on China and Its 'Massive Human Rights Violations.'" *Politico*, November 23. https://www.politico.eu/article/germany-mulls-harder-line-on-china-new-deal-with-taiwan/.

Bürgerrat Klima, Citizens' Climate Assembly. 2021. "Citizens' Climate Report: Recommendations for German Climate Policy." BürgerBegehren Klimaschutz. https://buergerrat-klima.de/content/pdfs/BK_211213_Gutachten_Digital_English.pdf.

Burke, Anthony, Stefanie Fishel, Audra Mitchell, Simon Dalby, and Daniel J. Levine. 2016. "Planet Politics: A Manifesto from the End of IR." *Millennium* 44 (3): 499–523. https://doi.org/10.1177/0305829816636674.

Burns, William. 2021. "CIA Director William Burns Speaks at Georgia Tech." March 19. https://www.youtube.com/watch?v=yVWzer7TTP0.

CAC, Cyberspace Administration of China. 2021. "Provisions on the Administration of Algorithmic Recommendation of Internet Information Services (English-Language Translation at DigiChina)." https://digichina.stanford.edu/work/translation-internet-information-service-algorithmic-recommendation-management-provisions-effective-march-1-2022.

CAC, Cyberspace Administration of China. 2022. "Provisions on the Administration of 'Deep Synthesis' of Internet Information Services (English-Language Translation at China Law Translate)." https://www.chinalawtranslate.com/en/deep-synthesis/.

CAC, Cyberspace Administration of China, National Development and Reform Commission NDRC, Ministry of Education MoE, et al. 2023a. "Interim Measures for the Administration of Generative Artificial-Intelligence Services (English-Language Translation at China Law Translate)." https://www.chinalawtranslate.com/en/generative-ai-interim/.

CAC, Cyberspace Administration of China, National Development and Reform Commission NDRC, Ministry of Education MoE, et al. 2023b. "Measures on the Administration of Generative Artificial Intelligence Services: Draft for Solicitation of Comments (English-Language Translation at China Law Translate)." https://www.chinalawtranslate.com/en/gen-ai-draft/.

Campbell, Kurt. 2016. *The Pivot: The Future of American Statecraft in Asia*. First edition. Twelve.

Campbell, Kurt, and Jake Sullivan. 2019. "Competition Without Catastrophe: How America Can Both Challenge and Coexist With China." *Foreign Affairs* 98 (5): 96–110.

Capoccia, Giovanni, and R. Daniel Kelemen. 2007. "The Study of Critical Junctures: Theory, Narrative, and Counterfactuals in Historical Institutionalism." *World Politics* 59 (3): 341–69. https://doi.org/10.1017/S0043887100020852.

Carter, Bob, and Oliver J. T. Harris. 2020. "The End of Normal Politics: Assemblages, Non-Humans and International Relations." In *Non-Human Nature in World Politics: Theory and Practice*, edited by Joana Castro Pereira and André Saramago. Springer International Publishing. https://doi.org/10.1007/978-3-030-49496-4_2.

Cason, Jeffrey W., and Timothy J. Power. 2009. "Presidentialization, Pluralization, and the Rollback of Itamaraty: Explaining Change in Brazilian Foreign Policy Making in the Cardoso-Lula Era." *International Political Science Review* 30 (2): 117–40. https://doi.org/10.1177/0192512109102432.

Castells, Manuel. 2010. *The Rise of the Network Society*. 2nd ed. The Information Age: Economy, Society, and Culture, v. 1. Wiley-Blackwell.

Chakrabarty, Dipesh. 2015. "The Human Condition in the Anthropocene: Tanner Lectures on Human Values." Yale University.

https://pocoglobal.wordpress.com/wp-content/uploads/2018/03/thehumanconditionintheanthropocene.pdf.

Chandler, David, Erika Cudworth, and Stephen Hobden. 2018. "Anthropocene, Capitalocene and Liberal Cosmopolitan IR: A Response to Burke et al.'s 'Planet Politics.'" *Millennium* 46 (2): 190–208. https://doi.org/10.1177/0305829817715247.

Cheibub, Zairo Borges. 2024. *Diplomacia, diplomatas e política externa: aspectos do processo de institucionalização do Itamaraty*. História Diplomática. Fundação Alexandre de Gusmão*.

Cheung, Yin-Wong, and Jakob de Haan, eds. 2013. *The Evolving Role of China in the Global Economy*. CESifo Seminar Series. MIT Press.

China Law Translates. 2023. "Comparison Chart of Current vs. Draft Rules for Generative AI." https://www.chinalawtranslate.com/en/comparison-chart-of-current-vs-draft-rules-for-generative-ai/.

Choucri, Nazli. 2012. *Cyberpolitics in International Relations*. MIT Press.

Church, William Farr. 1973. *Richelieu and Reason of State*. Princeton University Press.

Cilliers, Paul. 1998. *Complexity and Postmodernism: Understanding Complex Systems*. Routledge.

Coker, Christopher. 2019. *The Rise of the Civilizational State*. Polity.

Collier, Ruth Berins, and David Collier. 1991. *Shaping the Political Arena: Critical Junctures, the Labor Movement, and Regime Dynamics in Latin America*. Princeton University Press.

Cox, Michael. 2009. "Why Did We Get the End of the Cold War Wrong?" *The British Journal of Politics and International Relations* 11 (2): 161–76. https://doi.org/10.1111/j.1467-856X.2008.00358.x.

Cox, Michael. 2023. *Ukraine: Russia's War and the Future of the Global Order*. LSE Press.

Crawford, Neta C. 2016. "Studying World Politics as a Complex Adaptive System." In *International Relations Theory Today*, 2nd ed., edited by Ken Booth and Toni Erskine. Polity Press.

CSF, Centre for Strategic Futures. 2025. *FutureCraft*. https://www.csf.gov.sg/our-work/future-craft/.

David, Paul. 1985. "Clio and the Economics of QWERTY." *The American Economic Review* 75 (2): 332–37.

Davis, Paul K., Tim McDonald, Ann Pendleton-Jullian, Angela O'Mahony, and Osonde A. Osoba. 2021. "Reforming the Teaching and Conducting of Policy Studies to Deal Better with Complex Systems." *Journal on Policy and Complex Systems* 7 (1): 119–39. https://doi.org/10.18278/jpcs.7.1.9.

DeLanda, Manuel. 2006. *A New Philosophy of Society: Assemblage Theory and Social Complexity*. Continuum.

Demchak, Chris, and Peter Dombrowski. 2011. "Rise of a Cybered Westphalian Age." *Strategic Studies Quarterly* 5 (1): 31–62.

Demeritt, David. 2001. "The Construction of Global Warming and the Politics of Science." *Annals of the Association of American Geographers* 91 (2): 307–37. https://doi.org/10.1111/0004-5608.00245.

Deutscher Bundestag. 2021a. "Document 21/233: Response of the Federal Government to the Minor Interpellation by Members of Parliament Stephan Brandner, René Springer, Lukas Rehm, Jan Feser, and the AfD Parliamentary Group – Document 21/122 – 'Activities of the Federal Ministry of Labor and Social Affairs.' [Antwort Der Bundesregierung Auf Die Kleine Anfrage Der Abgeordneten Stephan Brandner, René Springer, Lukas Rehm, Jan Feser Und Der Fraktion Der AfD – Drucksache 21/122 – „Tätigkeiten Des Bundesministeriums Für Arbeit Und Soziales". Drucksache 21/233]."

Deutscher Bundestag. 2021b. "Document 21/493: Response of the Federal Government to the Minor Question by Members of Parliament Stephan Brandner, Lukas Rehm, and the AfD parliamentary group – Document 21/95 – 'Activities of the Federal Ministry for Digital Affairs and Transport.' [Antwort der Bundesregierung auf die Kleine Anfrage der Abgeordneten Stephan Brandner, Lukas Rehm und der Fraktion der AfD – Drucksache 21/95 – „Tätigkeiten des Bundesministeriums für Digitales und Verkehr". Drucksache 21/493.]." https://dserver.bundestag.de/btd/21/004/2100493.pdf.

Dijck, José van. 2013. *The Culture of Connectivity: A Critical History of Social Media*. Oxford University Press.

Dijck, José van, Thomas Poell, and Martijn de Waal. 2018. *The Platform Society*. Oxford University Press.

Dittmer, Jason. 2019. "Distributed Agency: Foreign Policy sans MFA." *The Hague Journal of Diplomacy* 15 (1–2): 155–64. https://doi.org/10.1163/1871191X-15101087.

Dixon, Chris. 2024. *Read Write Own: Building the next Era of the Internet*. First edition. Random House.

Doorn, Niels van. 2017. "Platform Labor: On the Gendered and Racialized Exploitation of Low-Income Service Work in the 'on-Demand' Economy." *Information, Communication & Society* 20 (6): 898–914. https://doi.org/10.1080/1369118X.2017.1294194.

DoS, US Department of State. 2024. "Chapter 2, General Administration. 2 FAM 080: Policy Ideas Channel." In *Foreign Affairs Manual*. https://fam.state.gov/FAM/02FAM/02FAM0080.html.

DoS, US Department of State. 2025. "1 FAM 022.5, 'Open Forum (S/OF),' CT:ORG-701." In *Foreign Affairs Manual*. Washington, DC. https://fam.state.gov/FAM/01FAM/01FAM0020.html.

Doshi, Rush. 2021. *The Long Game: China's Grand Strategy to Displace American Order.* Bridging the Gap. Oxford university press.

Drezner, Daniel. 2009. "The Challenging Future of Strategic Planning in Foreign Policy." In *Avoiding Trivia: The Role of Strategic Planning in American Foreign Policy*, edited by Daniel Drezner. Brookings Institution Press.

Drezner, Daniel. 2020. "The Song Remains the Same: International Relations After COVID-19." *International Organization* 74 (S1): E18–35. https://doi.org/10.1017/S0020818320000351.

Drezner, Daniel W. 2000. "Ideas, Bureaucratic Politics, and the Crafting of Foreign Policy." *American Journal of Political Science* 44 (4): 733. https://doi.org/10.2307/2669278.

Drysek, John S., Richard B. Norgaard, and David Schlosberg. 2011. *The Oxford Handbook of Climate Change and Society*. Oxford Handbooks. Oxford university press.

Dunne, Anthony, and Fiona Raby. 2013. *Speculative Everything: Design, Fictions and Social Dreaming.* The MIT Press.

Dunne, Tim, Lene Hansen, and Colin Wight. 2013. "The End of International Relations Theory?" *European Journal of International Relations* 19 (3): 405–25. https://doi.org/10.1177/1354066113495485.

Escorel de Moraes, Lauro. 1986. "O Conceito de Interesse Nacional e a Responsabilidade Da Diplomacia Brasileira." *Revista Da Faculdade de Direito Da Universidade de São Paulo* 81: 151–61.

Fedoroff, Nina. 2008. "Making Science Diplomacy More Effective: Testimony Before the House Science Subcommittee on Research and Science Education - Hearing on Science Diplomacy." April 2. https://2001-2009.state.gov/g/stas/2008/105286.htm?safe=1.

Feng, Hui. 2006. *The Politics of China's Accession to the World Trade Organization: The Dragon Goes Global*. Routledge Contemporary China Series 8. Routledge.

Ferguson, Niall. 2019. "The New Cold War? It's With China, and It Has Already Begun." Opinion. *The New York Times* (New York), December 2. https://www.nytimes.com/2019/12/02/opinion/china-cold-war.html.

Ferguson, Niall. 2023. "Henry Kissinger's Century." Opinion. *Wall Street Journal* (New York), November 29. https://www.wsj.com/opinion/henry-kissingers-century-01a1a932?mod=hp_opin_pos_1.

Finnemore, Martha. 1996. *National Interests in International Society*. Cornell University Press. https://doi.org/10.7591/9781501707384.

Fleming, Lee, and Olav Sorenson. 2001. "Technology as a Complex Adaptive System: Evidence from Patent Data." *Research Policy* 30 (7): 1019–39. https://doi.org/10.1016/S0048-7333(00)00135-9.

Ford, Christopher. 2011. "Policymaking at the Edge of Chaos: Musing on Political Ideology through the Lens of Complexity." Paper presented at the Conference "Is Complexity the new Framework for the Study of Global Life?," Sidney, Australia.

Frank, Aaron B. 2022. *An Exploratory Examination of Agent-Based Modeling for the Study of Social Movements*. RAND.

Freedman, Lawrence. 2013. *Strategy: A History*. Oxford University Press.

Friedman, Jeffrey A. 2019. *War and Chance: Assessing Uncertainty in International Politics*. Oxford University Press.

Furniss, Edgar, and Richard Snyder. 1955. *An Introduction to American Foreign Policy*. Rinehart.

Gaddis, John Lewis. 1993. "International Relations Theory and the End of the Cold War." *International Security* 17 (3): 5–58.

Gaddis, John Lewis. 2011. *George F. Kennan: An American Life*. Penguin Press.

Gaddis, John Lewis. 2018. *On Grand Strategy*. Penguin Press.

Galbraith, Jay R. 1974. "Organization Design: An Information Processing View." *Interfaces* 4 (3): 28–36. JSTOR.

Galesic, Mirta, Daniel Barkoczi, Andrew M. Berdahl, et al. 2023. "Beyond Collective Intelligence: Collective Adaptation." *Journal of The Royal Society Interface* 20 (200): 20220736. https://doi.org/10.1098/rsif.2022.0736.

GAO, US Government Accountability Office. 2005. *Official U.S. Representation at Government-Sponsored Public-Policy Forums (GAO-06-89R0)*. GAO. https://www.gao.gov/assets/gao-06-89r.pdf.

Ge, Zhaoguang. 2018. *What Is China? Territory, Ethnicity, Culture, and History*. The Belknap Press of Harvard University Press.

Geis, Anna, Christian Opitz, and Hanna Pfeifer. 2022. "Recasting the Role of Citizens in Diplomacy and Foreign Policy: Preliminary Insights and a New Research

Agenda." *The Hague Journal of Diplomacy* 17 (4): 614–27. https://doi.org/10.1163/1871191x-bja10136.

Gell-Mann, Murray. 1994. *The Quark and the Jaguar: Adventures in the Simple and the Complex*. W.H. Freeman & Co.

Gerbaudo, Paolo. 2019. *The Digital Party: Political Organisation and Online Democracy*. Digital Barricades: Interventions in Digital Culture and Politics. Pluto Press.

Geyer, Robert, and Samir Rihani. 2010. *Complexity and Public Policy: A New Approach to 21st Century Politics and Society*. Routledge.

Giles, Jim. 2005. "Internet Encyclopaedias Go Head to Head." *Nature* 438 (7070): 900–901. https://doi.org/10.1038/438900a.

Gillespie, Tarleton. 2018. *Custodians of the Internet: Platforms, Content Moderation, and the Hidden Decisions That Shape Social Media*. Yale University Press.

Gilpin, Robert. 1981. *War and Change in World Politics*. Cambridge University Press. https://doi.org/10.1017/CBO9780511664267.

Gleich, David F. 2015. "PageRank Beyond the Web." *SIAM Review* 57 (3): 321–63. https://doi.org/10.1137/140976649.

Gleick, James. 2008. *Chaos: Making a New Science*. Penguin.

Gleick, James. 2011. *The Information: A History, a Theory, a Flood*. 1st Vintage Books ed., 2012. Vintage Books.

Government of the Federal Republic of Germany. 2023. "Strategy on China of the Government of the Federal Republic of Germany." Federal Foreign Office (Auswärtiges Amt), July 13. https://www.auswaertiges-amt.de/resource/blob/2608580/49d50fecc479304c3da2e2079c55e106/china-strategie-en-data.pdf.

Grewal, David Singh. 2008. *Network Power: The Social Dynamics of Globalization*. Yale University Press.

Grieco, Joseph. 2015. "Improved Strategic Planning: Lessons from Project Horizon." *InterAgency Journal* 6 (3): 39–46.

Haasnoot, Marjolijn, Jan H. Kwakkel, Warren E. Walker, and Judith Ter Maat. 2013. "Dynamic Adaptive Policy Pathways: A Method for Crafting Robust Decisions for a Deeply Uncertain World." *Global Environmental Change* 23 (2): 485–98. https://doi.org/10.1016/j.gloenvcha.2012.12.006.

Hall, Nina, Hans Peter Schmitz, and J Michael Dedmon. 2019. "Transnational Advocacy and NGOs in the Digital Era: New Forms of Networked Power." *International Studies Quarterly* 64: 159–67. https://doi.org/10.1093/isq/sqz052.

Haynes, Laura, Owain Service, Ben Goldacre, and David Torgerson. 2012. "Test, Learn, Adapt: Developing Public Policy with Randomised Controlled Trials." *SSRN Electronic Journal*, ahead of print. https://doi.org/10.2139/ssrn.2131581.

Headley, James, and Jo-Ansie van Wyk. 2012. "Debating the Public's Role in Foreign Policy." In *Public Participation in Foreign Policy*, edited by James Headley, Andreas Reitzig, and Joe Burton. Palgrave Macmillan UK. https://doi.org/10.1057/9780230367180.

Hess, Aurelio, Celso Campos, and Tankiso Moloi. 2019. "Assessing the Resilience of Brazil, Russia, India, China and South Africa Economies Following the Global Financial Crisis." *Acta Commercii* 19 (1). https://doi.org/10.4102/ac.v19i1.659.

Hill, Benjamin Mako, and Aaron Shaw. 2020. "The Most Important Laboratory for Social Scientific and Computing Research in History." In *Wikipedia @ 20: Stories of an Incomplete Revolution*, edited by Joseph M. Reagle and Jackie L. Koerner. The MIT Press.

Hill, Christopher. 2013. *The National Interest in Question: Foreign Policy in Multicultural Societies*. 1st. ed. Oxford Univ. Press.

Hill, Christopher. 2016. *Foreign Policy in the Twenty-First Century*. Palgrave Macmillan.

Hocking, Brian, ed. 1999. *Foreign Ministries*. Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-27317-1.

Hocking, Brian, and Jan Melissen. 2015. "Clingendael Report: Diplomacy in the Digital Age." Clingendael Institute.

Holland, John. 2014. *Complexity: A Very Short Introduction*. Oxford University Press.

Hong, Lu, and Scott E. Page. 2004. "Groups of Diverse Problem Solvers Can Outperform Groups of High-Ability Problem Solvers." *Proceedings of the National Academy of Sciences* 101 (46): 16385–89. https://doi.org/10.1073/pnas.0403723101.

Houde, Stephanie, and Charles Hill. 1997. "What Do Prototypes Prototype?" In *Handbook of Human-Computer Interaction*, edited by Martin Helander, Thomas Landauer, and Prasad Prabhu. Elsevier. https://doi.org/10.1016/B978-044481862-1.50082-0.

Howe, Jeff. 2006. "The Rise of Crowdsourcing." *Wired* 14 (6): 1–4.

Hung, Ho-fung. 2022. *Clash of Empires: From "Chimerica" to the "New Cold War."* Cambridge Elements : Elements in Global China. Cambridge University Press. https://doi.org/10.1017/9781108895897.

Hurrell, Andrew. 2010. "Brazil and the New Global Order." *Current History* 109 (724): 60–66. https://doi.org/10.1525/curh.2010.109.724.60.

Jacques, Martin. 2009. *When China Rules the World: The Rise of the Middle Kingdom and the End of the Western World*. Allen Lane.

Jemielniak, Dariusz, and Aleksandra Przegalinska. 2020. *Collaborative Society*. Essential Knowledge Series. MIT Press.

Jervis, Robert. 1997. *System Effects: Complexity in Political and Social Life*. Princeton University Press.

Johnston, Alastair Iain. 2022. "Is China Trying to Undermine the Liberal International Order?" In *The China Questions: Critical Insights into US-China Relations - Vol 2*, edited by Maria Adele Carrai, Jennifer M. Rudolph, and Michael Szonyi. Harvard University Press.

Jones, David. 2000. "Advise and Dissent: The Diplomat as Protester." *Foreign Service Journal (FSJ)*, no. April: 36–40.

Jowell, Roger. 2003. *Trying It out: The Role of "pilots" in Policy-Making : Report of a Review of Government Pilots*. Cabinet Office, Strategy Unit. https://assets.publishing.service.gov.uk/media/5a74d940ed915d3c7d528 6b4/Trying_it_out_the_role_of_pilots_in_policy.pdf.

Kahler, Miles, ed. 2009. *Networked Politics: Agency, Power, and Governance*. Cornell University Press.

Kalicki, Jan H. 1977. "The State Department Policy Planning Process." *International Journal* 32 (4): 849–58. https://doi.org/10.2307/40201601.

Kaplan, Robert. 2019. "A New Cold War Has Begun: The United States and China Will Be Locked in a Contest for Decades, but Washington Can Win If It Stays More Patient than Beijing." *Foreign Policy*. https://foreignpolicy.com/2019/01/07/a-new-cold-war-has-begun.

Kavalski, Emilian. 2007. "The Fifth Debate and the Emergence of Complex International Relations Theory: Notes on the Application of Complexity to the Study of International Life." *Cambridge Review of International Affairs* 20 (3): 435–54.

Kennan, George F., Paul H. Nitzer, Robert R. Bowie, Gerard C. Smith, and Christian A. Herter. 1961. "Planning in the Department: Testimony of the Directors of Policy Planning." *Foreign Service Journal (FSJ)* 38 (3): 20–26.

Kennan, George Frost. 2014. *The Kennan Diaries*. 1st ed. Edited by Frank Costigliola. W. W. Norton & Company.

Keohane, Robert, and Joseph Nye. 2025. "The End of the Long American Century: Trump and the Sources of U.S. Power." *Foreign Affairs* 104 (4): 68–79.

Kettl, Donald F. 2022. "Weberian Bureaucracy and Contemporary Governance." *Perspectives on Public Management and Governance* 5 (2): 111–20. https://doi.org/10.1093/ppmgov/gvab026.

Kimbell, Lucy, and Jocelyn Bailey. 2017. "Prototyping and the New Spirit of Policy-Making." *CoDesign* 13 (3): 214–26. https://doi.org/10.1080/15710882.2017.1355003.

Kissinger, Henry. 1994. *Diplomacy*. Simon & Schuster.

Kissinger, Henry. 2011. *On China*. Penguin Press.

Kittur, Aniket, and Robert E. Kraut. 2008. "Harnessing the Wisdom of Crowds in Wikipedia: Quality through Coordination." *Proceedings of the 2008 ACM Conference on Computer Supported Cooperative Work*, November 8, 37–46. https://doi.org/10.1145/1460563.1460572.

Klein, Naomi. 2014. *This Changes Everything: Capitalism vs. the Climate*. Simon & Schuster.

Klijn, Erik-Hans, and Joop F. M. Koppenjan. 2006. "Institutional Design: Changing Institutional Features of Networks." *Public Management Review* 8 (1): 141–60. https://doi.org/10.1080/14719030500518915.

Kolbjørnsrud, Vegard. 2018. "Collaborative Organizational Forms: On Communities, Crowds, and New Hybrids." *Journal of Organization Design* 7 (1): 11. https://doi.org/10.1186/s41469-018-0036-3.

Kornberger, Martin. 2022. *Strategies for Distributed and Collective Action: Connecting the Dots*. 1st ed. Oxford University Press. https://doi.org/10.1093/oso/9780198864301.001.0001.

Krauthammer, Charles. 1990. "The Unipolar Moment." *Foreign Affairs* 70 (1): 23–33. https://doi.org/10.2307/20044692.

Kwakkel, Jan H., and Marjolijn Haasnoot. 2019. "Supporting DMDU: A Taxonomy of Approaches and Tools." In *Decision Making under Deep Uncertainty*, edited by Vincent A. W. J. Marchau, Warren E. Walker, Pieter J. T. M. Bloemen, and Steven W. Popper. Springer International Publishing. https://doi.org/10.1007/978-3-030-05252-2_15.

Labott, Elise. 2021. "The Sullivan Model." *Foreign Policy*, April 9. https://foreignpolicy.com/2021/04/09/the-sullivan-model-jake-nsc-biden-adviser-middle-class/.

Lakhani, Karim R, Kevin J Boudreau, Po-Ru Loh, et al. 2013. "Prize-Based Contests Can Provide Solutions to Computational Biology Problems." *Nature Biotechnology* 31 (2): 108–11. https://doi.org/10.1038/nbt.2495.

Lee, Gwendolyn K., and Robert E. Cole. 2003. "From a Firm-Based to a Community-Based Model of Knowledge Creation: The Case of the Linux Kernel

Development." *Organization Science* 14 (6): 633–49. https://doi.org/10.1287/orsc.14.6.633.24866.

Lee, Kai-fu. 2021. *AI Superpowers: China, Silicon Valley, and the New World Order*. Houghton Mifflin Harcourt.

Lehmann, Kai. 2012. "Unfinished Transformation: The Three Phases of Complexity's Emergence into International Relations and Foreign Policy." *Cambridge Review of International Affairs* 47 (3): 404–13.

Lempert, Robert J., David G. Groves, Steven W. Popper, and Steve C. Bankes. 2006. "A General, Analytic Method for Generating Robust Strategies and Narrative Scenarios." *Management Science* 52 (4): 514–28. https://doi.org/10.1287/mnsc.1050.0472.

Lempert, Robert J., Steven W. Popper, and Steven C. Bankes. 2003. *Shaping the next One Hundred Years: New Methods for Quantitative, Long-Term Policy Analysis*. RAND. https://www.rand.org/pubs/monograph_reports/MR1626.html.

Lequesne, Christian. 2020. "Ministries of Foreign Affairs: A Crucial Institution Revisited." *The Hague Journal of Diplomacy* 15 (1–2): 1–12. https://doi.org/10.1163/1871191X-BJA10003.

Lévy, Pierre. 1997. *Collective Intelligence: Mankind's Emerging World in Cyberspace*. Perseus Books.

Li, Yuan. 2023. "Why China Didn't Invent ChatGPT." *The New York Times* (New York), February 17.

Lissner, Rebecca Friedman. 2018. "What Is Grand Strategy? Sweeping a Conceptual Minefield." Preprint, Texas National Security Review. https://doi.org/10.26153/TSW/868.

Liu, James H., Nora Fisher Onar, and Mark W. Woodward. 2014. "Symbologies, Technologies, and Identities: Critical Junctures Theory and the Multi-Layered Nation–State." *International Journal of Intercultural Relations* 43 (November): 2–12. https://doi.org/10.1016/j.ijintrel.2014.08.012.

Maddison, Angus. 2007. *Chinese Economic Performance in the Long Run*. 2nd ed, rev.Updated: 960-2030 A.D. Development Centre Studies. Development Centre of the Organisation for Economic Co-operation and Development.

Mahbubani, Kishore. 2020. *Has China Won? The Chinese Challenge to American Primacy*. 1st. ed. PublicAffairs.

Malone, Thomas W., and Michael S. Bernstein, eds. 2015. *Handbook of Collective Intelligence*. MIT Press.

Marchau, Vincent, Warren Walker, Pieter Bloemen, and Steven Popper, eds. 2019a. *Decision Making under Deep Uncertainty: From theory to practice*. Springer.

Marchau, Vincent, Warren Walker, Pieter Bloemen, and Steven Popper. 2019b. "Introduction." In *Decision Making under Deep Uncertainty: From theory to practice*, edited by Vincent Marchau, Warren Walker, Pieter Bloemen, and Steven Popper. Springer.

McAfee, Andrew, and Erik Brynjolfsson. 2017. *Machine, Platform, Crowd: Harnessing our digital future*. W. W. Norton & Company.

McLuhan, Marshall, and Quentin Fiore. 1969. *The Medium Is the Massage: An Inventory of Effects*. Gingko Press.

Milani, Carlos, and Leticia Pinheiro. 2016. "The Politics of Brazilian Foreign Policy and Its Analytical Challenges." *Foreign Policy Analysis* 13 (2): 278–96. https://doi.org/10.1093/fpa/orw027.

Milani, Carlos R. S., and Leticia Pinheiro. 2013. "Política Externa Brasileira: Os Desafios de Sua Caracterização Como Política Pública." *Contexto Internacional* 35 (1): 11–41. https://doi.org/10.1590/S0102-85292013000100001.

Miller, John, and Scott Page. 2007. *Complex Adaptive Systems: An Introduction to Computational Models of Social Life*. Princeton University Press.

Miller, Paul. 2016. "On Strategy, Grand and Mundane." *Orbis* 60 (2): 237–47. https://doi.org/10.1016/j.orbis.2016.01.002.

Miscamble, Wilson. 1993. *George F. Kennan and the Making of American Foreign Policy, 1947–1950*. Princeton University Press.

Mishra, Pankaj. 2025. *The World after Gaza*. Fern Press.

Mitchell, Melanie. 2009. *Complexity: A Guided Tour*. Oxford University Press.

Modelski, George. 1996. "Evolutionary Paradigm for Global Politics." *International Studies Quarterly* 40 (3): 321. https://doi.org/10.2307/2600714.

Mollick, Ethan. 2014. "The Dynamics of Crowdfunding: An Exploratory Study." *Journal of Business Venturing* 29 (1): 1–16. https://doi.org/10.1016/j.jbusvent.2013.06.005.

Morgenthau, Hans J. 1951. *In Defense of the National Interest: A Critical Examination of American Foreign Policy*. Alfred A. Knopf.

Morgenthau, Hans J. 1985. *Politics among Nations: The Struggle for Power and Peace*. 6th ed. Knopf : Distributed by Random House.

Morozov, Evgeny. 2014. "The Rise of Data and the Death of Politics." *The Observer*, July 20. https://www.theguardian.com/technology/2014/jul/20/rise-of-data-death-of-politics-evgeny-morozov-algorithmic-regulation.

Morozov, Evgeny. 2017. "Digital Intermediation of Everything: At the Intersection of Politics, Technology and Finance." 4th Council of Europe Platform Exchange on Culture and Digitisation: Empowering Democracy Through Culture - Digital Tools for Culturally COmpetent Citizens, Karlsruhe. https://rm.coe.int/digital-intermediation-of-everything-at-the-intersection-of-politics-t/168075baba.

Mostafaei, Hamidreza, Shirin Kordnoori, Mohammadmohsen Ostadrahimi, and Saeed Seyed Agha Banihashemi. 2025. "Applications of Artificial Intelligence in Global Diplomacy: A Review of Research and Practical Models." *Sustainable Futures* 9: 100486. https://doi.org/10.1016/j.sftr.2025.100486.

Münchau, Wolfgang. 2024. *Kaput: The End of the German Miracle*. Swift Press.

Murray, Williamson, and Mark Grimsley. 1994. "Introduction: On Strategy." In *The Making of Strategy: Rulers, States and War*, edited by Williamson Murray, MacGregor Knox, and Alvin H. Bernstein. Cambridge University Press.

National Intelligence Council. 2021. *Global Trends 2040 : A More Contested World*. Washington, D.C.: National Intelligence Council.

Negroponte, Nicholas. 1996. *Being Digital*. With Marty Asher. Knopf Doubleday Publishing Group.

Nicolson, Harold. 1950. *Diplomacy*. Oxford University Press.

Nunes, Rodrigo. 2021. *Neither Vertical nor Horizontal: A Theory of Political Organisation*. Verso.

OECD, Organisation for Economic Cooperation and Development. 2024. "Exploring New Frontiers of Citizen Participation in the Policy Cycle: Discussion Paper." https://www.oecd.org/content/dam/oecd/en/about/programmes/reinforcing-democracy-initiative/Exploring-New-Frontiers-of-Citizen-Participation-Discussion-Paper.pdf.

O'Mahony, Siobhán, and Fabrizio Ferraro. 2007. "The Emergence of Governance in an Open Source Community." *Academy of Management Journal* 50 (5): 1079–106. https://doi.org/10.5465/amj.2007.27169153.

Onnée, Stéphane, and Sophie Renault. 2016. "Crowdfunding: Principles, Trends and Issues." In *Research Handbook on Digital Transformations*, edited by F. Xavier Olleros and Majlinda Zhegu. Edward Elgar Publishing. https://doi.org/10.4337/9781784717766.00023.

Opitz, Christian. 2024. "Democratic Innovations Administered: The Organisational Embeddedness of Public Administrators' Attitudes Towards Participatory Policy Making." *Journal of Deliberative Democracy* 20 (1): 1–11. https://doi.org/10.16997/jdd.1457.

Opitz, Christian, Hanna Pfeifer, and Anna Geis. 2021. "Engaging with Public Opinion at the Micro-Level: Citizen Dialogue and Participation in German Foreign

Policy." *Foreign Policy Analysis* 18 (1): 1–20. https://doi.org/10.1093/fpa/orab033.

Oppermann, Kai. 2019. "Between a Rock and a Hard Place? Navigating Domestic and International Expectations on German Foreign Policy." *German Politics* 28 (3): 482–98. https://doi.org/10.1080/09644008.2018.1481208.

O'Reilly, Tim. 2011. "Government as a Platform." *Innovations: Technology, Governance, Globalization* 6 (1): 13–40. https://doi.org/10.1162/INOV_a_00056.

Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press.

Owen, Taylor. 2015. *Disruptive Power: The Crisis of the State in the Digital Age*. Oxford Studies in Digital Politics. Oxford University Press.

Page, Scott. 2008. "Uncertainty, Difficulty, and Complexity." *Journal of Theoretical Politics* 20 (2): 115–49. https://doi.org/10.1177/0951629807085815.

Page, Scott. 2011. *Diversity and Complexity*. Primers in Complex Systems. Princeton University Press.

Page, Scott. 2021. *The Model Thinker: What You Need to Know to Make Data Work for You*. Basic Books.

Papanek, Victor. 1984. *Design for the Real World: Human Ecology and Social Change*. 2nd. ed. Thames and Hudson.

Pendleton-Jullian, Ann, and John Seely Brown. 2018a. *Design unbound: designing for emergence in a white water world - ecologies of change*. Vol. 2. Infrastructures. The MIT Press.

Pendleton-Jullian, Ann, and John Seely Brown. 2018b. *Design unbound: designing for emergence in a white water world*. Vol. 1. Infrastructures. The MIT Press.

Pereira, Joana Castro, and Andre Saramago, eds. 2020. *Non-Human Nature in World Politics: Theory and Practice*. Frontiers in International Relations. Springer.

Perlaviciute, Goda. 2024. "Citizen Assemblies Should Involve Citizens as Experts on Their Own Values." *One Earth* 7 (7): 1228–34. https://doi.org/10.1016/j.oneear.2024.06.014.

Pettit, Philip. 1996. "Institutional Design and Rational Choice." In *The Theory of Institutional Design*, 1st ed., edited by Robert E. Goodin. Cambridge University Press. https://doi.org/10.1017/CBO9780511558320.002.

Popescu, Ionut C. 2017. *Emergent Strategy and Grand Strategy: How American Presidents Succeed in Foreign Policy*. Johns Hopkins University Press.

Prantl, Jochen. 2021. "Reuniting Strategy and Diplomacy for 21st Century Statecraft." *Contemporary Politics* 28 (1): 1–19. https://doi.org/10.1080/13569775.2021.1961387.

Prime Minister's Office - Singapore, ed. 2011. *Conversations for the Future. Volume 1, Singapore's Experiences with Strategic Planning (1988-2011)*. Public Service Division. https://www.csf.gov.sg/files/media-centre/publications/conversations-for-the-future.pdf.

Prime Minister's Office - Singapore, ed. 2018. *Conversations for the Future. Vol. 2*. Centre for Strategic Futures, Public Service Division. https://www.csf.gov.sg/files/media-centre/publications/conversations_vol2-publication-web.pdf.

Puett, Michael. 2018. "Who Is Confucius in Today's China?" In *The China Questions: Critical Insights into a Rising Power*, edited by Jennifer M. Rudolph and Michael Szonyi. Harvard University Press.

Pugliaresi, Lucian, and Diane T. Berliner. 1989. "Policy Analysis at the Department of State: The Policy Planning Staff." *Journal of Policy Analysis and Management* 8 (3): 379. https://doi.org/10.2307/3324930.

Puntigliano, Andrés Rivarola. 2008. "'Going Global': An Organizational Study of Brazilian Foreign Policy." *Revista Brasileira de Política Internacional* 51 (1): 28–52.

Pye, Lucian. 1992. "Social Science Theories in Search of Chinese Realities." *China Quarterly*, no. 132.

Ramo, Joshua Cooper. 2009. *The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What We Can Do about It*. Little, Brown & Co.

Rana, Kishan S. 2011. *21st Century Diplomacy: A Practitioner's Guide*. Key Studies in Diplomacy. Continuum.

Ratti, Carlo. 2025. "Introduction by Carlo Ratti, Curator of the 19th International Architecture Exhibition." 2025 Biennale Architetura. https://www.labiennale.org/en/architecture/2025/introduction-carlo-ratti.

Reagle, Joseph M., and Jackie L. Koerner, eds. 2020. *Wikipedia @ 20: Stories of an Incomplete Revolution*. The MIT Press.

Reavley, N. J., A. J. Mackinnon, A. J. Morgan, et al. 2012. "Quality of Information Sources about Mental Disorders: A Comparison of Wikipedia with Centrally Controlled Web and Printed Sources." *Psychological Medicine* 42 (8): 1753–62. https://doi.org/10.1017/S003329171100287X.

Rittel, Horst W. J., and Melvin M. Webber. 1973. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4 (2): 155–69. https://doi.org/10.1007/BF01405730.

Ronfeldt, David, and John Arquilla. 2020. *Whose Story Wins: Rise of the Noosphere, Noopolitik, and Information-Age Statecraft*. Perspectives. RAND Corporation. https://www.rand.org/pubs/perspectives/PEA237-1.html.

Rosecrance, Richard. 1999. *The Rise of the Virtual State*. Basic Books.

Rosecrance, Richard, and Arthur Stein. 1993. "Beyond Realism: The Study of Grand Strategy." In *The Domestic Bases of Grand Strategy*, edited by Richard Rosecrance and Arthur Stein. Cornell University Press.

Rosenau, James. 1980. "The National Interest." In *The Scientific Study of Foreign Policy*. Pinter.

Rosenau, James. 1990. *Turbulence in World Politics: A Theory of Change and Continuity*. Princeton University Press.

Ross, Carne. 2013. *The Leaderless Revolution: How Ordinary People Will Take Power and Change Politics in the 21st Century*. Plume.

Rothstein, Robert. 1972. *Planning, Prediction, and Policymaking in Foreign Affairs Theory and Practice*. Perspectives on International Relations. Little, Brown and Company.

Roumate, Fatima, ed. 2021. *Artificial Intelligence and Digital Diplomacy: Challenges and Opportunities*. Springer International Publishing. https://doi.org/10.1007/978-3-030-68647-5.

Rowen, Henry. 2007. "When Will the Chinese People Be Free?" *Journal of Democracy* 18 (3): 38–52.

Sassen, Saskia. 2008. *Territory, Authority, Rights: From Medieval to Global Assemblages*. Princeton University Press.

Scartozzi, Cesare M. 2018. "A New Taxonomy for International Relations: Rethinking the International System as a Complex Adaptive System." *Journal on Policy and Complex Systems* 4 (1): 109–33.

Schrage, Michael. 2000. *Serious Play: How the World's Best Companies Simulate to Innovate*. Harvard Business School Press.

Sheehan, Matt. 2023. "China's AI Regulations and How They Get Made." Carnegie Endowment for International Peace. https://carnegie-production-assets.s3.amazonaws.com/static/files/202307-Sheehan_Chinese%20AI%20gov-1.pdf.

Shirky, Clay. 2009. *Here Comes Everybody: The Power of Organizing without Organizations*. Penguin Books.

Slany, William. 1983. "Historical Memorandum n. 1389: Milestones and History of the Open Forum." Office of the Historian, U.S. Department of State. https://1997-2001.state.gov/dept/openforum/about/slany_article.html.

Slaughter, Anne-Marie. 2017. *The Chessboard and the Web: Strategies of Connection in a Networked World*. Yale University Press.

Soares de Lima, Maria Regina. 2013. "Relações internacionais e políticas públicas: a contribuição da análise de política externa." In *A política pública como campo multidisciplinar*, edited by Eduardo Marques and Carlos Aurélio Pimenta de Faria. Editora Unesp.

SPD, Social Democratic Party of Germany, Alliance 90/The Greens Greens, and Free Democratic Party FDP. 2021. "Dare More Progress - Alliance for Freedom, Justice and Sustainability: Coalition Agreement 2021–2025. English Translation." Friedrich-Ebert-Stiftung Italy. https://italia.fes.de/fileadmin/user_upload/German_Coalition_Treaty_2021 -2025.pdf.

Srnicek, Nick. 2017. *Platform Capitalism*. Theory Redux. Polity.

State Council of the People's Republic of China. 2017. "A New Generation Artificial Intelligence Development Plan (English-Language Translation at DigiChina)." https://digichina.stanford.edu/work/full-translation-chinas-new-generation-artificial-intelligence-development-plan-2017.

Sunstein, Cass R. 2006. *Infotopia: How Many Minds Produce Knowledge*. Oxford University press.

Surowiecki, James. 2005. *The Wisdom of Crowds*. Anchor Books.

Taplin, Jonathan T. 2017. *Move Fast and Break Things: How Facebook, Google, and Amazon Cornered Culture and Undermined Democracy*. 1st. ed. Little, Brown and Company.

Tickner, J. Ann. 1995. "Hans Morgenthau's Principles of Political Realism: A Feminist Reformulation." In *International Theory: Critical Investigations*, edited by James Der Derian. New York University Press.

Tooze, Adam. 2019. *Crashed: How a Decade of Financial Crises Changed the World*. Penguin.

Tooze, Adam. 2020. "Whose Century"." *London Review of Books* 42 (15). https://www.lrb.co.uk/the-paper/v42/n15/adam-tooze/whose-century.

Tufekci, Zeynep. 2017. *Twitter and Tear Gas: The Power and Fragility of Networked Protest*. Yale university press.

UK Government Office for Science. 2024. "The Futures Toolkit: A Set of Tools to Help You Develop Policies and Strategies That Are Robust in the Face of an Uncertain Future (2nd Edition)." https://assets.publishing.service.gov.uk/media/66c4493f057d859c0e8fa7 78/futures-toolkit-edition-2.pdf.

Ulrich, Karl T., and Steven D. Eppinger. 2012. *Product Design and Development*. 5. ed. McGraw-Hill.

United States of America. 2022. "National Security Strategy 2022." https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf.

Van Alstyne, Marshall, Geoffrey Parker, and Sangeet Paul Choudary. 2016. "Pipelines, Platforms, and the New Rules of Strategy." *Harvard Business Review* 94 (4): 54–62.

Varazzani, Chiara, Henrietta Tuomaila, Torben Emmerling, Stefano Brusoni, and Laura Fontanesi. 2023. *Seven Routes to Experimentation in Policymaking: A Guide to Applied Behavioural Science Methods*. OECD Working Papers on Public Governance No. 64. Vol. 64. OECD Working Papers on Public Governance. https://doi.org/10.1787/918b6a04-en.

Vogel, Ezra F. 2013. *Deng Xiaoping and the Transformation of China*. Belknap Press of Harvard University Press.

Vota, Wayan. 2024. "How US State Department Uses AI Strategically in Modern Diplomacy." ICTworks. https://www.ictworks.org/state-department-uses-ai-strategically/.

Walker, Warren E., S.Adnan Rahman, and Jonathan Cave. 2001. "Adaptive Policies, Policy Analysis, and Policy-Making." *European Journal of Operational Research* 128 (2): 282–89. https://doi.org/10.1016/S0377-2217(00)00071-0.

Walt, Stephen. 2021. "Big Tech Won't Remake the Global Order." *Foreign Policy*. https://foreignpolicy.com/2021/11/08/big-tech-wont-remake-the-global-order/.

Wang, Dan. 2025. *Breakneck: China's Quest to Engineer the Future*. W. W. Norton & Company.

Watson, Adam. 1991. *Diplomacy: The Dialogue between States*. Routledge.

Watson, Adam. 1992. *The Evolution of International Society: A Comparative Historical Analysis*. Routledge.

Weber, Max. 2004. *The Vocation Lectures*. Hackett Pub.

Weinberger, J. 1975. "Hobbes's Doctrine of Method." *The American Political Science Review* 69 (4): 1336–53. https://doi.org/10.2307/1955292.

Wheeler, John Archibald. 1990. "Information, Physics, Quantum: The Search for Links." In *Complexity, Entropy and the Physics of Information*, edited by Wojciech H. Zurek, vol. 8. Santa Fe Institute Studies in the Sciences of Complexity. Addison-Wesley.

Wisnik, Guilherme. 2018. *Dentro Do Nevoeiro: Arquitetura, Arte e Tecnologia Contemporâneas*. Ubu.

Woolley, Anita Williams, Christopher F. Chabris, Alex Pentland, Nada Hashmi, and Thomas W. Malone. 2010. "Evidence for a Collective Intelligence Factor in the Performance of Human Groups." *Science* 330 (6004): 686–88. https://doi.org/10.1126/science.1193147.

Xuetong, Yan. 2021. "How Can China Make Its Voice Heard in the New Era of Diplomacy？[新时代外交中国如何发出自己的声音？]." *Guancha*, July 15. https://www.guancha.cn/YanXueTong/2021_07_15_598492_s.shtml.

Zakaria, Fareed. 2012. *The Post-American World: Release 2.0*. W. W. Norton.

Zelikow, Philip. 1994. "Foreign Policy Engineering: From Theory to Practice and Back Again." *International Security* 18 (4): 143–71. https://doi.org/10.2307/2539180.

Zurbriggen, Cristina, and Mariana González Lago. 2024. "Navigating the Future through Experimental Policy Design." In *The Future of Public Administration - Adapting to a Dynamic World*, edited by Muddassar Sarfraz and Muhammad Haroon Shah. IntechOpen. https://doi.org/10.5772/intechopen.1004169.