

## Article

# A Systems Thinking Archetype to Understand, Analyze, and Evaluate the Evolution of International Political Crises <sup>†</sup>

Stefano Armenia <sup>1</sup>, Georgios Tsaples <sup>2</sup> and Eduardo Franco <sup>3,\*</sup><sup>1</sup> Department of Research, Link Campus University, 00165 Rome, Italy; s.armenia@unilink.it<sup>2</sup> Department of Business Administration, University of Macedonia, 54636 Thessaloniki, Greece; gtsaples@uom.edu.gr<sup>3</sup> Complex System Research Group & System Dynamics Group, Computer Engineering Department, Polytechnic School, University of São Paulo, São Paulo 05508-010, Brazil

\* Correspondence: eduardo.franco@alumni.usp.br

<sup>†</sup> This paper is an extended version of our paper published in Armenia, S.; Franco, E.; Tsaples, G. A Systems Thinking Archetype to Understand, Analyze and Anticipate the Evolution of International Crises. In Proceedings of the 2021 System Dynamics Conference—Virtually Chicago, Chicago, IL, USA, 26–31 July 2021.

**Abstract:** Crises are a relevant element of the modern political, economic, and social landscape. To better understand them and their potential dynamic evolution, and thus allow decision makers in turn to design more effective intervention measures, a more comprehensive understanding of their complexity is necessary. Framing a political crisis, especially one where conflicts might ensue, can be crucial for dealing with it. Consequently, there is the need to adopt a new paradigm that can reveal and contextualize the fundamental factors that can give rise to a political crisis, thus allowing for a more accurate description of it and, in turn, ensuring that every stakeholder will perceive it similarly. The present study proposes such a paradigm, to understand how a political crisis emerges, how it might evolve, and how the intertwined relevant factors can be communicated clearly, and yet be layered, which was the Systems Thinking approach. A set of case studies is presented to demonstrate the added value of such an approach. The performed analysis also draws inspiration from international relations theories, through which the Systems Thinking approach shows its capability in effectively evaluating the potentially underlying dynamics of crises and providing an analytical ground for their management and prevention.

**Keywords:** political crises; systems thinking; systems archetypes; causal loop diagrams



**Citation:** Armenia, S.; Tsaples, G.; Franco, E. A Systems Thinking Archetype to Understand, Analyze, and Evaluate the Evolution of International Political Crises. *Systems* **2022**, *10*, 18. <https://doi.org/10.3390/systems10010018>

Academic Editor: William T. Scherer

Received: 28 December 2021

Accepted: 8 February 2022

Published: 13 February 2022

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

International political crises are significant phenomena that frequently affect and shape the political, economic, and social landscape. Despite the importance of their consequences, no single definition exists in the literature to explain what a crisis is, though there are several approaches.

Perrow [1] defines a crisis as a situation when the basic structures, values, and rules of a system are in danger, and those responsible are required to decide, under the pressure of time and deep uncertainty, on issues of critical importance. Crises in public life occur in undeterminable frequencies and at different times and include natural disasters, human conflicts, political revolutions, accidents, etc.

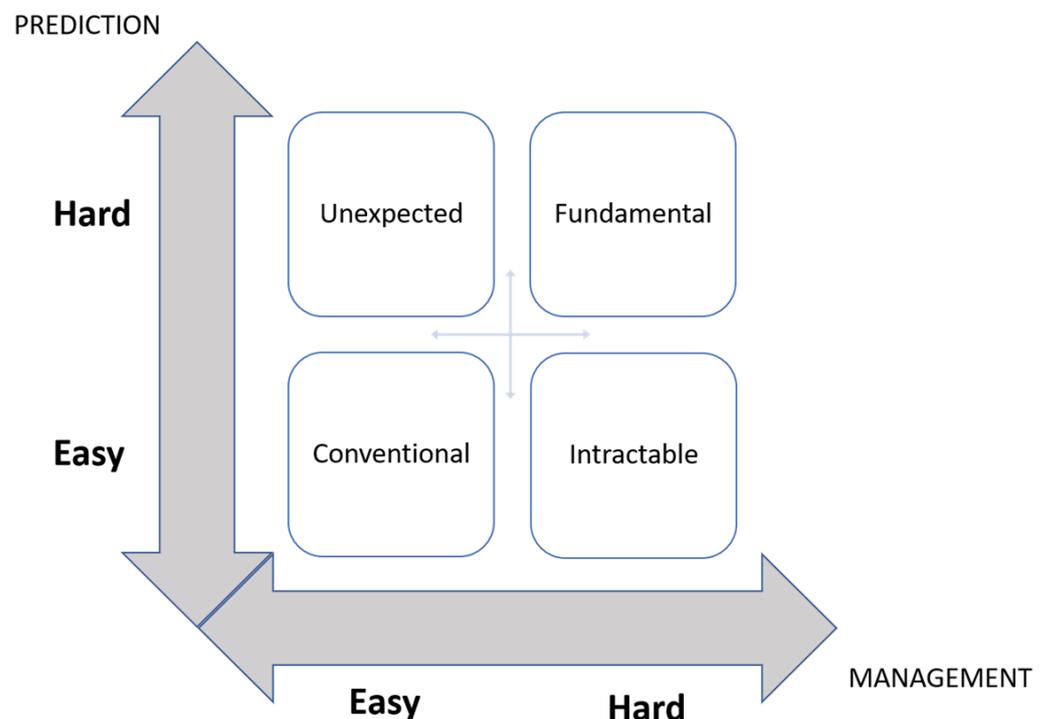
Hermann [2] sees a crisis as a situation characterized by a high level of danger and threat and a time limitation in which a decision must be made. Milburn et al. [3] support the idea that a system is in crisis when there is a “perception” that a crisis is happening; in other words, human perception affects the decision-making process and whether a crisis might exist or not. Similarly, Coombs [4] supports the idea that a crisis exists when those who can influence or be influenced by a system or organization perceive a crisis.

How crises are defined determines how they will be managed. Despite the differences in the definition of a crisis, the main characteristics common to most of the analyzed definitions are the following [5,6]: threat, uncertainty, limited time to make a decision, and perception.

Pearson and Clair [7] developed a composite definition of a crisis from those similar characteristics among the various existing definitions. They support the idea that a crisis is a vague situation with unknown origins and consequences, with a small probability of occurrence but with a high impact on the system when it occurs. Hence, dilemmas arise, and decisions are needed, steering the situation in a better or worse direction [8,9].

Moving from the definitions and their common characteristics, different typologies have similarly been described. James [10] proposes two types of crises: sudden and underlying. Sudden crises occur unexpectedly, and usually, there is no control over their origins [11]. On the other hand, underlying crises begin as minor internal problems and evolve into big, public events, such as scandals, political upheavals, and revolutions.

Gundel [12] presents a more general typology of crises based on how easy or possible it is to predict a crisis and the possibility of managing it. As a result, four general groups of crises are developed: conventional crises, unexpected crises, intractable crises, and fundamental crises (shown in Figure 1).



**Figure 1.** Grouping of crises according to Gundel [12].

Managing a crisis consists of three pillars: (1) the phase before the crisis, which deals with the identification of the signals of the upcoming crisis, the preparation, and the efforts to prevent it; (2) the phase of the crisis itself, which entails the determination of the situation and the efforts to deal with it; and (3) the post-crisis phase, which entails the efforts to recover and the absorption and managing of the knowledge/experience that was gained from the crisis [4].

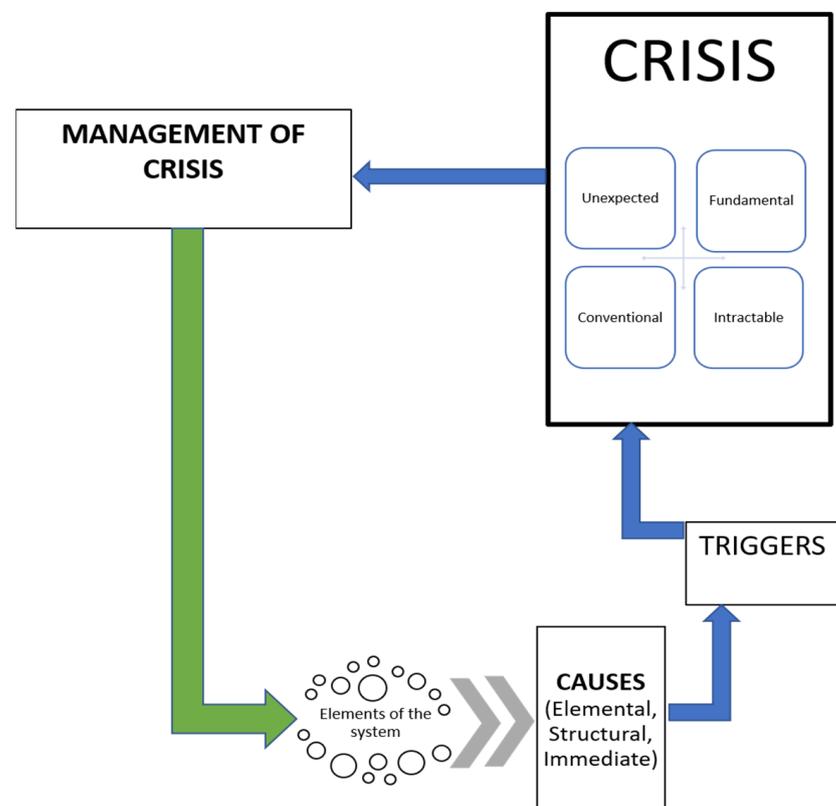
A study about crises cannot treat those pillars independently and as a simple procedure as the response to a crisis includes dangers to humans and materials. Thus, the decision-making process during such a period can be inhibited by limited resources and cognitive restrictions [7,13]. Furthermore, these pillars relate to symptoms, but not much is offered about how the root causes give rise to the symptoms.

Simultaneously, in the NATO Allied Joint Publication AJP-05 [14], several factors contributing to the various crises are identified. These are:

- Elemental causes: the theoretical aspects, such as survival instincts, ideology, and values.
- Structural causes: poor governance, lack of political participation, conditions of inequality, etc.
- Immediate causes: human rights abuses, role of neighboring countries, etc.
- Triggers: assassinations, coups d'état, technological failures, natural disasters, etc.

Consequently, the literature has been focused on the individual blocks of the “crisis event”; if an event can be classified as a crisis, what triggered it, what caused it, and finally, how can it be (or has it been) managed? However, starting from the classification of [12], while taking into account the above-mentioned factors, there seems to be the need not only to identify the various causes that generate a crisis but also to investigate how the various elements of the system undergoing the crisis are connected (to make sure that the statically hypothesized causes are also the effective ones) and, in turn, which type of crisis might emerge depending on the underlying behavior.

Hence, to better design effective management measures to deal with a political crisis, there is the need for a more comprehensive, systemic understanding of its complexity in terms of the underlying dynamics, with a particular focus on the results of long-overlooked trends and interactions, along with how the management itself can affect the underlying dynamics. Furthermore, any framework that could assist policymakers in managing such a situation should also consider that decisions should be taken in a limited time without perfect knowledge, while considering how a crisis is perceived and framed [15]. Finally, any framework that focuses on political crisis should incorporate elements such as human values and human behavior and general elements that are not easily quantifiable. As a result, there is a need for a framework that would incorporate all the above considerations and would allow reflection on and quick insights into potential measures for international political crises; such a framework should have a cyclical structure, as depicted in Figure 2.



**Figure 2.** The main blocks defining a “crisis” event.

Systems Thinking can assist in addressing those needs and provide the appropriate paradigm to study and analyze the deeper roots of a political crisis and how it can progress. Systems Thinking can be regarded as the art and science of making inferences about a system's behavior and understanding how its underlying structure could drive its evolution over time [16].

Systems Thinking can be viewed as an intellectual approach to reality that is focused on a systemic perspective, making it possible not only to analyze individual elements but also to analyze how they are causally connected to form a system. As such, the main systemic characteristics that are used are:

- Elements: the entities of a system;
- Interconnections: the relationships among the elements;
- Purpose: the goal of the system [17].

These components are fully in line with the factors contributing to the definition of a crisis (see again Figure 2), thus reinforcing the argument that Systems Thinking can be a viable candidate for studying political crises and offering insights into potential responses. This led to some research efforts in the literature. Interestingly, the potential of Systems Thinking applied to crises analysis and assessment has already been demonstrated in De Angelis and Armenia [18], where the authors analyzed the 2012 crisis in Mali. In particular, they identified the elements that appeared to explain the crisis by assessing several characteristics. Based on those, they moved from a specific to a general perspective of a crisis, and they designed a "crisis systems archetype", which is an underlying structure that can be recognized as acting in most crises. In a following work [19], the same authors attempted extending such reasoning by also inferring the existence of such an archetype in historical crises, namely by trying to understand the Gallic crisis through Julius Caesar's approach to policymaking (by reconciling the main elements of that historical context to the mentioned archetype). Finally, starting from the very same archetype, Só et al. [20] investigated and were able to better comprehend the low human development in the Guinea-Bissau crisis, hence further validating the existence of such a crisis archetype.

Nonetheless, research efforts to utilize the strengths and explanatory capabilities of Systems Thinking in international political crises are still limited.

As a result, building again on the work by De Angelis and Armenia [18], the objective of the current paper is to offer a comprehensive systemic framework that would allow policymakers to quickly analyze and reflect on an international political crisis. The objective consists of two goals:

- First, to provide a general overview of the existing literature and theories on international political crises, primarily related to using Systems Thinking in order to investigate the emerging and surrounding crises contexts and their underlying behaviors and causes.
- Second, to explore and demonstrate how Systems Thinking, as a viable approach that supports the analysis of political crises, can help to understand the political context that recently unfolded in Venezuela. This latter specific crisis is ongoing, with events emerging every few months, and without complete knowledge of the system in its entirety; thus, it can serve as an ideal test to the proposed framework.

Thus, the overall approach of the paper can be seen as an inductive one: the case of Venezuela could assist in validating the systemic framework (through the adoption of the "crisis systems archetype"), hence offering an alternative view in the analysis and explanation of international political crises in general and allowing for a clearer understanding of how the underlying factors of crises can affect their evolution.

This work is organized as follows.

First, this study provides a literature overview of the most relevant publications (in an extensive timeframe, from 1908 to 2021), using relevant keywords, and describes the methodological approaches to political, economic, and social crisis management through the main theories about international relations.

Then, the paper introduces the Systems Thinking approach as a qualitative methodological framework (we will also argue how it can be the basis for a quantitative description, through its quantitative declination, System Dynamics) that will allow the examining of case studies through their cause–effect interconnections, thereby potentially evaluating their qualitative evolution over time.

From this perspective, the Venezuelan crisis is assessed firstly by identifying the relevant stakeholders with their objectives, interests, and capabilities and secondly by resorting to the causal loop diagrams (CLDs) as a visual tool to interconnect the main components of the countries' systems and, finally, by building up ad-hoc systemic structures (archetypes).

The conclusions on the adopted approach are drawn precisely out of the “cross-fertilization” of political sciences and international relations theories together with the Systems Thinking approach, with the prospect of providing an approach that can allow for a better understanding of the nature of modern political crises as well as offering some valuable insights for effective management and intervention.

## 2. Literature Overview

This section presents an overview of the existing literature related to international political crises by depicting the publication landscape, followed by a summary of the current international relations theories and conflict analysis and closing with a description of how Systems Thinking can be used in a political crisis context.

### 2.1. Publications Landscape

Before analyzing and addressing the research objective proposed in the present study, a brief overview of the political crisis research field is presented. First, the publication landscape related to combined international political crises, investigated through the lens of the systems approach, was mapped using the “Web of Science Core Collection” and the Scopus databases for collecting a publication dataset. This dataset was then used to identify the main journals that published studies on the subject, the most cited published studies, and the evolution trends of the research field.

These databases were selected because they provide an interface to simultaneously search across different sources using a common set of search fields for obtaining comprehensive results [21]. They cover studies from ACM, EBSCOhost, Elsevier, Emerald, IEEE, INFORMS, MDPI, ProQuest, SAGE, Springer, Taylor & Francis, and Wiley, among many other publishers. Besides, the “Web of Science” database is also the source for computing the “Journal Citation Report” index (journal impact factor), one of the most used mechanisms for evaluating journals based on citation data.

For defining the search string, an iterative construction process was employed by performing an initial manual search combining the terms “international crisis”, “political crisis”, “crisis evaluation”, “crisis analysis”, and “international conflict”. The keywords for relevant papers already known were also evaluated along with synonyms and related keywords. This process was repeated with the resulting sample until no additional article was found. Finally, Boolean operators were used to merge the terms into a single search string, which is presented in Table 1, and then used for querying both databases.

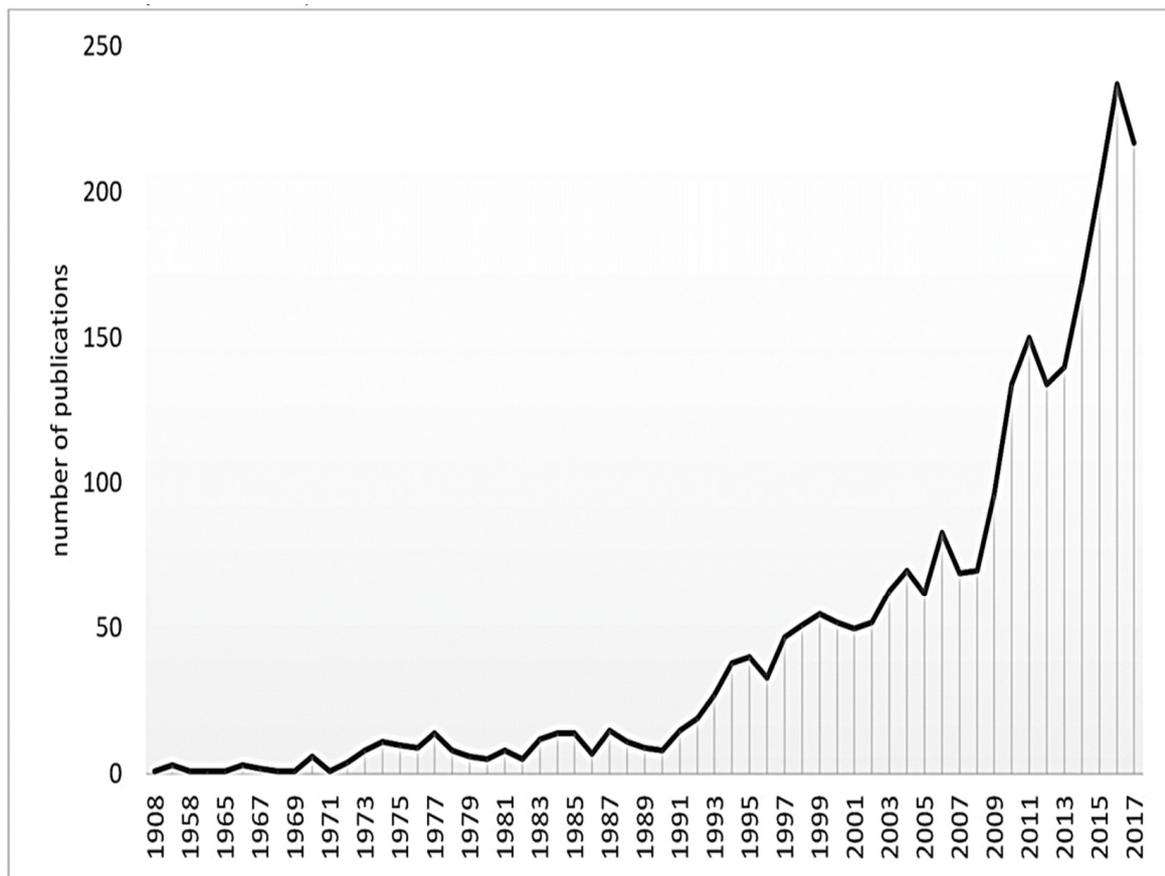
**Table 1.** Search string used for collecting the publication sample and results obtained.

Search String	Database	Fields	Number of Results
((“cris* anticipation” OR “cris* analy*” OR “cris* eval*” OR “cris* assess*” OR “social cris*” OR “humanitarian cris*” OR “political cris*” OR “international conflict*” OR “international cris*”) AND (“system* thinking” OR “system* approach*” OR “cybernetic*” OR “system dynamic*” OR “systemic”))	Web of Science	All fields	116
	Scopus	Article title, Abstract, and Keywords	186

asterisk (\*) represents any group of characters, including no character.

All the analyses shown in the following were carried out with the open-source R package bibliometrix [22]. We retrieved only the works that were published in English, and the search led to a collection containing 302 articles (116 from Web of Science and 186 from Scopus), which were published between 1974 and 2021. After extracting and merging the datasets, we removed the duplicated entries, resulting in a single dataset containing 220 publications.

Figure 3 depicts the evolution of the published studies over the years. Since the beginning of 2000, the number of yearly publications related to the international political crisis topic has increased consistently, indicating an increasing interest from the academic community on the subject.



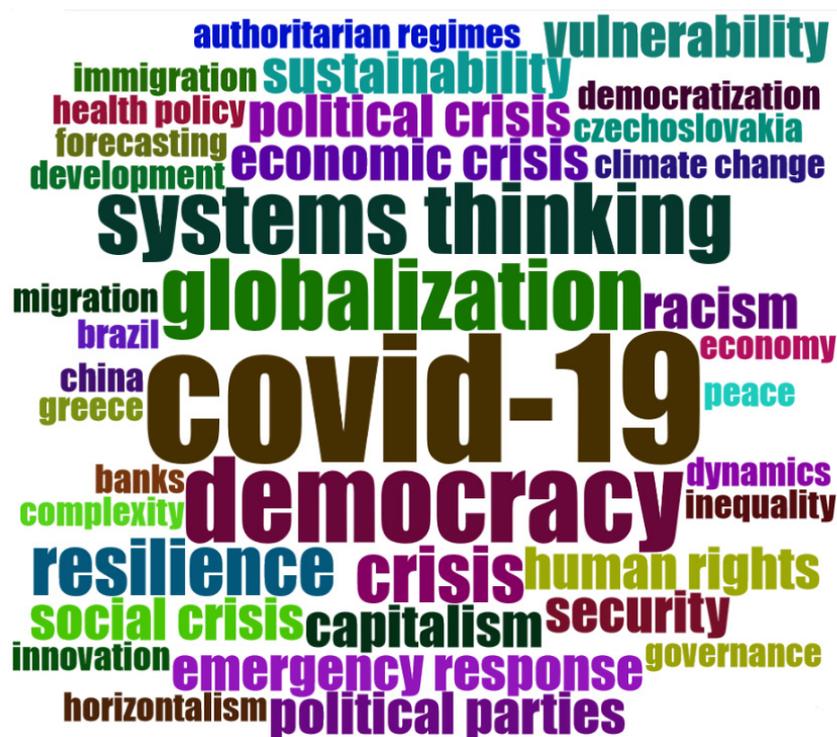
**Figure 3.** Number of published studies per year.

Within the retrieved studies, 129 articles are published in indexed journals, 33 are book-related (chapters, reviews, etc.), 31 are works published in proceedings, 21 are reviews, and 6 are editorial contents. The 129 articles were published in 98 different journals, demonstrating that these selected works did not concentrate on any main venues; they were published sparsely in many different journals. Yet, Table 2 presents the top journals that published more of the works of the retrieved dataset, showing the number of studies per journal, grouped into five sub-periods: P1: 1974 to 1981; P2: 1982 to 1991; P3: 1992 to 2001; P4: 2002 to 2011; and P5: 2012 to 2021. The journals with one publication only were consolidated into the row labeled “others”.

Besides identifying the main venues, journals, and periods of time that the retrieved published literature occurred, a word cloud analysis was carried out using again the bibliometrix tool [22]. This analysis shows the most frequent keywords that appeared within the 302 selected studies, and the results are shown in Figure 4.

**Table 2.** Journal and period of publication distribution.

Journal	1974 1981	1982 1991	1992 2001	2002 2011	2012 2021	Total
International Interactions	1	3	5	0	0	9
Journal of Peace Research	0	1	3	3	1	8
Baltic Journal of Economic Studies	0	0	0	0	4	4
International Studies Quarterly	0	0	3	1	0	4
Journal of Conflict Resolution	0	0	3	0	0	3
Journal of Language and Politics	0	0	0	1	1	2
Energy Research and Social Science	0	0	0	0	2	2
Behavioral Science	2	0	0	0	0	2
Economic Computation and Economic Cybernetics Studies and Research	0	0	0	0	2	2
Mediterranean Politics	0	0	0	1	1	2
Defence and Peace Economics	0	0	1	0	1	2
European Journal of International Relations	0	0	0	2	0	2
Kybernetes	0	0	1	1	0	2
Others	3	5	5	12	60	85
Total	6	9	21	21	72	129

**Figure 4.** Word cloud based on the publication dataset keywords.

Notwithstanding the fact that it is a relatively recent issue, Figure 4 shows that the COVID-19 pandemic was the most used keyword. This indeed underlines once more how the current pandemic is not only a health system/policy crisis, but (the way it was addressed in many countries) also permeates social, humanitarian, and international politics. Additionally, it is interesting to note that three keywords related to our research context appeared: “democracy”, “globalization”, and “Systems Thinking”. Regional issues also appeared within the keywords pertaining to Czechoslovakia, Brazil, China, and Greece.

## 2.2. International Relations Theories and Conflict Analysis

To get a better understanding of crises, several experts in the field were interviewed, and the relevant literature was retrieved. Interestingly, most of the conversations and

topics revolved around the most preeminent existing theories on international relations and conflict analysis.

The following paragraphs present an overview of some of these theories. While it is not the objective of the current paper to provide an extensive review of the relevant theories, we found that, by analyzing the main ones and by distilling their main characterizing elements, we were able to draw a better coherence of the international political crises by reconciling some of their characteristics with the distinguished elements of international relations theories, thus better grounding the main features of the proposed alternative (systemic) approach in what has been already studied. Such an approach would not only enrich the discipline of international relations and conflict/crises analysis but would also provide a different avenue for research for systems theorists and practitioners.

Out of the main theories of international relations, it is possible to infer a wide range of reasons why conflicts/crises emerge and develop; the key strategies for their prevention, containment, and solution; and the critical elements inherent in the transition from well-formulated assumptions to the nuances of complex scenarios. In the following, the key international relations doctrines are outlined as applied to the analysis of conflicts. According to our perspective, a crisis is also determined when a conflict (generically defined, not necessarily a military one) arises [23]; so, the analysis will bring, as mentioned, further coherence to the overall rooting of our proposed framework into the existing theories.

According to the Classical (or Utopian) Liberalism [24], a conflict stems from the institutional dimension, namely from the governmental apparatuses' weakness, the establishments' warmongering attitude, and the lack of compliance with the international rule of law. The intrinsically optimistic nature of the liberal approach confines the conflict to a temporary stage of international relations that, precisely through conflict experiences, develops towards a more orderly setting on the ground of multilateral cooperation. In such a context, preventing or even solving conflicts implies democratization and institution-building strategy, a plan for gradual disarmament, the strengthening of supranational bodies, and the progressive introduction of a mandatory character for the international norms. The latter aspect reveals a substantial clash in the dilemma of whether to support the preservation of territorial integrity or rather uphold the principle of self-determination. Both principles are given a particular relevance within a liberally oriented international framework.

In contrast, Classical Realism [25] regards conflicts as unavoidable in the context of an anarchic dimension, where hegemonic wills, the inborn desire to struggle with one another, and the reluctance to cooperate make states undisciplined actors of the international "jungle". Realists believe in the cyclical trend of history that does not evolve along an ascending path but instead proceeds backwards and forwards. International organizations are considered relatively ineffective in this context as they do not possess enough leverage to contain abuses. Consequently, the balance of power, more or less structured, is the only mechanism likely to preserve peace and prevent conflicts, as it forestalls the risk of a great power's hegemonic supremacy over the rest of the world.

Neoliberalism [26] instead relates the emergence of conflicts to the absence of exchange and commercial relations, the lack of investment flows, the weakness of transnational cooperation, and the low level of communications. Naturally, cooperative economic relationships between states lead to the conclusion that experiencing war is an increasingly costly and unlikely experience. Regrettably, a comparative analysis of neoliberal theories with other theoretical approaches is not always realistic, as the component of international political relations is left aside or, in any case, is downplayed here in comparison with the economic dimension.

Neorealism [27] brings the original classical realism theories a bit forward, tailoring them to a Cold War context: conflicts represent physiological dynamics in a multi-polar world where more than two actors compete while not being able to reach a balance of power. Centrifugal forces are, in fact, the main trigger of insecurity and instability. The international order is better preserved in a bipolar system, the only setting that can provide for peace and security as the two great powers strive hard to maintain the status quo. The

Cold War has paved the way for a stage of great international stability, as characterized by a substantial equivalence between the two hegemonic states in terms of military and nuclear powers. Despite showing a sound ground of analysis in interpreting a particular historical context, neorealism may not apply to other scenarios or be relevant when it comes to intra-state power relations.

A dialectic dynamic between the *machtstaat* (power-grounded state) and the *rechtsstaat* (law-grounded state) is the distinctive focus of interest for the English (or International) School [28,29], for which conflicts arise when the former component prevails over the latter, generating international imbalance. Undisciplined power and the rule of law are likewise identifiable within the states, as embodied by opposing interest groups in civil war contexts. The same asymmetrical wars, fought by non-state actors and based on volatile strategies, mark the transition from a law state to a power state, grounded on unpredictability and widespread violence. International organizations play a fundamental role vis-à-vis conflict solution and prevention. As an example, the United Nations (UN) embraces both the *machtstaat* and the *rechtsstaat* dimensions: the former is symbolized by the Security Council, with its permanent members exercising a veto right, while the latter is represented by the General Assembly, where every single state is entitled to vote on an equal footing, regardless of their power. Balancing internally between the two components puts the UN in a comfortable position to carry out mediation interventions at both inter-state and intra-state levels. The most evident shortcoming of the theory lies with excessive confidence in the international community's ability, as a sort of watchdog of global security, to undertake responsibility over local conflicts and handle the thorny issue of the so-called "failed states".

When the national leaderships' policies and actions shape key decision-making processes in war and peace issues beyond the state structures, the states' classical realism turns into the leaders' Neoclassical Realism [30]. In this line, with individual decision makers in the forefront, conflict-related containment factors rely on the political and military segments' capacity to mobilize in favor of war or peace and the internal social actors' and lobby groups' influence over national leaderships. Neoclassical realism's heterogeneous and, at times, inconsistent nature makes it not readily applicable to complex and multifaceted scenarios.

Games theories have impacted Strategic Realism [31] as the conflict is not perceived as a spontaneous eruption of violence but rather as the result of pre-set political strategies that unfold in accordance with game dynamics and rules. The great powers' diplomacy and foreign policy are seen as sets of rational activities, functional to the underlying strategies of conflict prevention and management, and thus, the resort is to mathematical analysis, beyond any normative claims whatsoever. Fundamental values are, in this case, taken for granted.

Sociological Liberalism [32,33] favors the traditional liberalism's focus from inter-state relations to transnational relations, such as those between groups of individuals, interest groups, and organizations based in different countries. Conflicts consequently stem from the loose character of transnational links. Such a theoretical framework implies the existence of well-informed, dynamic, and cosmopolitan societies, more emancipated from their states than in the past, a sort of centrifugal world, made up of sovereignty-free communities. Therefore, the approach is more appropriate for the assessment of micro instead of macro dimensions.

In line with the classical assumptions of liberalism, the Liberalism of the Interdependence [34] postulates that war and peace options depend on the growing international interdependence—in the political, economic, and commercial fields—that, based on evolving historical circumstances, can act as a conflict- or cooperation-generator. The potential inconveniences of the method lie with the underlying principle that international relationships should be evaluated with the same analysis parameters as domestic policies. Coalitions and negotiations are thus equated with the ones of intra-state political entities. High-profile factors such as national security are neglected, compared to the realist doc-

trines, while political contingencies and interest-based aspects stand at the very core of the theory.

Institutional Liberalism [35] shares with realist theories the analytical starting point according to which the international dimension is characterized by anarchy. Supranational institutions themselves are not perceived as being able to ensure a transition of international relations from a “jungle” of clashing interests into regulated “zoos” as the most powerful states are hardly bridled with obligations and restrictions. At the same time, international organizations are regarded as the necessary counterbalances of the states, with their autonomous relevance and their key role in facilitating inter-state cooperation. Mechanisms of control and international monitoring constitute, in this liberal view, necessary guarantees for a supervised international order and the respect of reciprocal commitments. The approach is tailored to scenarios of deep supranational institutionalization and widespread compliance with the international legal framework.

According to Republican Liberalism [36], conflicts generate from the absence of democracy and the non-sharing of liberal ideals. A certain degree of optimism, though, permeates the theory: as the number of democratic establishments worldwide is on the rise, inter-state peace and cooperation should spontaneously prevail over warmongering tendencies. Trust in the peaceful resolution of conflicts, promoting shared ethical and political values, obedience to international norms, mutually beneficial cooperation, and economic and commercial interdependence should be the leitmotifs of a republican, liberal-oriented international order. However, this school of thought adopts a strong normative footprint: it brings to the top the idea that democracy should be globally exported as part of political duty and should shape peace and negotiation processes, showing an inadequate adherence to the pluralism of value-based political systems, particularly in developing countries. That is why this branch of liberalism is also named the “liberalism of the imposition”, as opposed to “constructive liberalism”, with the latter aiming at smoothing out disagreements by means of equal-footing collaboration and talks.

Social Constructivism [37] provides us with more of an insight into the sociological dimension of conflicts than the political one. Beyond inter-state relations, the decision makers’ perceptions of themselves and others eventually trigger war or peace orientations. Social constructivists observe the international setting as ruled far more by ideas and beliefs than by material forces. In this view, the balance of powers is more imagined and interiorized than real. As the ideational and subjective footprint is the most distinctive feature of this theory, constructivism is seen as antithetical to realism. In line with the assumptions, conflict-prevention and management strategies are rooted in the identity-based, cultural, and normative dimensions. Constructivism’s added value is undermined by its tendency to downplay the influence of state structures over political actors and the celebration of the concept of a benevolent and friendly international anarchy.

In line with the previous doctrine, Post-structuralism [38,39] approaches the conflict not as a spatially and temporally defined event, but rather as a continuous process of imaginary border creation between “us” and “them”, a constant game of power that occurs in *primis* at various social levels and only afterward at state levels. Whatever the conflict resolution, in a post-structural sense it derives from a broad-range observation of the conflict-underlying dynamics, with a view of identifying its root causes in the ethnical, social, cultural, anthropological, and political spheres, *et alia*. According to scientific relativism, the methodology’s weak point lies with the declared impossibility of carrying out an objective and neutral analysis of facts on the ground of a complete identification between the observing subject and the observed reality.

Table 3 below summarizes the schools of thought and their characteristics.

**Table 3.** Visual representation of international relations theories and conflict analysis (equal letters and numbers represent same concepts).

International Relations Theories Applied to Conflict Analysis	Triggers	Resolution and Prevention Factors	Critical Elements
Classical Liberalism	(A) Governmental weakness (B) Non-compliance with international law	1—Institution-building process 2—Disarmament 3—Strengthening of the international legislative framework	Harmonization of self-determination and territorial integrity
Classical Realism	(C) Anarchy and hegemony (B) Non-compliance with international law	4—Balance of power 5—Diplomacy and Negotiations	Physiological nature of conflicts (history as set of recurring cycles)
Neoliberalism	(D) Lack of transnational connections (commercial, investments, communications).	6—Transnational interdependencies increase (economic and commercial)	Neglect of the political component
Neorealism	(C) Anarchy and hegemony (B) Non-compliance with international law	4—Balance of power (bipolar)	Dependence on a particular historical setting
International School	(C) Hegemony ( <i>machtstaat</i> )	5—Diplomacy and Negotiations (international organizations' role) 3—Strengthening of the international legislative framework	Overestimation of the international community's role as global security watchdog
Neoclassical Realism	(E) Governmental leadership	7—Governmental leadership 8—Social advocacy	Hybrid nature of the approach (combination of realism, liberalism, and constructivism)
Strategic Realism	(E) Governmental leadership (as per game theories)	5—Diplomacy and Negotiations (as per game strategies)	Negotiation translates into coercion, laying the ground for future conflicts
Sociological Liberalism	(D) Lack of transnational connections (interests-based)	6—Transnational interdependencies increase (interests-based, identity-rooted, security-grounded)	Presence of well-informed, cosmopolitan, and sovereignty-free societies
Liberalism of the Interdependence	(F) Increase in transnational interdependencies (political, economic, and commercial)	5—Diplomacy and Negotiations (conducted by middle-level technical officers)	Underestimation of national security priorities.
Institutional Liberalism	(C) Anarchy and hegemony (B) Non-compliance with international law	3—Strengthening of the international legislative framework 5—Diplomacy and Negotiations (international organizations' role) 6—Transnational interdependencies increase (communication flows)	High degree of supranational institutionalization and compliance with international law

Table 3. Cont.

International Relations Theories Applied to Conflict Analysis	Triggers	Resolution and Prevention Factors	Critical Elements
Republican Liberalism	(A) Governmental weakness.	1—Institution-building process 3—Strengthening of the international legislative framework 6—Transnational interdependencies increase (political and economic)	Lack of pragmatism in the belief that democracy could be globally exported (coercive liberalism)
Social Constructivism	(G) Relevant stakeholders' perceptions of themselves and of the others	7—Identities, cultures, and norms (versus the material dimension)	Underestimation of state structures' influence on political actors
Post-structuralism	(G) Relevant stakeholders' perceptions of themselves and of the others	8—Analysis of root causes (interdisciplinary approach)	Lack of distinction between analysts and their observation targets (scientific relativism)

Despite the importance and contribution of each theory, none of them can adequately address the dynamic nature of a crisis while somehow quantifying the underlying causes that potentially trigger this behavior. Moreover, these theories do not entail any visual approach to analysis that could limit miscommunication, and they do not allow for a quick understanding of the situation as a whole and offer a medium to the argument in favor of any decision.

This is also why we have identified the need to employ a non-linear way of thinking and have thus resorted to the discipline of Systems Thinking.

### 2.3. Systems Thinking as a Support to Understand a Political Crisis Context

The use of traditional quantitative methods in political science is neither new nor limited. For example, Helmke [40] studied how interbranch crises emerge in the countries of Latin America by using a game theory model of crisis bargaining. Similarly, Fey and Ramsay [41] attempt to include uncertainty in their crisis bargaining framework and study how these sources of uncertainty can contribute to, or hinder, a peaceful resolution. Furthermore, Hammond [42] used GIS and social-network analysis to study conflicts in a country by considering the local geography. Piplani and Talmadge [43] utilized the merits of statistical analysis to investigate whether continuous conflicts could be directly correlated to the increase in the probability of a coup. Similarly, Sandler [44] developed a multicriteria effectiveness index in peacekeeping operations (PKO).

However, all these approaches, despite their immense value, still look at individual elements of a crisis, often lacking the holistic approach (spatial and temporal) that might provide extra dimensions in their insights. Moreover, they can be used only after a crisis has occurred and knowledge and information are more widely available, in contrast to the situation in which the crisis is unfolding. Consequently, Systems Thinking can be a viable candidate to complement these approaches in explaining an international political crisis.

Daniel Kim ([45] p. 2) argues that Systems Thinking is “a way of seeing and talking about a reality that helps us better understand and work with systems to influence the quality of our lives. [ . . . ]. It also involves a unique vocabulary for describing systemic behavior, and so can be thought of as a language as well”. Therefore, Systems Thinking can be seen from different perspectives. It is a holistic approach to analyzing how systems work and can be managed; it is also a set of techniques and tools that will support analysts, learners, and decision makers in facing problem-solving tasks and complex issues. In addition, to a certain extent, Systems Thinking can also be seen as a skill or even a “discipline” in itself (see Peter Senge and his well-known book entitled *The Fifth Discipline* [46]).

Another definition has been given by Barry Richmond [16] and states that Systems Thinking is the art and science of making reliable inferences about behavior by developing an increasingly deep understanding of the underlying structure. In particular, the “art and science” is constituted by the coexistence of a new Thinking Paradigm with a Learning Method. The first conditions the second. The second supports the first. The two parts form a synergistic whole. The paradigm is characterized by the availability of the Vantage Point perspective and a set of Thinking Skills (namely: System as Cause Thinking, Closed-loop Thinking, and Operational Thinking), whereas the Learning Method implies sharing a view on the processes at stake, a common language to define things, and a supporting technology (i.e., System Dynamics simulation).

Thus, at the heart of Systems Thinking lies the description of a system. It entails entities/elements/variables connected by causal relations, and the slightest change in one can significantly affect the behavior of the whole. Hence, Senge [47] regarded Systems Thinking as a framework of observing these relations and what patterns of change they may cause, rather than restricting the study to static information.

The value of Systems Thinking as an alternative approach to explaining international political crises has been used (as mentioned in the introduction) in a limited number of studies. One of them, the work from De Angelis and Armenia [18], is the basis of the current approach. However, in their paper, the authors had a clearer understanding of

Mali’s crisis, with more knowledge on the underlying elements and their interconnections. However, this is not the case with Venezuela, where the current knowledge is incomplete, as the situation is more dynamic, with events emerging every few months.

In conclusion, studying the literature revealed several gaps that increased the list of needs that were identified in the introduction. These needs and gaps are summarized in the list below:

- Needs
  - The need for a more comprehensive, systemic framework that would assist policymakers in understanding an international, political crisis;
  - Such a framework should consider the fact that decisions need to be taken in a limited time with imperfect knowledge;
  - It should allow the incorporation of elements, such as human values, that are not easily quantifiable;
  - It should provide a medium to quickly test potential measures/policies in a consequence-free environment.
- Gaps
  - Not many studies exist that attempt to explain international political crises in a systemic way;
  - Despite the existence of valuable theories that explain such crises, they seem to lack an intuitive, visual approach to analysis;
  - Such a visual approach could not only facilitate a quicker understanding of a complex situation, but also offer a viable medium to the argument in favor (or against) any decision;
  - To the best of our knowledge, the literature is missing a case study where the proposed framework is tested in a situation with imperfect information/knowledge.

### 3. Results

#### 3.1. The Mali Case

De Angelis and Armenia [18] investigated the Mali crisis context. The historical context of the environment in Mali and the country’s characteristics provide a prolific source with which to form a causal loop diagram (CLD) of the various elements of the country’s system, which is illustrated in Figure 5.

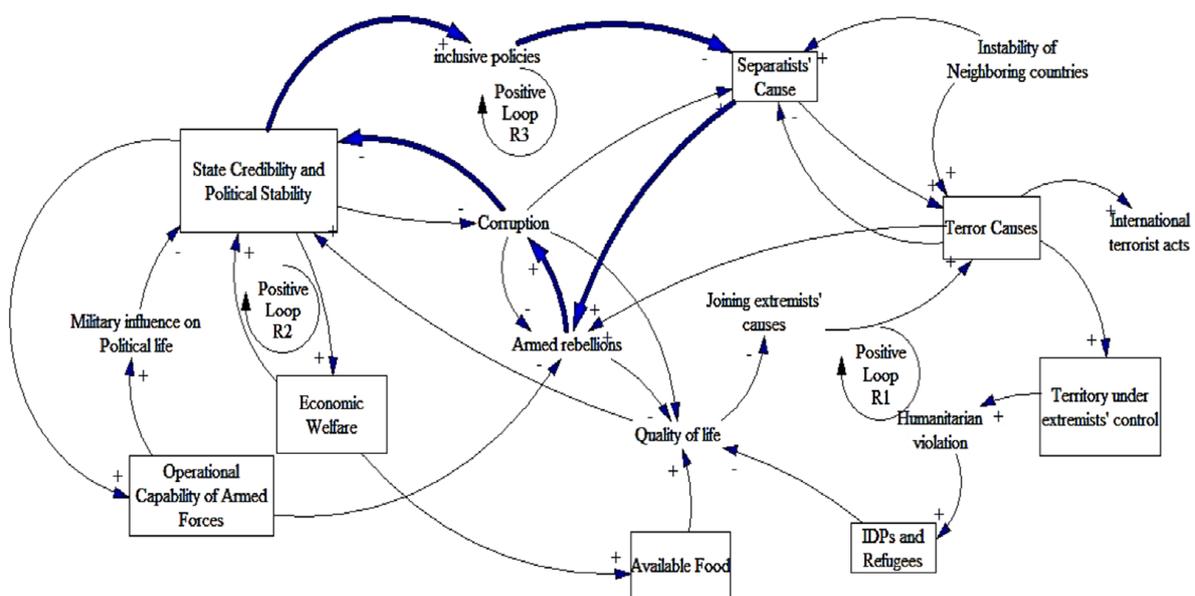


Figure 5. General CLD of the Mali system [18].

System Dynamics is the operationalization technique of Systems Thinking and can be used both quantitatively and qualitatively. Causal loop diagrams (CLDs) are the primary tool for using System Dynamics qualitatively. A CLD is a diagram representing the main variables/elements that comprise the system under study and the causal relations that connect these variables/elements.

The components of a System Dynamics model and a CLD are the following:

- Stocks: they represent the memory of the system. They are state variables that accumulate and dispose of a quantity (not instantaneously) over time. They are the source of delays, nonlinearities, and feedback loops. They are usually represented as rectangles and can or cannot be included in CLDs.
- Feedback loops: they are connections among variables that form a closed cycle.

Additionally, the authors identified the relevant stakeholders and their objectives in the region, and Table 4 summarizes their findings.

**Table 4.** Main actors of Mali and their characteristics [18].

Stakeholder	Objectives	Interests	Capabilities
Transitional Government	Contain the impact of the Islamic advancement Address the Tuareg issue	Access and control resources in the north of the country	Armed forces, influence on military representatives, scarce international credibility
Military Coupists	Substitute the perceived ineffective political class	Unclear	Trained by United States armed forces (but alleged limited effectiveness)
Tuareg Separatists	Achieve independence	Access and control resources in the north of the country	Extensive military equipment
Islamist Groups	Gain control of northern Mali and create an Islamic state	Control safe havens for terrorism, drugs, and human trafficking	Unclear
Neighboring countries	Defeat/Negate terrorists' safe havens	Maintain stability	Vary from state to state
USA	Eliminate terrorists' safe havens	Maintain stability	Military assistance
France and EU	Eliminate terrorists' safe havens—Secure interests of European firms in the country's critical infrastructures	Maintain stability—Access to the country's resources	Economic influence

The CLD depicted in Figure 5 is formed with the various loops that demonstrate how generic and straightforward variables can represent the situation in a crisis. The first conclusion that can be drawn is that a stable government that introduces and applies inclusive policies seems to be the central aspect in trying to avoid a crisis. As the CLD demonstrated, several parts of the system can deteriorate political stability, leading to an escalation of unwanted events.

The CLD formed above with the various loops demonstrates how generic and straightforward variables can represent the situation in a crisis.

For example, three feedback loops are noted in the figure as an example. Positive feedback loop R1 begins with the variable Quality of Life: The higher its value, the fewer people will join terror groups and causes, which will result in less area under their control. Less area under the extremists' control will result in fewer refugees, which increases the overall quality of life.

Another small loop is the one named Positive Loop R2. In this case, the better the economic welfare of the country/population, the better the state and political stability, which can further increase the economic welfare. Similarly, Positive Loop 3 connects

political stability with the separatists' causes, which could lead to armed rebellion and corruption, thus deteriorating the initial political stability. One aspect that should be noticed is that positive feedback loops lead to either exponential increase or exponential decay. Consequently, any policy targeted towards those elements should take into account that if it is not properly designed and implemented, it could have completely opposite consequences to those initially intended. Finally, the CLD presented in Figure 5, along with those in the next sections, is only one perception of the crisis. Different analysts and policymakers could generate different CLDs. However, one advantage of the Systems Thinking approach is that it allows different stakeholders to have a common understanding of what they are studying and, at the same time, a medium that can drive compromises.

The first conclusion that can be drawn is that a stable government that introduces and applies inclusive policies seems to be the central aspect in trying to avoid a crisis. As the CLD demonstrated, several parts of the system can deteriorate political stability, leading to an escalation of unwanted events.

Furthermore, the variables that were chosen can be separated into four general categories:

- Governance: which includes State Credibility and Political Stability and the Operational Capability of the Armed Forces.
- Humanitarianism: with variables that include the economic and social aspects of the country, such as Quality of life, Available food, and Economic Welfare.
- Violence: where all the variables concerning separatists' causes and terrorist cells are included (i.e., Humanitarian violence, Joining extremists' Causes, Separatists Cause, and Terror Cause).
- Consequences: which include the variables that demonstrate the outlet of a situation, such as Corruption, Armed rebellions, IDPs and Refugees, Territory under extremists' control or Inclusive Policies.

Hence, the authors generalize their analysis and results by introducing the systemic archetype focusing on international political crises. Figure 6 below illustrates the specific archetype.

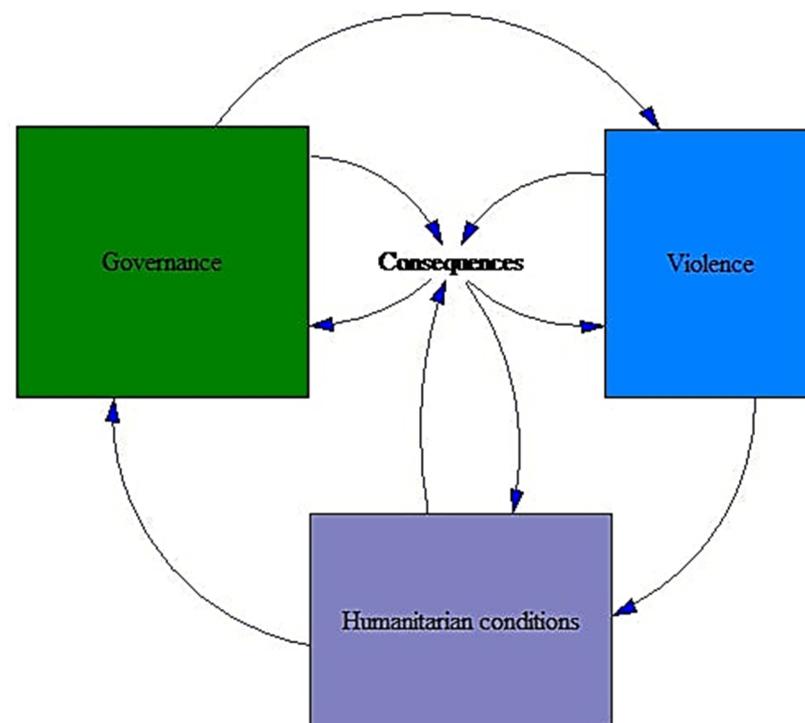


Figure 6. General conceptual CLD of a country's system.

As a result, the proposed archetype forms the basis of the current paper and will be used in the following sections to investigate the crisis in Venezuela.

Since early 2014, Venezuela has been in a constant state of crisis, and in the eyes of many international observers, the country seems to be on the verge of a civil war [48]. The deteriorating situation has been attributed to corruption, food shortages, the expansion of the black market and its effect on the economy, President Maduro's behavior, etc.

No matter the causes, there is the need to understand how this state was reached and how it may evolve in order to take potential countermeasures that might prevent a humanitarian crisis. Contrary to the previous case studies, the crisis in Venezuela is ongoing, and not all the actors and their objectives are clear yet. Furthermore, not all aspects of the crisis have been generated. Consequently, any conclusions on how it may evolve are hazardous. Hence, using the systemic archetype in conjunction with formal theories of international relations could help academics and policymakers alike gain insights into what the next phase of the crisis may be and how it can evolve.

In Mali's case, the emphasis is placed on both good governance—as translated into governmental credibility and political stability—and the economic and social situation, which practically illustrates the soundness of the *classical liberal approach*, with its stress on governmental weakness as a triggering element and the relevance of democratization and institution building, together with the containment of the military component, as prevention and resolution factors [49]; the classical realistic approach, with its insistence on unavoidable hegemonic tendencies; and the international school's approach, focusing on the overruling of the *machtstaat* over the *rechtsstaat* and on the role of clashing interest groups and non-state factions in civil war scenarios and the contexts of volatility and violence.

### 3.2. The Venezuelan Crisis

In the first years of the 21st century, Venezuela has been linked and influenced by Hugo Chavez. Chavez came to power in 1999, when he launched his Plan Bolivar 2000 [50] to eradicate poverty. The presidency of Chavez, which lasted until he died in 2013, has gained either great supporters or great opponents. Its supporters attribute to Chavez the reduction in poor people by almost 20%, while its opponents attribute to Chavez an authoritarian behavior that sought to suppress the opposition.

Table 5 summarizes the main actors affecting the situation in Venezuela.

**Table 5.** Main actors of Venezuela and their characteristics.

Stakeholder	Objectives	Interests	Capabilities
Maduro Government	Maintain control of the country	Access and control resources in the country	Armed forces, influence on military representatives, scarce international credibility
Opposition (currently represented by Juan Guaidò)	Make the country more democratic	Gain power from the Maduro Government	Protests, international support
Neighboring countries	Reduce the flow of Venezuela migrants to their respective countries	Maintain stability	Vary from state to state
United States	-	Maintain stability	Various

Despite the controversial nature of Hugo Chavez, his death left the country in turmoil, and his successor, Nicolas Maduro, managed to win the election by the narrowest possible margin [50].

However, since early 2014, public frustration has been steadily rising over the continuous increase in market prices, the food shortages, the skyrocketing inflation, and what appears to be corruption at the highest levels of the government [51]. Experts attribute the worsening economic condition to several factors. Firstly, the price controls (established

during the presidency of Hugo Chavez) were meant to keep goods affordable. Secondly, the currency control (again set during the presidency of Hugo Chavez), which was meant to inhibit capital leaving the country, but currently has increased inflation and decreased the value of the local currency.

Furthermore, Venezuela is highly vulnerable to external shocks due to its high dependence on oil exports. This dependency has been demonstrated with two events in the last ten years. In 2014, when oil prices fell from over USD 100 per barrel to just below USD 30 per barrel, Venezuela's unstable economy suffered another blow. The second event is more recent and is connected to how international partners have started to view the political system in the country. More specifically, in 2017, the United States imposed sanctions on the country, reacting to the authoritarian and corrupt government of Maduro. The sanctions banned any U.S. company/institution from investing in Venezuela's (nationalized) oil industry [50].

The last reason that is considered responsible for Venezuela's state is the corruption of the Maduro government, from allowing members of his government to trade in foreign currency despite the controls, which creates a substantial black market, inflation, and shortages in primary goods, to using violence to suppress anti-government demonstrations, resulting in the deaths of unarmed people [51].

By the writing of this paper, the escalation of violence in Venezuela has reached a new level with the assassination attempt on President Maduro, which resulted in arrests and accusations from every involved party [52]. Furthermore, the frustration of the citizens of the country was led by the new face of the opposition, Juan Guaidó. The situation escalated to violent protests, an increase in the fleeing of citizens to neighbor countries, the intervention of the military, blackouts, etc., which led to an unsuccessful uprising on the 30th of April 2019. Furthermore, the country held elections in December of 2020 that were considered especially flawed by international observers. Nonetheless, the sitting president Maduro secured 91% of the parliament seats [53]. Finally, the country is wrestling with hyperinflation, with the government attempting to introduce digital currencies to solve the problem. (<https://www.dw.com/en/venezuela-looks-to-digital-solution-for-cash-crisis/av-56883530> (accessed on 27 December 2021)).

Consequently, the political crisis in Venezuela is not only ongoing, but a new dimension emerges every few months that makes any attempt to analyze it dependent only on past conditions. For that reason, and since there is a delay in acquiring knowledge, the CLD from Mali and the systemic archetype will be adapted to the Venezuela crisis to identify potential policy levers (applied by the international community) that could make the situation more stable.

### 3.2.1. Causal Loop Diagram for Venezuela

Starting from the general conceptual CLD depicted in Figure 6 and derived from the case study of Mali, it can be observed that several elements can be adapted to the case of Venezuela according to the information available thus far, as read from the news reports, and according to the notation that was used in the Mali case. Once more, it is worth mentioning that the CLD that will be presented can be seen only as one perception of the many that could apply to the situation; different analysts and policymakers could design a different causal map, with more stocks or even none at all. Figure 7 illustrates the CLD explaining the described Venezuelan context from an endogenous and causal point of view according to the authors' understanding.

The first part of the CLD is concerned with the information described thus far, and it can be observed that some elements are like those of the case study of Mali. However, several elements are different. For example, the response from countries (sanctions) is affected by the country's political stability (lower political stability results in more significant response/sanctions). In turn, sanctions jeopardize the state's economic welfare (more sanctions decrease the welfare), which reduces the availability of food and decreases the

quality of life, which returns to political stability and further decreases it. This feedback loop is highlighted in blue in Figure 8 below.

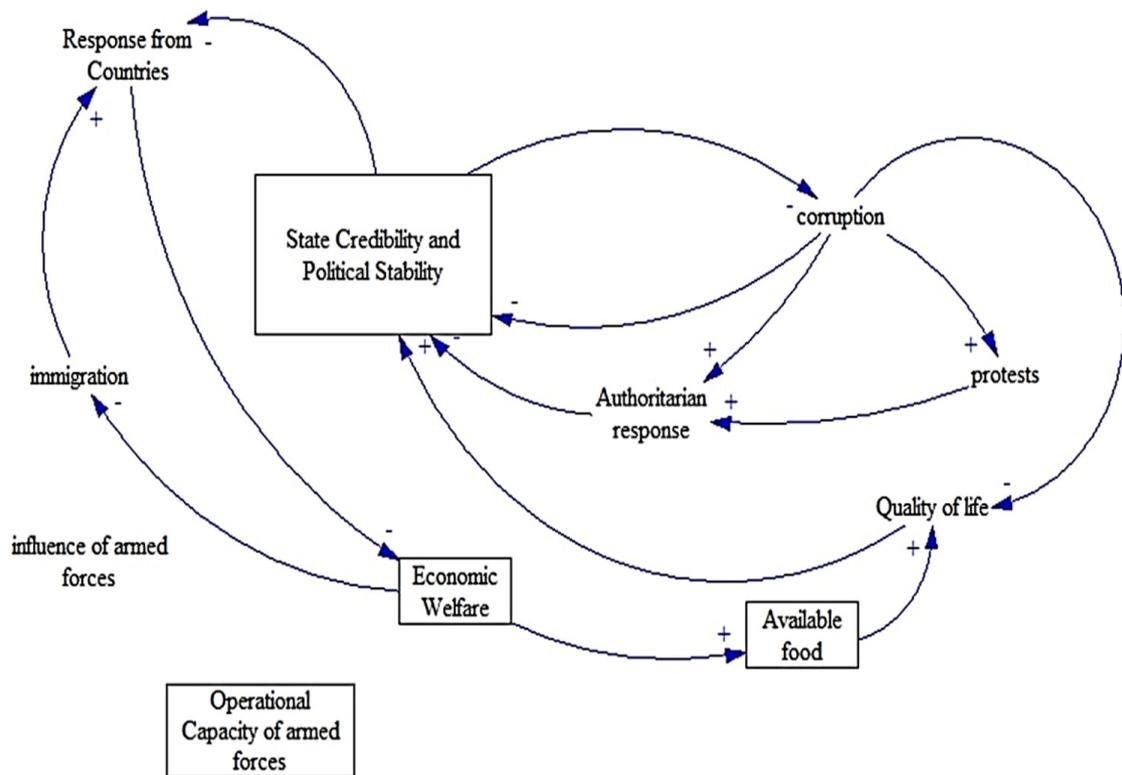


Figure 7. First CLD of the country of Venezuela.

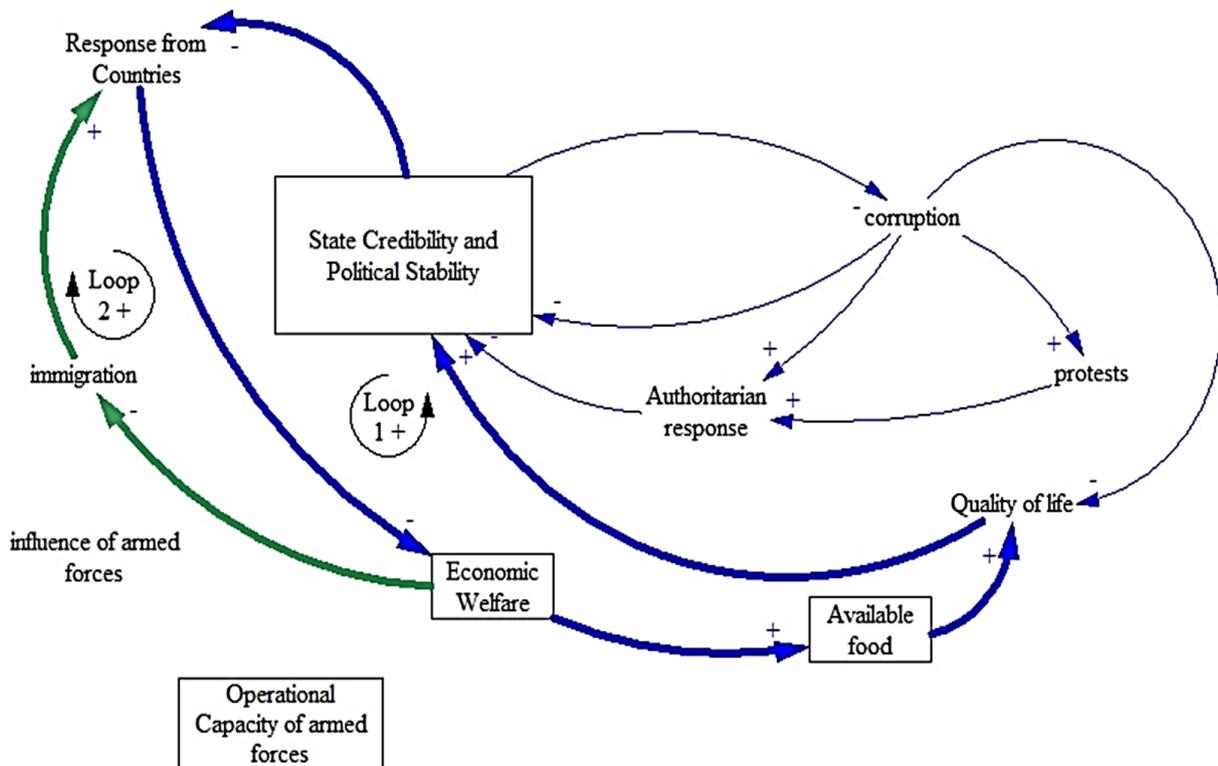


Figure 8. The loops of international response (sanctions).

Furthermore, the response of the international countries is also affected by the people fleeing from Venezuela. The more intense the sanctions, the higher the decline in economic welfare, which forces the people to flee the country, creating tension with the neighboring countries, thus resulting in the greater intensity of their response (Figure 8, feedback loop in green).

As a result, the international community’s response is affected by two positive feedback loops, which means that as the sanctions increase, the quality of life in Venezuela deteriorates, resulting in more sanctions. Thus, as a first conclusion, it may be observed that sanctions might not be the finest tool in the diplomatic arsenal to resolve the crisis, as they deteriorate the welfare of the Venezuelan population while being in a self-reinforcing loop. Aspects of this reinforcing loop are also present in research in the core field of international relations. Brown and Marcum [54] argued that international sanctions become more accessible and more widely accepted as the president of a country loses power. This, in itself, is a self-reinforcing loop.

The other important aspect of the CLD is the prominence of the corruption variable. The variable involves four reinforcing loops in which each one increases corruption and decreases political stability, which destabilizes the entire system. Figure 9 illustrates the importance of the corruption variable (arrows in red).

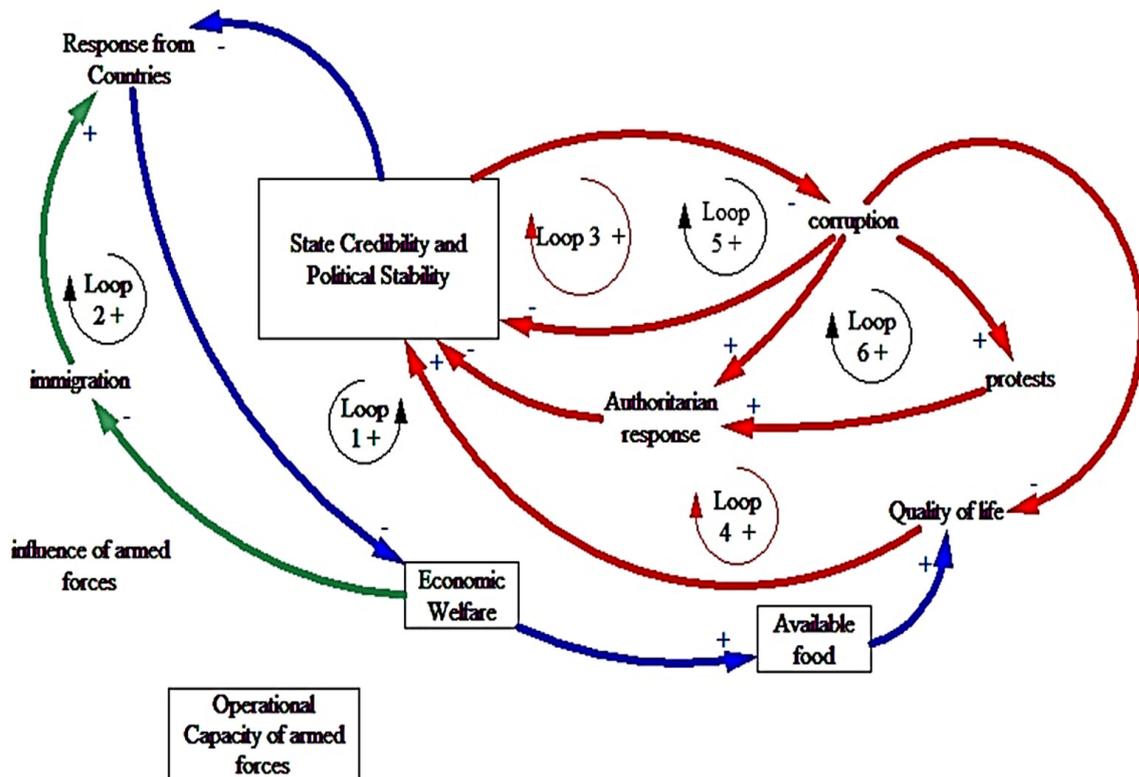


Figure 9. The corruption loops.

Furthermore, the loops that are formed are:

- The higher the level of corruption, the smaller the level of political stability, which in turn increases corruption (loop 3).
- The higher the level of corruption, the more authoritarian the behavior of the authorities, which further reduces the level of stability in the country, which results in even higher levels of corruption (loop 5).
- The reduced level of political stability increases corruption, which results in a more significant number of protests. Due to the nature of the government, more protests

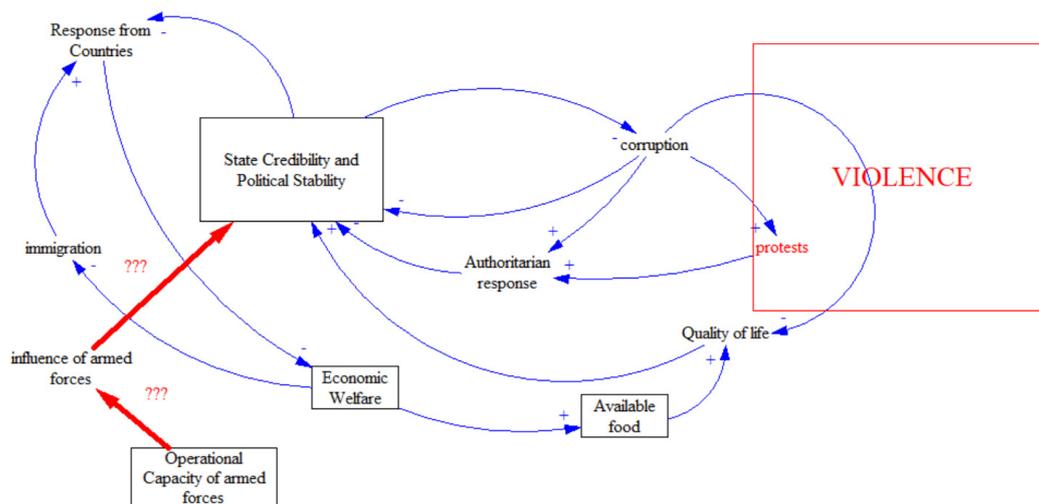
result in a more severe response, which further reduces the political stability, resulting in even more corruption (loop 6).

- Finally, corruption decreases the quality of life of the population, which reduces the state credibility, resulting once again in even more corruption (loop 4).

As a result, it can be concluded that fighting corruption might be a viable solution towards removing the country of Venezuela from the constant state of crisis.

Equally crucial to the variables present in the CLD are the absent elements. For example, it is impossible to determine the armed forces' operational capacity and how it can affect political stability. It is argued that the stance of the military leadership depends on the history of the state concerning external threats [55]. Such a statement is difficult to include in the mental model. Nonetheless, it supports the assumption that previous states can affect the behavior of the future.

Moreover, the Violence part of the conceptual CLD (Figure 6) is entirely missing from the diagram as no armed rebellions or the emergence of separatist groups have appeared thus far in the country. Nonetheless, from the latest assassination attempt and the bloody outcome of the protests, it is possible to assume that the Violence part of the conceptual CLD is taking shape in the country, with unknown consequences (Figure 10). The violence manifested itself with the attempted uprising of 2019, which resulted in deaths compromising both protesters and militaries, which supported the rebellion being indicted or going into hiding. Thus, the Violence part of the archetype is currently unfolding in the country.



**Figure 10.** Variables missing from the Venezuela CLD.

### 3.2.2. Discussion on the CLD from the Venezuelan Case

The assessment of Venezuela's case and, in particular, of President Maduro's policies confirms the concrete validity of the neoclassical realistic approach in the way it highlights the ability of national leaderships and/or individual leaders to influence decision-making processes far beyond the institutional setting and with the military segments' support. In such a context, the *neoliberal* doctrine also comes into play when judging the relevance of the economic dimension to the extent that it worsens the crisis, concerning governmental corruption, the spreading of a huge black market, inflation, and transnational economic and commercial interdependencies. In this case, moreover, the element of international economic sanctions is worth referring to as a trigger of a vicious circle: they negatively impact Venezuela's economic and social welfare and, in turn, political stability and authoritative reactions and, therefore, the overall crisis itself, generating even more sanctions as a final result.

In conclusion, the Venezuelan conceptual CLD, developed from Mali's case study findings, can seem to be a plausible general framework that could provide insights into the state of Venezuela. Despite missing information, the mapping of the available system elements, their causal relations, and the feedback loops that are developed could assist policymakers in designing effective countermeasures.

Although many elements regarding the violence in the country are missing (or become incrementally known through the news), it can be observed that the reaction of the neighboring countries (or international stakeholders) can have a significant impact on how the crisis will evolve. Simultaneously, this reaction cannot have a punitive character (e.g., sanctions) solely; it can only strengthen the authoritative response. Furthermore, the role of the armed forces and their stance could be a significant factor. As a result, policymakers must monitor their movements and/or intentions.

Finally, the opposition and the emerging violence could trigger different loops in the system and generate various evolutions. What appears essential is that currently violence, foreign countries, and the army seem to contribute to the reaction by President Maduro. In return, that reaction affects the elements mentioned above, closing the feedback loop. As a result, managing and/or solving the crisis involves the simultaneous and maybe coordinated effort towards three elements: the army, the opposition, and the coordinated response from foreign countries.

To conclude, the case study of Venezuela (along with the one of Mali) and the underlying archetype that was presented and expanded in this paper, illustrate pretty well how the systemic approach can be a valuable tool to assist policymakers of public and private organizations, especially in the absence of complete information/knowledge/data. Through the use of causal loop diagrams and the reference to the "systems crisis archetype" at the base of our systemic framework of analysis for international political crises, policymakers of national and transnational institutions could understand the various interdependencies existing among the various aspects and actors of a crisis and hence quickly assess and determine the cause and potential effects of the crises as they unfold over the immediate proximity of time. Furthermore, even (as already said) in the absence of full information, policymakers could devise potential countermeasures that would be able to mitigate the risk of unwanted consequences. For example, sanctions might be one of the first responses that governments tend to adopt in such cases. However, the Venezuela case results illustrated (through the presented CLDs) that punitive actions might generate consequences that could lead to a worsening of the overall crisis over time.

Moreover, corruption in Venezuela appears to create reinforcing loops that can exponentially deteriorate political stability. As a result, measures that target the government's corruption might be valuable in attempting to avoid a humanitarian disaster.

Finally, the latest increase in violence seems to indicate that the situation in the country keeps worsening, and no one can be sure of how the violence could affect the entire region.

We also argue that the "systems crisis archetype" can be beneficial to other potential end users. Thus, it is not only for policymakers of national/public organizations but also for policymakers of private organizations that might find very helpful the possibility to recognize how the potentially evolving underlying dynamics in one country could (adversely or positively) affect their business and/or services. As an additional result, by integrating the developed CLDs with up-to-date information, they might be able to design quantitative simulation environments that could support them in the definition of robust strategies aimed at risk mitigation and cost reduction.

Finally, as mentioned in the literature review, the proposed systemic framework also constitutes an alternative approach to the analysis of international relations and conflicts. In fact, by connecting the various elements of a crisis through causal relationships, researchers could better comfort and visualize their theories and hence generate more robust conclusions. The same applies to practitioners and researchers of Systems Thinking and System Dynamics: new models could be developed (quantitative and qualitative) to

further assist policymakers and provide more concrete explanations as to how international political crises can emerge and evolve.

#### 4. Conclusions

The purpose of this work was to assess the “crises systems archetype” that systematically (through the well-known causal loop diagram tool typical of the Systems Thinking approach) describes and explains international political crises, in particular by further testing it in its application to explain and gain insights into the ongoing crisis in Venezuela. By combining elements from the theories of international relations, relevant crises-focused literature, and the Systems Thinking approach, a causal loop diagram that is capable of describing the unfolding of the Venezuela crisis was drawn by applying the archetype proposed by De Angelis and Armenia [18] and by observing its following applications [19,20]. In other words, the general political crisis archetype was adapted to the case of Venezuela and, despite the incomplete picture and lack of detailed information, several valuable conclusions can also be drawn in this case.

The archetype can be considered a first tool for understanding and ultimately managing (and, possibly—through quantitative evolutions of the qualitative models presented—even preventing) a political crisis. From the angle of political sciences and international relations theories, when identifying the sources of conflicts and those factors that could contribute to their resolution or prevention, the presented case studies show a straightforward combination of different schools of thought. Such a conclusion further confirms the validity of a systemic approach when tackling a complex system such as a political crisis scenario.

The current paper illustrates how the qualitative elements of a quantitative method (Systems Thinking and System Dynamics) could be applied in a theoretical discipline, at the same time enriching it with new and deeper insights and perspective angles. The application of such a method is not limited to political crises but could cover an entire array of societal threats from election manipulation to radicalization and the emergence of racist phenomena across all facets of social life. Systems Thinking, System Dynamics, and mathematical models, in general, can be critical in designing policies that have the potential to reduce the negative and unforeseen consequences of such societal phenomena.

Inevitably, this work has limitations, some originating from the research design and others intrinsic to the adopted qualitative analysis approach. Future studies should also be conducted to confront and empirically validate the proposed system archetype and the causal relationship diagrams presented in this work within different international political crisis contexts to assess the reproducibility of the results and reasonings discussed.

Moreover, the reproducibility of the results presented so far could be assessed by following the reasoning given in Section 3.2 of the present study, where the authors demonstrate how to instantiate the proposed system archetype to the Venezuelan context. Further discussion should also be carried out to increase the proposed map’s confidence and assess whether its conceptualization and formulation excluded other essential elements. Future works can evaluate the proposed causal map formulation’s accuracy, completeness, sufficiency, and meaningfulness.

**Author Contributions:** S.A. designed the overall approach to the paper, contributed to the development of the CLDs and the writing of the paper; G.T. contributed to the literature review, the development of the CLDs and the writing of the paper; E.F. contributed to the literature review, the development of the CLDs and the writing of the paper. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Perrow, C. *Normal Accidents: Living with High-Risk Technologies*; Basic Books: New York, NY, USA, 1984.
2. Hermann, C.F. International Crisis as a situational variable. In *International Politics and Foreign Policy: A Reader in Research and Theory*; Rosenau, J., Ed.; Free Press: New York, NY, USA, 1969.
3. Milburn, T.W.; Schuler, R.S.; Watman, K.H. Organizational Crises, Part I: Definition and Conceptualization. *Hum. Relat.* **1983**, *36*, 1161–1180. [[CrossRef](#)]
4. Coombs, W.T. *Ongoing Crisis Communication: Planning, Managing, and Responding*; Sage Publications: Thousand Oaks, CA, USA, 2007.
5. Boin, A.; Stern, E.; Sundelius, B. *The Politics of Crisis Management: Public Leadership under Pressure*; University Press: Cambridge, UK, 2005.
6. Clark, T. The Concept of Marketing Crisis. *J. Acad. Mark. Sci.* **1988**, *16*, 43–48. [[CrossRef](#)]
7. Pearson, C.; Clair, J. Reframing Crisis Management. *Acad. Manag. Rev.* **1998**, *23*, 59–76. [[CrossRef](#)]
8. Aguilera, D.C. *Crisis Intervention: Theory and Methodology*, 6th ed.; Mosby: St. Louis, MO, USA, 1990.
9. Slaikeu, K.A. *Crisis Intervention*; Allyn and Bacon: Boston, MA, USA, 1990.
10. James, E.H. *Crisis Leadership*; University of Virginia Darden School Foundation: Charlottesville, VA, USA, 2004.
11. James, E.H.; Wooten, L.P. How to display competence in times of crisis. *Organ. Dyn.* **2005**, *34*, 141–152. [[CrossRef](#)]
12. Gundel, S. Towards a New Typology of Crises. *J. Conting. Crisis Manag.* **2005**, *13*, 106–115. [[CrossRef](#)]
13. Simon, H. A Behavioral Model of Rational Choice. *Q. J. Econ.* **1955**, *69*, 99–118. [[CrossRef](#)]
14. Nato. *Allied Joint Doctrine for the Planning of Operations, AJP-5*; Nato Standardization Office (NSO): Brussels, Belgium, 2019.
15. Johnson, D.; Tierney, D. Essence of Victory: Winning and losing international crises. *Secur. Stud.* **2003**, *13*, 350–381. [[CrossRef](#)]
16. Richmond, B. Systems thinking/system dynamics: Let's just get on with it. *Syst. Dyn. Rev.* **1994**, *10*, 135–157. [[CrossRef](#)]
17. Meadows, D. *Thinking in Systems: A Primer*; Chelsea Green Publishing: Windsor, VT, USA, 2008.
18. de Angelis, A.; Armenia, S. Proposal of a 'Goldilocks' methodology for the assessment of an international crisis. In Proceedings of the International System Dynamics Conference (ISDC), Cambridge, MA, USA, 21–25 July 2013.
19. Armenia, S.; de Angelis, A. Julius Caesar's system understanding of the Gallic Crisis: A peek in the mind of a history maker. In Proceedings of the International System Dynamics Conference (ISDC), Delft, The Netherlands, 20–24 July 2014.
20. Só, B.; Franco, E.F.; Carvalho, H.C.; dos Santos, J.R.; Armenia, S. Nobody deserves this fate: The vicious cycle of low human development in Guinea-Bissau. *Kybernetes* **2018**, *47*, 392–408. [[CrossRef](#)]
21. Franco, E.F.; Hiram, K.; Carvalho, M.M. Applying system dynamics approach in software and information system projects: A mapping study. *Inf. Softw. Technol.* **2018**, *93*, 58–73. [[CrossRef](#)]
22. Aria, M.; Cuccurullo, C. bibliometrix: An R-tool for comprehensive science mapping analysis. *J. Informetr.* **2017**, *11*, 959–975. [[CrossRef](#)]
23. Maoz, Z. Crisis Initiation: A Theoretical Exploration of a Neglected Topic in International Crisis Theory. *Rev. Int. Stud.* **1982**, *8*, 215–232. [[CrossRef](#)]
24. Angell, N. *The Great Illusion*; Weidenfeld & Nicolson: London, UK, 1909.
25. Carr, E.H. *The Twenty-Years' Crisis*; Harper & Row: New York, NY, USA, 1939.
26. Haas, E.B. *The Uniting of Europe: Political, Social and Economic Forces 1950–1957*; Stanford University Press: Stanford, CA, USA, 1958.
27. Waltz, K. *Theory of International Politics*; McGraw-Hill: New York, NY, USA, 1979.
28. Wight, M. *International Theory: The Three Traditions*; Leicester University Press: Leicester, UK, 1991.
29. Bull, H. *The Anarchical Society: A Study of Order in World Politics, Volume II*; Macmillan: London, UK, 1995.
30. Morgenthau, H.J. *Politics among Nations: The Struggle for Power and Peace, Volume VI*; Knopf: New York, NY, USA, 1985.
31. Schelling, T. *The Strategy of Conflict*; Harvard University Press: Boston, MA, USA, 1980.
32. Deutsch, K.W. *Political Community and the North Atlantic Area*; Princeton University Press: Princeton, NJ, USA, 1957.
33. Burton, J. *World Society*; Cambridge University Press: Cambridge, UK, 1972.
34. Keohane, R.O.; Nye, J.S. *Power and Interdependence: World Politics in Transition*; Little Brown: Boston, MA, USA, 1977.
35. Keohane, R.O. *International Institutions and State Power: Essays in International Relations Theory*; Westview Press: Boulder, CO, USA, 1989.
36. Doyle, M.W. Liberalism and world politics. *Am. Political Sci. Rev.* **1986**, *80*, 1151–1169. [[CrossRef](#)]
37. Wendt, A. *Social Theory of International Politics*; Cambridge University Press: Cambridge, UK, 1999.
38. Smith, S. Positivism and beyond. In *International Theory: Positivism and Beyond*; Smith, S., Booth, K., Zalewski, M., Eds.; Cambridge University Press: Cambridge, UK, 1996.
39. Smith, S. New approaches to international theory. In *The Globalization of World Politics*; Baylis, J., Smith, S., Eds.; Oxford University Press: Oxford, UK, 1997.
40. Helmke, G. The Origins of Institutional Crises in Latin America. *Am. J. Political Sci.* **2010**, *54*, 737–750. [[CrossRef](#)]
41. Fey, M.; Ramsay, K. Uncertainty and Incentives in Crisis Bargaining: Game-Free Analysis of International Conflict. *Am. J. Political Sci.* **2011**, *55*, 149–169. [[CrossRef](#)]
42. Hammond, J. Maps of mayhem: Strategic location and deadly violence in civil war. *J. Peace Res.* **2018**, *55*, 32–46. [[CrossRef](#)]
43. Piplani, V.; Talmadge, C. When war helps civil-military relations: Prolonged interstate conflict and the reduced risk of coups. *J. Confl. Resolut.* **2016**, *60*, 1368–1394. [[CrossRef](#)]

44. Sandler, T. International peacekeeping operations: Burden sharing and effectiveness. *J. Confl. Resolut.* **2017**, *61*, 1875–1897. [CrossRef]
45. Kim, D. *Introduction to Systems Thinking*; Pegasus Communications: Waltham, MA, USA, 1999.
46. Senge, P. *The 5th Discipline Fieldbook: Strategies and Tools for Building a Learning Organization*; Currency: New York, NY, USA, 2014.
47. Senge, P. *The 5th Discipline: The Art and Practice of the Learning Organization*; Random House: New York, NY, USA, 1994.
48. Borger, J. Could Political Tension in Venezuela Ignite a Civil War? 5 August 2017. Available online: <https://www.theguardian.com/world/2017/aug/05/venezuela-civil-war-coup-nicolas-maduro-politics-violence> (accessed on 6 August 2018).
49. Walter, B.F. Why bad governance leads to repeat civil war. *J. Confl. Resolut.* **2015**, *59*, 1242–1272. [CrossRef]
50. Renwick, D. Venezuela in Crisis. 23 March 2018. Available online: <https://www.cfr.org/background/venezuela-crisis> (accessed on 6 August 2018).
51. Duddy, P. Political Crisis in Venezuela. 30 March 2015. Available online: <https://www.cfr.org/report/political-crisis-venezuela> (accessed on 6 August 2018).
52. Brocchetto, M.; Hallam, J.; Sterling, J.; Pozzebon, S. Venezuela Makes Six Arrests in Alleged Maduro Assassination Attempt. 6 August 2018. Available online: <https://edition-m.cnn.com/2018/08/05/americas/venezuela-maduro/index.html?r=https%3A%2F%2Fwww.google.gr%2F> (accessed on 6 August 2018).
53. Wolff, J. A New Framework for Dealing with Venezuela: From Democracy to Conflict Resolution. Carnegie Europe. 17 March 2021. Available online: <https://www.external-democracy-promotion.eu/a-new-framework-for-dealing-with-venezuela-from-democracy-to-conflict-resolution-2/> (accessed on 12 June 2021).
54. Brown, J.; Marcum, A. Avoiding Audience Costs: Domestic Political Accountability and Concessions in Crisis Diplomacy. *Secur. Stud.* **2011**, *20*, 141–170. [CrossRef]
55. White, P. Crises and Crisis Generations: The Long-term Impact of International Crises on Military Political Participation. *Secur. Stud.* **2017**, *26*, 575–605. [CrossRef]