Political Complexity
A Guided Tour
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Overview

We live in times of profound political transformation, as Industrial Age social organization gives way to the emergence of a new form of networks society, political organization, in turn, is entering into a new period of disruption and rapid evolution.

The modern construct of liberal republicanism, representative democracy, and the nation state framework are being challenged by the rise of globalization and the pervasive proliferation of information networks on all levels. These changes are creating ever larger spaces outside of traditional political organization, both within societies and on the global level, while at the same time new social and political networked organizations are being born online and increasingly having an effect on all areas of social organization.

The ongoing emergence of the network society rewrites the rules of political organization rendering old categorizations and concepts that defined political systems for the past centuries less relevant. In this context new insight, models and vocabulary are desperately needed to understand the workings of political systems in an age of information, globalization, and complexity.

This book explores how complexity theory can be applied to political science in order to develop such a vocabulary. It draws upon the central concepts and models from complexity theory, such as systems thinking, self-organization, nonlinear systems, network theory and adaptive capacity, applying them to interpreting complex political systems.

The book is broken down into five main sections. We start the book off with a broad discussion on sociocultural systems as the foundations to political organization. We go on to lay down the basics of political theory and identify the central elements of political systems; the different types of political systems that we encounter and the evolution of sociopolitical complexity.

In the second section, we will be looking at the concepts of emergence and self-organization as applied to political systems. We firstly discuss the dynamics of self-organization and pattern formation, before looking at emergence as it applies to the formation of new political movements through only local peer-to-peer interactions and interdependencies.

In the next section, we introduce concepts and models from nonlinear systems theory and apply them to understanding the dynamics of political organization. We talk about new ideas from political field theory, non-equilibrium dynamics, the significance of power law distributions, feedback dynamics, and regime shifts.

The fourth section deals with sociopolitical networks, firstly illustrating how the network approach to political science adopts a relational paradigm and how this differs from more
traditional statistical methods of political science. Here we introduce the main models for interpreting social networks and analyzing their structure, dynamics, and processes of diffusion.

The final section deals with the evolution of sociopolitical systems and their adaptive capacity. Here we will talk about the ideas of political resilience, the primary factors influencing adaptive capacity and evolutionary potential; asking how and why do sociopolitical systems succeed or fail in navigating major processes of change.

This book should be accessible to anyone with a general knowledge of the social sciences. No prior knowledge of complexity theory is required as models will be explained as we encounter them, likewise, basic ideas within political theory will be introduced in the first section. The book will be of particular relevance to those in the domain of political science but will also be of general relevance to anyone with an interest in understanding the macro-level contemporary changes taking place within political organization.
Political Complexity Overview

Politics can be seen to be holistic and complex in its very nature; as power dynamics and interdependence are in all human relations and all human institutions, every social interaction is potentially a political one. But until quite recently researchers were largely uninterested in the idea of complexity; systems that were complex were largely seen as just an extension of more basic systems. It was largely assumed that by studying more elementary organizations we would, in general, know everything we need to know. However, through new insights over the twentieth century - from physics, chemistry, ecology and other areas - we have come to increasingly recognize complexity as something that is both irreducible and very fundamental to our universe. Through such insights, we are increasingly coming to recognize that as systems go from being more elementary to more complex they change in very fundamental ways - as new features, structures, and dynamics emerge that require new categories, descriptions, and methods to understand and model effectively.

Political complexity then deals with the complexity of political reality, that is to say, its holistic and dynamic nature, interconnectivity and interdependence. Advocates of complexity theory describe it as a new scientific paradigm. Complexity theory suggests that we shift our analysis from individual parts of a political system to the system as a whole; as a network of elements that interact and combine to produce systemic emergent behavior. Such new insight helps us to better approach very complex sociopolitical phenomena, without limiting ourselves to reductionist methods; such phenomena as international politics, global civic organizations, terrorist networks, global social networks, political movements etc.

Political Science

Political science is the study of political systems, political systems are a set of social institutions through which a society makes collective decisions and implements them. Political science, "as a discipline lives on the fault line between the 'two cultures' in the academy, the sciences, and the humanities." As a science, it uses theoretical models and tries to match them to empirical data. Like social science in general, political science has progressed by adopting a variety of methods and theoretical approaches to understanding politics and methodological pluralism is a distinct feature of contemporary political science. Despite considerable research progress in the discipline based on many kinds of scholarship, it has been observed that progress toward systematic theory has been modest and uneven. Formal languages are what makes a discipline scientific, but like the other social sciences, political science has never managed to develop formal systems akin to the use of mathematics in the natural sciences. This is an outstanding issue with the social sciences in general that some believe complexity theory may address as it is currently being adopted.
**Political Systems**

Political scientists study the many aspects to sociopolitical institutions, how they operate and how they should operate. Such political systems are complex and multidimensional in nature as the requirement for coordination and collective decision making on issues crosses all aspects of a society. Likewise, politics is inextricably intertwined with culture, social structures, and economics. Politics is always fundamentally grounded in the culture of any given community, it strongly shapes social structures, regulates economic activity and plays a central role in managing a society's natural environment.

Sociopolitical systems, taken as a whole, thus engender a multiplicity of questions, that require some response before we can formulate any kind of a coherent theory of political dynamics. Primary and firstly among these are cultural and philosophical foundational questions. Normative questions about how should the system be. How should humans live together? In living together we have to coordinate our activities, we have to come to agreements but on what should the process through which we do that be based? Should it be on force, based on divine revelation, on tradition, should it be based upon reasoned argument? What is the legitimate basis of power over people, the legitimate use of force? The question then turns to more practical matters how do societies implement their cultural understanding within a set of social institutions? A system based upon force would naturally formulate an authoritarian hierarchical structure, one that is based on reasoned discourse would have an alternative structure that is better suited to that process.

Such questions lead in turn to an in-depth analysis of the set of political institutions through which decisions are made and implemented, the different bodies that constitute the government, the legal structures, the bureaucratic organizations that execute on decisions, the mechanisms for enforcing the implementation of those rules, for adjudicating in cases of dispute. Political scientists likewise concern themselves with how different political organizations interact with each other, how they find common ground, their similarities, and differences, this is the area of comparative politics and international politics.

**Context**

Political science as a separate field is a rather late arrival in terms of social sciences, but it emerges out of a long, rich and deep history of political philosophy. Political systems are as old as human civilization and their study of them dates back to the work of ancient Greece and before. The first great work of political philosophy in Western history is Plato’s Republic. Plato was interested in the question: What would a just society look like, and what virtues must the people and the rulers have to make it just? Plato distinguished five types of regimes and held that the state should be organized in the manner of a person or organism, with the higher parts ruling the lower.

Notice that this correlation of regimes with parts of the soul is the first example of the organic metaphor which holds that the state should be organized in the manner of a person or organism, with the higher parts ruling the lower. Plato believed that there was an ideal world, that the wise were capable of knowing that world, and the best political system would be one
that put those wise people in charge of arranging society for others, in the way that the brain controls the body's arms and legs and not the other way around.

Plato's greatest student, Aristotle, disagreed with him deeply. Aristotle formulated the first republican theory of politics. Man is by nature a political animal. Only “beasts or gods” live outside the polis. Within the context of the good polity, humans are the best of animals; without law and polis, they are the worst. Aristotle thought that by definition, political society is self-rule among equals, and self-rule requires face-to-face meeting. Thus, the polis cannot be too large. Citizens share in ruling and rotate through offices. Each citizen must be capable of ruling and being ruled.

Despite their disagreements, Plato and Aristotle both approach politics in the same way: They are seeking a polis that is both just and embodies virtue. And they believe that this can come about only if some group of people in the polis are themselves virtuous— the leaders for Plato and the citizens for Aristotle.

For about 1,000 years after the fall of Rome, medieval Christian European society was feudal. There were literally no public lands, roads, or institutions; government was in the private hands of the local lord. All people were bound to each other by a set of complex religious-legal and tradition based obligations, being legally unequal. Political theory in such a world was of little interest.

The modern revolution in political theory is part of the long breakdown of the medieval world, brought on by a decline in power of the landed aristocracy, the discovery of a new hemisphere in 1492, the emergence of Protestantism, and the development of Italian cities as centers of commerce and banking. It is in this climate that the first modern political thinker arose, that of Niccolò Machiavelli.

Machiavelli redirected political thinking from the normative and philosophical realm - of what was the best form of government and how should government be realized so as to achieve certain ideals - and focused it upon the reality of exercising power. For Machiavelli the political world cannot be determined by ideal virtues alone, it instead requires an analysis of the real power dynamics at play, and if one is to be successful in such a world one has to maintain power and control at all expense. Machiavelli merges the ideal into the real and asks about the real costs and effects of acting according to ideals. In politics, what matters is the kind of state that is created and maintained. From Plato through the medievals, the idea that a just society could be constructed without virtuous citizens or virtuous rulers would be incomprehensible. But Machiavelli finds that political society often has to continue without moral virtue and find a way to be just and stable without it. Machiavelli's very modern and realistic way of looking at political theory was a somewhat radical break from tradition that came to shape all later thought, but he also raised questions about the inherent immorality of politics, and such questions remain with us today.

Political theory then entered an intense couple of centuries of development during the 1700s and 1800s as our modern understanding of politics and governance structures was formed. Religious and traditional foundations for governance were rejected and thinkers like Hobbes, Locke, Rousseau, and Kant formulated a new philosophical foundation to political organization based upon rational institutions. Political institutions that were explicitly
designed according to reason making them rational, based upon the concept of the rational individual, who entered into a set of agreements with others to formulate the government that would serve in the interests of all. The emphasis shifted to the mass of individuals and government as a rational instrument for achieving their well being, duties and ethics become formulated in abstract principles of reason and based around the individual as exemplified by Kant's categorical imperative.

This intensely productive period of political theory fed through to an age of political revolution as the modern nation state framework was born, reason based constitutional systems of government were formed with a rational set of institutions. The English, French and American revolution created a new paradigm in governance that proved successful as others followed and we moved into the modern political era, that we know so well. The idea of the nation state with a centralized government ruling over a large geographic area with a culturally homogenous population formed the new architecture for governance on a global level, as people around the world obtained freedom from colonialism and were encouraged to develop such political units of organization.

As the nation state system became the dominant modality for governance a spectrum of possibilities within that architecture formed, from left to right, as the 20th century saw tense battle and divisions over how governance should be conducted in this new modern paradigm. The development of the nation state coincided with industrialization as the two became merged; the strength of the nation became closely associated with the strength of its industrial base.

Contemporary

However, by the latter half of the 20th century, the relentless drive of technological change and the market system were becoming ever more important organizational structures within societies. Eventually, a revolution in information technology would unleash a powerful new force of rapidly escalating interconnectivity on all levels from the local to the global.

And it is within such a context that the conceptual foundations and institutional design patterns that created our modern systems of governance are being eroded along many dimensions.

The turn of the 21st century is a time of profound sociopolitical disruption as power is shifting, it is moving upwards to a globally integrated economy and out wards to distributed peer-to-peer networks enabled by information technology. With the inextricable linkage between power and politics as the tectonic plates of power are shifting so too political institutions are being redefined. Old structures are being eroded and rendered paralyzed while with every new connection new structures are gradually being pieced together in a shifting landscape that is driving political disruption.

The challenge that political institutions face today is that of complexity, in all its shapes and forms. Challenges that are systemic, such as inequality and environmental degradation, challenges of interconnectivity, such as mass migration, of interdependence such as multiculturalism, of rapid change such as fast pace technology innovation. Such phenomena prevalent in our world today represent major challenges to nation states, calling into question
their ability to handle such matters and threatening to splinter modern societies along new divides that such changes create. The rise of the liberal Republican nation state as a system of political organization may have been the story of the modern era, as it overcame the monarchs of Medieval Europe, the totalitarianism of fascism, of world wars, the threats of communism, but whether it is designed to deal with the complexity inherent to these issues and what other alternatives might exist is very much open for debate.

As we build out this infrastructure to a networked global economy, the unregulated spaces of connectivity in our economies and societies expands on a daily basis, and as always there will be no shortage of people eager to exploit those vacuums. The question remains though, what would political institutions that are relevant for an age of complexity look like? How would power be channeled and distributed out, who would make decisions and how would they be implemented? How could we build sociopolitical institutions that would connect all the way from the local to the global? Such questions are once again open to debate and remain unanswered. But answering such question requires, in turn, an evolution in our understanding of political systems and governance as traditional categorizations formed within the context of the Industrial Age will be of limited relevance within this new context.

**Complexity**

All organizations change in fundamental ways as they go from relatively elementary to relatively complex. They go from being closed and well bounded to becoming open, from being linear and independent to non-linear and interdependent, from centralized and disconnected to distributed and interconnected, from being relatively static to become inherently dynamic. This is the same for political systems, their structure and behavior is always relative to the degree of complexity of the underlying social, cultural and economic systems; thus how we most effectively approach managing and studying them likewise changes. Political science as we know it is largely the study of closed political organizations that exercise power and how those independent organizations interact to resolve their differences.

**Closed Systems**

Most of political studies focuses on closed well-bounded organizations that exercise power within a society, most notably the formal political institutions of the government. Such an approach greatly simplifies the analysis, reducing it to a number of aggregate large organizations and how they interact. But the study of the closed aggregate formal political organizations gives us a somewhat self-limiting picture of the world. When we look at a map of the world we see it divided out into a limited number of closed political organizations defined by their boundaries. Such a model of the world, of course, blinds us to the true complexity of the interconnectivity between those systems; the many overlapping networks that enable modern economies to operate. Social and political organizations are always relational, they are nothing more than a set of relations between people. If we were to look at such a map of what one really looks like we would see a concentration of interconnectivity around certain areas, such as cities.

A map of political reality in such a world would really be a very complex set of social and economic networks. Thus political complexity tries to go beyond the somewhat reductive and
simplifying approach of simply analyzing a finite amount of closed formal organizations, but instead looks more at the open and dynamically changing nature of sociopolitical organization. A world characterized by open systems defined by their dynamically changing connections. This shift from a focus on closed formal political institutions and the characteristics of their members to the open connections of interdependence within a social group presents a whole new set of insights and possibilities. It shifts our focus from the parts to the structure of the whole, and that is a paradigms shift.

Emergence

Political analysis, as we know it, is very much focused on closed hierarchical organizations through which power is exercised in a downward fashion. We see formal institutions as the only means for achieving order and stability within society. Achieving a successful economy and social system in the Industrial Age was closely tied to the building of the formal institutions of the nation state, through which order was maintained. The mass of people enter into political discourse only during elections once every four years within democratic systems, or once every few decades within autocratic systems, when they overthrow the political regime. The mass of people play a rather passive role in the system, while those in the formal organizations are the ones who create the political system through which order is maintained.

In complexity science, we do not search for order as something that is given from above, but instead how order may, in fact, emerge out of the small distributed parts coming together to create organization. We stop focusing on the center and look instead at the distributed interactions within the system and how through those interactions the parts can self-organize to give rise to the emergence of organization through only local interactions. Thus instead of looking at the stable structures through which the order within the society is maintained, we are looking instead at the dynamic process through which it is continuously created. The concepts of self-organization and emergence recognize the constant interplay between order and disorder in the creation of political organization.

Interdependence

Traditionally political science is often understood as the study of power, however, such a restrictive definition offers only a partial insight. Power only exists within dynamics of conflictual agendas, it tells us how one actor or organization can control the agency of another, and the formal structures of political organization tell us how the power is distributed out. Such an analysis make certain assumptions about agents having divergent objectives and entering into conflict over those. It focuses on actors with independent agendas and how they realize those in the face of others who may have divergent objectives.

It tells us little about how cooperation is achieved. It tells us little about the networks of interdependence between actors that foster and enable cooperation. We focus on the means through which disputes are resolved, but not the means through which the divergent agendas are first created. Things become focused on the formal methods through which people can realize their agenda while we take the divergence of agendas as a given.
In a world of interdependence though, this requires us to look outside the box, asking how can interconnectivity and interdependence be used to foster an alignment of perspectives and interests before we even arrive at the formal political institutions for decision making. Such an analysis requires us to look not just at the formal institutions, but in fact at the broader social system within which they are embedded. To identify the broader social and cultural networks within society that feed into creating the context for the political system to operate within.

To understand the outcome of the political system one has to understand the types of interdependencies within the society at large that create the inputs. Where do the negative interdependencies that create divisions lie, and where do the positive interdependencies that create alignment lie. The formal political institutions of a society will only ever be able to deal with an issue on a relatively superficial level, while the real issues will involve a deeper set of dynamics defined by positive and negative interdependencies; to enable a functional political system it is required that those issues are dealt with on the appropriate social or cultural level. This requires a more holistic and comprehensive analysis, one that is not focused on the independent actors, their agenda and the means of power through which they can use force to realize that agenda, but instead an identification of the broader set of influences around the individual that shape their specific agenda; which in turn are a function of the dynamics of the positive and negative interdependencies within the broader sociocultural system.

In a world of independence, the analysis can be on the individuals and their agenda, how the parts interact to create the outcomes. In a world of interdependence, the focus should shift to looking at the context that creates the actor's motives and how connections can be altered to change the types of interdependence between the actors from negative to positive so as to align them.

**Connectivity**

A central tool for understanding complex systems is that of network theory and in a political context this translates into the study of political organizations as a form of social network. The central tool of standard political science is statistical analysis, through polling, surveys and the analysis of various data bases about citizens, we try to make statements about the whole system through reference to the properties of its parts. At a low level of connectivity within the social system, this approach may give us important insight and traction on otherwise difficult questions. However as we turn up the connectivity it comes to be the connections that shape outcomes, more than the individual characteristics of the members. In such a case making statements about the whole through statistical coarse graining aggregates of the parts can become misleading as it blinds us to how they are interconnected.

As the connectivity proliferates individual behavior becomes more defined by one's connections within networks. For example, as opposed to people being defined by their specific location within a geographic area and the community based around this, it becomes more important what social networks they are connected into, their location within those networks, how things flow between different networks etc.
As distributed interconnectivity increases and interdependencies increase, systems become nonlinear and the whole becomes something different from the parts. Methods that focus on the parts and assume the whole to be nothing other than an aggregation of those parts become misleading. Much of our statistical methods in political and social science make this assumption. In order to achieve a comprehensive understanding though, it is required to switch the focus to looking at the whole system; network analysis is one such tool that lets us do that.

It helps us to understand processes of change through diffusion, to study how things spread across the network, how and where tipping points might exist, how social networks grow and disintegrate over time. It helps us to look outside the formal structures of political organization, to look at local community peer-to-peer networks and how the flow of social capital on those networks enables the community to function without formal organization. Network analysis helps us to see a wide array of informal social patterns that fall outside of closed organizations, or cut across them, such as international criminal networks, migration networks, urban networks etc. and to use formal methods to interpret their workings.

**Adaptation**

Finally, complexity theory involves a set of models surrounding evolution and adaptive capacity which can be used to understand the development of political systems and how they respond to major changes. The central question is how does the system adapt to the inevitable changes within its environment so as to successfully navigate change and thus be sustainable over time.

Political organization, as we know it, typically takes a centralized regulatory approach of defining closed borders and uses a centralized intelligence and decision-making authority to interpret the environmental changes, formulate best responses and then control the elements of the organization towards those ends. Such centralized regulation as a means of dealing with change becomes limited in its capacity within complex systems and the emphasis shifts to the development of distributed structures that enable the process of evolution. Complexity theory helps us to understand the workings of this process of evolution as it takes place within social systems through the production of variety, selection, and duplication.

In dynamic and complex environments the emphasis shifts from creating fix projections and controlling for specific outcomes, to that of enabling impersonal mechanisms of selection for developing the most appropriate response to the environment and thus ensure the system's capacity to successfully respond to change. The emphasis shifts from optimal outcomes to resilience through adaptive capacity. Here complexity theory borrows many insights from ecology to understand the process through which ecosystems - and societies alike - go through the various stages of growth, maturity, collapse, and regrowth in what is called the adaptive cycle.
Conclusion

Political reality is certainly complex in that it pervades all aspects of social life, to date we have struggled to reason about it in a scientific fashion, as it has been divided into either philosophy and social theory on the one hand or the limiting tools of statistics, classical game theory, and algebra on the other. But with the increasingly coherent theoretical framework of complexity theory, social scientist now have access to the kind of abstract and powerful formal tools that have to date been the purview of the physical sciences. Although it will certainly take time for the models from mathematics, physics, and computer science to permeate into the social sciences, but with such tools, our understanding of sociopolitical systems can be taken to new levels of abstraction and rigor. Ideas that philosophers and social theoreticians have grappled with for millennia can be formalized in new ways that offer both deep insight and greater structure to our reasoning.

Existing social theory frameworks like functionalism, conflict theory, complex interdependence theory etc. can be reconstructed out of more fundamental modeling frameworks. This offers exciting new possibilities within the social sciences and in this book, we explore the opportunities that complexity theory offers to rethink political analysis.
SocioCultural Systems

Before anything politics is firstly about people; politics is a deeply human and personal phenomenon. Political questions about human rights, racism, justice, crime or freedom, are very fundamental questions that can not be approached in a superficial manner but require some understanding of their sociocultural foundations. If we want to try and get a grasp on the true complexity of political systems we will need to be holistic in our understanding by incorporating all relevant parameters and to do this we need to start from the beginning; the beginning is human culture and society.

Political systems do not exist independently in the abstract, they emerge out of and sit on top of social systems. Everything that happens within the political system will be ultimately derived from and contingent upon the nature of the underlying social system. To understand political systems is to firstly understand how deeply personal they can be to the lived experience of diverse people. In a society and culture people share a sense of themselves with others, and in politics, they share control over that combined self.

All political institutions derive from some lived experience of a group of people. As such in political analysis, we are inextricably dealing with people’s way of seeing the world and their values; what we call culture. In order not to lapse into naive assumptions about such things it is necessary to make explicit and have some understanding of the basic structure and dynamics of sociocultural systems.

Studying political systems without reference to their supporting culture would be like studying fish it out regard for water. We might be able to build up a detailed description of the fish’s internal anatomy but we would never properly understand the fish without taking it within the context of is environment. Likewise, we can not fully understand political systems without reference to their supporting context. If we want to trace the root of some political phenomena back to its origins it will invariably be in culture. As culture is an inherently complex and holistic subject this makes politics an inherently complex subject.

Sociocultural Systems

Sociocultural systems are as set of component parts fitting loosely together to form a coherent whole the term is used to give a holistic approach to looking at both the non-material cultural constructs - such as faith, value systems, epistemology - and the social structures - such as political organizations, civil organizations, educational systems etc - and how the two interact. The term helps to communicate the inextricable linkage between the two and how sociopolitical structures and dynamics can only be fully contextualized in relation to their cultural system.

Culture

In asking what is culture or where does culture come from we can answer that it comes from the human condition. To be a rock, to be a tree or a cat is to be under a certain condition,
likewise to be human is to be under a certain condition. Every person has a body, every person has emotions, every person formulates ideas and has desires. This condition is called the human condition, it is the state that all people are born into and none have any choice in this. As the philosopher Martin Heidegger described it, human existence is like "being thrown" into the world. It is this thing that we call the human condition that people get "thrown" into.

This human condition we experience subjectively, but it is common to all humans, we were all born at some stage, we will all have the subjective experience in our lives at some time of death, of aging, of awe, of happiness, of hope, we all have to feed ourselves etc. These are things that we will all experience in a very personal subjective way that is different, however irrespective of their differences we will all experience them because they are part of the condition of being human.

All of culture is weaved out of the subjective, experience of the human condition. Cultures are first and foremost about the lived experience of people, making them inherently subjective in nature. Culture refers to society's systems of beliefs, values, behaviour and material objects that constitute people's way of life Or in the words of cultural anthropologist E.B. Tylor, culture is "that complex whole which includes knowledge, belief, art, morals, law, custom and any other capabilities and habits acquired by man as a member of society."

A culture comes from the individual's subjective experience of reality but it is shared by a community, thus it engenders two somewhat distinct aspects; those processes that are subjective to the individual and those that are objective and shared by the community. In sociocultural theory, culture is defined as being interpersonal and intrapersonal. Intrapersonal refers to the individual and their subjective experience, while interpersonal is objective in nature in that it deals with the exchange of the culture between people.

Cultural Systems

Cultures may be understood as systems, where the term system refers to a set of interrelated elements that form a whole. The various parts of sociocultural systems are interrelated and interdependent; when one part of society changes, other parts must also change. This means that an institution, such as the family cannot be looked at in isolation from the political, economic, or religious institutions of a society.

Cultures are likewise more than the sum of their parts and in many ways non-reducible to them. A culture is a complex system of many interacting beliefs, conceptual structures, social arrangements, material processes and rituals that all interact within a temporal and spatial context. Sociocultural systems coevolve over time and as a consequence specific aspects are adapted to fit together to create in some way a unifying whole. Different aspects of the culture only really have meaning within that overall context. We can take artifacts of a culture like, an Italian pizza, a Michael Jackson song or a specific Chinese character, but it is only in their context within the broader culture that they really have their proper significance, when you remove them from that context they become an icon; a symbol of the real thing.
Elements

The anthropologist Marvin Harris attempted to outline a universal structure of sociocultural systems. He mentioned infrastructure (production and population), structure (which is social and behavioral, like political organizations, corporations, castes), and a superstructure (which is, values, concepts, beliefs, norms).

A society’s infrastructure is its most basic component in the sense that without it physical survival is literally impossible. On their most basic material level cultures constitute material artifacts; that of production - referring to technologies - raw materials and energy sources, and demographics. All societies must live within the constraints of the natural environment and these physical constraints strongly shape a culture and society. The political economy consists of groups and technologies that perform the functions of regulating production, exchange, and consumption within and between groups.

It is upon this environmental infrastructural foundation that the remaining parts of the social system are based. The social structure refers to actual patterns of interaction between people. Every society is composed of certain social institutions that maintain orderly relationships among its people and facilitate the coordination between members.

Cultures form a coherent conception of reality for a given people; they form what is called a worldview. In order to have a coherent worldview and thus a culture a number of important conceptual elements must be defined, a culture is formed around an ontology, an epistemology, a teleology and an axiology. An ontology defines for the culture the basic categories of reality; how people should categories their experience of reality and the things they encounter in the world. An epistemology defines for the culture what are valid processes of reasoning; it defines on what one can base one’s belief on. An axiology is a value system, it defines for the culture what is of higher and lower value and from this derives naturally a teleology which is a purpose or direction that members of the culture should follow in striving for what the culture believes is of value.

Beyond material means, social structures and conceptual frameworks, on their highest and most abstract level cultures engender and express the emotional dimension to the human condition. Through such cultural artifacts as music, painting, religious narrative, legends, films, novels, plays or clothing people express their emotional states.

We create cultural artifacts that express and engage people in the emotional processes that people go through. For example, a film is a cultural experience in that it consists of a set of signs and signals that are designed in a specific way to simulate certain emotional experiences in the viewer as they go through the various highs and lows of the story, experiencing different emotional states such as fear, hope, joy etc.

Sociocultural System Dynamics

Sociocultural systems are a set of interacting parts, material artifacts, social structures and roles, concepts and emotional states that give rise to an overall way of being for a group of people. Like all systems, they change over time and being complex they develop on the macro level through a process of evolution. A culture being an interaction of many parts
means that no one gets to choose how it changes over time; this is typically decided by an evolutionary process. This process of evolution as it plays out in culture has long since been noted but in the mid-1960s the American sociologist Gerhard Lenski developed a macro-level theory of sociocultural evolution that is broad in scope.

Like Spencer before him, Lenski insisted that sociocultural evolution is but a special case of the general evolutionary process. Human populations, Lenski tries to illustrate, are subject to environmental and biological influences similar to ecosystems. Rather than relying on genetic change to adapt to changes in the external environment, however, human populations have evolved culture. The development of cultures involves a cumulative process of change where some parts change while others remain limited in their change. Thus, cumulative change is a process that combines elements of continuity with elements of change; many parts of the system are preserved for extended periods while new parts are added and other parts are either replaced or transformed.

Whereas biological evolution depends upon the often random cross mixing of DNA, relying on random genetic variation to successfully adapt. Sociocultural evolution depends upon symbol-based cultural information, which is learned and can be transmitted across cultures. This means that it can be a far faster process. It also gives rise to inter-society selection, in which successful adaptations by individual societies become important factors in the competition between societies thus causing the extinction of many sociocultural systems over time and the convergence of those cultures that persist.

Culture is typically defined in contrast to nature. That is to say that it is seen as a learned capacity of humans as opposed to something that is biologically determined. The sociologist Marion Blute (2010) like Lenski emphasizes this, positing that social learning is the mechanism by which successful sociocultural adaptations are acquired by individuals in other cultures in an endless process of cultural adaptation in response to changing technological, social and economic conditions.

Complex Structure

One of the most important distinctions that is often made in this process of cultural evolution is the distinction between premodern and modern societies; as in many ways, modern culture represents a radical departure from traditional sociocultural patterns of organization. This process of modernity plays out on many different levels having a systemic effect on the whole social, cultural and political dimensions of a society. Here we will draw upon the work of some of the primary theorist on this process of sociocultural modernization include Emile Durkheim, Friedrich Nietzsche, Max Weber and more recently Jürgen Habermas.

Emile Durkheim introduced the idea of mechanical and organic solidarity as two paradigms that distinguished the structure of premodern and modern societies. In a society whose structure is defined by mechanical solidarity, its cohesion and integration comes from the homogeneity of individuals; people feel connected through similar occupations, educational training, shared religion, and lifestyle. Mechanical solidarity is seen to define sociocultural organization within "traditional" and small-scale societies. In more basic societies - such as tribes or chieftains - solidarity is usually based on kinship ties of familial networks. Traditional
societies are often integrated around some religion or spiritual system that provides an overarching context and set of values. In this respect religion often works as the binding glue for a community. Religions provide a narrative that interprets reality as a whole, they situate humans within that reality and present a conception of what human flourishing is and thus how one should and should not live one's life. This provides a unifying cultural infrastructure for many premodern societies; what Durkheim would call societies characterized by mechanical solidarity, where the sociocultural system is held together by this shared conception of reality and often their physical constraints within a particular geography, among other factors.

In contrast, the structure of modern societies is defined by what Durkheim called organic solidarity, which comes from the interdependence that arises from specialization of work and the complementarities between people. To understand Durkheim's theory properly it is of value to understand how evolution works through a process involving stages of both differentiation and integration that over time creates greater complexity. Through differentiation, new variants are formed, but then selection is performed upon them based upon their contribution to the whole. For the whole system to operate successfully in its environment all the parts need to be reintegrated into a functioning whole for the system to persist over time, thus working to reintegrate the system. In this way, we get an ongoing process of differentiation and integration. Through evolution, systems become more complex meaning they come to have more differentiated parts but also they come to be more interdependent and interconnected into the whole, and this is the essence of Durkheim's theory.

The organic solidarity found in modern sociocultural systems is a form of structure based upon the dependence different individuals have on each other in more advanced societies. Although individuals perform different tasks and often have different values and interests, the order and very solidarity of society depends on their reliance on each other to perform their specified tasks. Organic here is referring to the interdependence of the component parts. Thus, social solidarity is maintained in more complex societies through the interdependence of its component parts. For example, the baker makes bread that feeds the factory worker, that produces tractors, that enables the farmer to grow wheat, that goes to making flower for the baker to make bread. Modern societies are many complex networks of different units that are interdependent, this differentiation between the parts and their interconnections forms the basic structure to advanced sociocultural systems. This is seen to be in contrast to the religious and physical commonalities that held premodern societies together.

Rationalization

Modernity from this perspective then represents a certain level of sociocultural complexity, that goes beyond that of traditional societies. On a purely cultural level modernity is equated with the rise of reason and rationality in displacing religious narrative as the foundations to a modern culture. Unifying religious narratives become displaced within modern societies by a much more complex and specialized form of conceptual system based on reason and scientific inquiry.

With the scientific revolution, the modern conception of the world became increasingly formulated based primarily on reason. Scientific inquiry came to search for abstract principles to derive the laws of nature based on logic and empirical data and this would over
the course of centuries lead to a large body of knowledge that would form the heart of a modern person's conception of the world around them. In a modern secular society truth, the nature of reality and meaning of life, are no longer given to the individual members through the revelations of prophets and scripture but through reason we see ourselves as discovering them and in so doing creating the fabric of our culture through the application of reason in a never ending process. This ongoing process of recreating culture is a key part of the dynamic nature of modern societies; where nothing is certain or written in stone but all is to be discovered or created.

Hand in hand with the rise of reason comes rationality. Max Weber introduced the idea of rationalization to understand this process whereby rationality becomes a dominant cultural modality guiding our value system and socioeconomic organization. In sociology, rationalization refers to the replacement of traditions, values, and emotions as motivators for behavior in society with rational, reason-based, calculated ones. For example, the implementation of bureaucracies in government is a kind of rationalization, as is the construction of motorways for mobility, supermarkets to obtain one's food or skyscrapers for workspaces. Rationalization refers to the process of replacing the current values, traditions, and ideals of a society, that motivate their current behaviors, with thoughts and actions that are based upon reason and are instrumental in achieving their ends.

The social theorist Jürgen Habermas argues that the modern era or Enlightenment released several spheres of social life from their traditional, normative cultural regulations to pursue their own inner logic, as the regulation of these spheres would become increasingly internal. This has proven to be true of most spheres within a modern social system; law, economy, government, and education all become increasingly autonomous components within a complex whole. Political action was also released from tradition as it became democratic and rationalized. According to Habermas, this is what modernity does - and not just to money and power but also to art and science. Each of these spheres of life is set free from the older normative global cultural traditions to pursue its own internal logic.

Environment
Finally, it is important to note that cultures exist within some environment and are required to a greater or lesser extent to interact with other cultures. This inevitably raises many questions about how they interoperate - how one cosmos of meaning and social relations can interact with another that may have a very different conception of the world.

In the study of political systems, we can be dealing with systems wherein people's vision of the world is so radically different that it is virtually irreconcilable. Invariably cultures have evolved over prolonged periods of time adapting to their local context to create and integrated whole. Cultures are based on value systems and they create rankings and social structures out of them. These ranking systems often conflict, each ascribes different values to things, and this is a perennial challenge in creating a political community where all must find common ground.
The social theorist Niklas Luhmann noted that sociocultural systems are self-reproducing, self-organizing, self-directing systems that are “operationally closed,” essentially meaning that it is part of their function to selectively perceive their environment or “construct” it. Meaning is an internal product of the system. Any impact on one cultural system by another has a meaning determined by the internal rules of that affected system. Any system’s internal representation of the real world or its environment is constructed by itself for internal reasons. The input is filtered and rewritten into the culture according to its internal logic. This holds for, all sociocultural systems small and big, an individual a nation or a business. This also means that we cannot evaluate a society’s or a social system’s representation of the world as true or false because we ourselves have no representation of reality that is not internally constituted by our own social system. The implications of this recognition for normative political theory are of course troubling, to say the least.

The political theorist Michael Walzer in his book, Thick and Thin: Moral Argument at Home and Abroad (1994) argued that there are two levels of moral argument: the thin and the thick. By thin, he means the use of terms across multiple cultures, where the terms are independent of the particularities of the cultures of the people using them. But as a consequence, thin terms and arguments are vague.

Thick is the level of discourse that assumes the full cultural particularity of a term; the term’s meaning is dependent on, and intertwined with, a host of cultural practices and other cultural constructs. The point is that there is a culturally relative level of political discourse - the thick - and a universal, nonrelative level -the thin. These both play roles in political discourse between groups and within groups. To apply and create social changes, one must inevitably get to the thick level, where there is cultural relativity, but thin standards can be used cross-culturally.

We can say and mean that something like equality is of value, and this statement can have some foundations. But we must recognize that what equality looks like practically in a given society may differ; we will have to adapt everything we say to a local culture. In the same way that a word will mean different things to different people, it is required that we have some common understanding of it to enable effective interoperability. This is to a certain extent one of the challenges to a sociopolitical system to develop these systems of interoperability that enable collective coordination in a way that is balanced.
SocioPolitical Systems

The term sociopolitical system refers to systems composed of both social elements and political elements and the interaction between them. In asking the question where does governance come from or on what do we base governance on? The answer is sociocultural institutions. Political systems sit on top of and are dependent upon their underlying social system - in that political institutions emerge from and are determinant of the actions and relations between agents in society.

Sociopolitical analysis helps us to identify and trace processes that span both the social system and the political system. Such processes can not be fully interpreted by simply focusing on their manifestation within the political realm, in that they have their origins within more fundamental social processes - from which they can not be fully separated. One such example would be political movements. These processes of change often originate in informal social groups that over time galvanize into political movements. In understanding such issues as racism, inequality or populism it is required to look not just at the political system itself, but also at cultural factors and social factors within the broader community. Sufficed to say, studying politics and power as closed systems yields only limited results, to understand more fundamental and complex phenomena it is important to recognize political systems as open systems embedded within a broader social system.

Social Systems

Social systems are a type of system composed of individual people and the relations between them through which they are interdependent within the whole organization. Unlike a simple set of people or a group of people, where the members may be independent, the essence of social systems is the interdependence between members. This interdependence means what one does affects another and the whole organization. Social systems are composed of agents, the interdependent relations between them and the organizational structures that emerge out of their interaction, what we can call institutions that exist on various levels.

A social agent is an abstract representation of an individual or organization that has some degree of autonomy in their capacity to make choices and to act independently on those choices. In order to make choices agents must have some representation of their environment and some set of rules under which to make those choices, we can call this a schema, conceptual system, a culture or worldview. A schema gives the agent the means for classifying and interpreting information from their environment, they have some logic under which to make decisions and they have some form of value system that defines what are better or worse states, they then make decisions and take actions to effect their state and that of their environment towards their desired ends.

Thus an agent is not just a decision maker it is also an actor. To be an agent the individual or organization must have means for effecting its environment in some way. A stone is not
an agent but a monkey is because it has the use of its body to move things in its environment. All agents must have influence over their environment in someway. They are able to sense information, make decisions based upon their set of rules and take action to achieve their desired state. This combination of elements that gives an entity agency may be called a cybernetic system or a regulatory system, in that agents use these elements of communication and action to regulate themselves and their environment according to their value system.

Social systems exist whenever there is more than one social actor and their actions are interdependent in someway. In the course of pursuing their interests and activities agents inevitably interact and in that interaction, they become in someway interdependent, what happens to one affects what happens to another and vice versa. These relations of interdependence can be defined as positive or negative depending on how the goal attainment of the individuals relate to each other.

When the goal achievement or benefit of one agent is negatively correlated with another this is called negative interdependence. Negative interdependence is when one agent can only achieve their desired end by another failing to, i.e. there is a negative correlation between their states. Positive interdependence is when there is a positive correlation of some kind between the welfare of each agent in the relation; meaning what happens to one also happens to another, all win or lose together. These types of interdependence are very fundamental to the dynamics of social systems and describe much of how agents relate to each other. They can be seen to strongly affect the dynamics of cooperation and competition and the resulting overall social system that emerges.

Institutions

Recurring patterns of interaction between members form what are called social institutions. A social institution is a specific pattern of relations between members of a society. In their organized and persistent set of relations, they provide order to a social system but also serve important social functions. Thus institutions are structures or mechanisms of social order and cooperation governing the behavior of a set of individuals within a given community. They can also be understood as a persistent constellation of status, roles, values, and norms that respond in some way to societal needs.

Institutions - like schools, religions, armies, sports clubs, charities, businesses, governments - are made of individual members but in order for them to operate successfully, they have to organize and coordinate their members within overall processes through which they perform functions. Thus they require the individual to conform to the specified roles, norms and procedures that enable the institution to function effectively. This set of rules that members are required to follow may be formal or informal; depending on the type of organization and how important it is to its overall workings. In order to have institutions individual actors have to give over their agency to the organization, that means giving over their own decisions and actions to the organization for it to act as an integrated whole. Institutions are the aggregation of the agency given over by their members. In their combined and synchronized activity, the organization as a whole can perform functions and processes that none of its parts can - in such a way we get the
emergence of new features, processes, and functions on different levels within the social system. Individual social actors create the institutional structures but then these institutional structures feedback to constrain the members towards the aims and motives of the whole organization. For example, in order to enable the process of learning within a classroom students must be relatively quiet and attentive during a class. In such a way when the students enter the class they give over some of their agency. They bind themselves into an agreement that is required for the collective process of the educational institution to take place effectively and the institution will regulate the members through various forms to ensure they conform to its ends. Thus emerges a complex dynamic between the macro-level institutional structures, rules and norms and the individual's agency, motives and interests - which can be seen to encompass much of what we study in political and social science.

Political Systems

Political systems are a type of social institution, like all social institutions they are a kind of social agent; they are an organization that makes decisions and takes actions based upon those decisions. More specifically political systems are a type of social institution that makes decisions and acts for the public; where public means, relating to or affecting a population or a community as a whole.

Thus politics emerges naturally out of the very defining characteristic of social groups, that is to say, their interdependency. Wherever we have interdependence between members what one does affects the other and collective decision making and action is required to regulate the combined organization. We can then see how this idea of interdependence feeds through to the definition of politics; where politics is the process of collective decision-making and implementation. The key word being collective, which is captured in the term public. Politics is the process of collective decision-making and implementation.

Although we formalize political processes into abstract rules and institutions, in its essence politics is a very organic part of social systems. To have a political system, we must have more than one person and they have to be interdependent or autonomous in some way. That is to say, there must be the potential for their ideas and actions to diverge in some way. In such a case we have a question about how the combined organization will operate, whose opinion will be included in making decisions? How will the process of reaching a combined conclusion be conducted? How will it be implemented and enforced? Answers to these questions will describe the political process of collective decision making and implementation.

Politics and political systems are social institutions that perform a process of management, they manage the public realm, what is also called governance. The word governance derives, ultimately, from the Greek verb κυβερνάω [kubernáo] meaning to steer, like a person steering a boat. Public governance is enacted through a regulatory system composed of a number of different institutions, such as lawmakers, public administration, law enforcement, etc.
Types of Political Systems

A primary question in the analysis of political systems is to ask on what is the authority or legitimacy of the political system based? On what basis does a person come to have influence over the collective decision-making process? On what should we base whether someone has a greater or lesser influence? The simplest answer to this is force. That whoever has the strongest will or can exert the greatest force will be able to overpower the others and thus exert their will over the combined organization. This dynamic was most clearly describe by the philosopher G. W. F Hegel in his book The Phenomenology of Spirit where he noted that when two conscious beings, who believe themselves to be absolutely free and unrestrained, encounter each other there is a struggle for recognition, leading to the "master-slave dialectic", where one member ultimately has to submit to the other and become the lesser party (constrained) in the combined agency that is guided by the master who has a greater say in the organization.

A political system based upon the use of force to determine political decisions and actions leads to an authoritarian political system. The continuous struggle over power through force is a highly costly activity - as illustrated by the fact that most animals do not directly fight but use various displays of power as a proxy. Thus in most political systems, the use of force is not explicit or manifest, it is mediated and diffused in many different forms; propaganda, intimidation, displays of power, manipulation of various kind etc.

In a regime based on force, power is a central component of the political system, in that power is the capacity to get others to do things against their will. To effectively exercise power authoritarian systems favor or enforce strict obedience to authority at the expense of personal freedom. Authoritarian systems emphasize structure over function within the institution; the primary aim is to maintain power and the mechanisms of control.

Most political systems throughout civilized history have been authoritarian in nature. Originally, the state was a military institution. For many centuries, it was just a territory ruled by a leader such as a king who was surrounded by a small elite group of warriors and court officials; essentially a rule by force over a larger mass of people. Slowly, however, the people gained political representation.

Rational Institutions

Whereas authoritarian political institutions define the interest of one or a limited number of actors influencing the overall decision-making process and ensuring this position through forceful structures of obedience, political institutions may also be managed according to their functionality within the broader society; their results for the whole society can be a basis for their organization. That is to say instead of force being the basis for participation in decision making, an objective set of rules that apply to all and are design to achieve optimal outcomes for all can provide a legitimate basis for governance. Such rules are derived from the application of reason within a process of decision making based on the discourse between different opinions where the outcome is measured according to its value to the whole of society.

Such political systems instead of being based upon the subjective interest of a few are based on objective reasons given, that are designed to be in the interests of all. Reason is
the capacity to form ideas and opinions based upon a coherent and consistent objective set of logical rules which accord with empirical data. It is a rule that one must follow to have an objective reason for one's actions. Entities that act according to reason or are designed according to reason are called rational. Rational means to subsume particulars under general rules based on reason. In the case of political institutions, this means to subsume the specific particularities of any group under general rules defined by all, or rules designed to be in the interest of all. In order to do this, it must be that all are equal before the political institutions which then determine eventualities based upon a set of rules derived from reasoned based discourse. The categorical imperative is an example of a rational moral system. Simply stated it is the rule that one should only do what one would wish to become a universal rule. It is subjecting one's actions to following an objective rule that is in the interests of everyone instead of the interests of any specific subjective group or individual, thus it is a rational moral code.

Taken in the broader context of human civilized history this rise of reason in the modern era is truly radical, in that it has required us to discard other sources of social ranking. To make all equal before reason. For most people that lived before the modern era the idea that people are equal and that reason should determine things would make little sense to them. For us modern people it seems obvious that order comes from reason whether this is the order to our universe that we have derived through scientific inquiry or the rational foundations our institutions. For premodern societies, the order to the world is something that is given and reason has little role to play, the order is fixed and given by the social and cultural elite.

Modernity has seen a switch from political organizations based on one's status within a community to contract based relations. The new sociologists of the late 19th and early 20th centuries recognized that contemporary society was novel. Traditional society related individuals through statuses or roles in local and parts were highly similar in function. Modern society increasingly related individuals through explicit legislation governing individual contracts, hence, voluntary associations, in which society is characterized by a high degree of division of labor.

**Social Contract**

The modern era has witnessed a massive rise of rational institutions as they have become the dominant institutional technology of modern societies around the world. Richard Price the English philosopher and author in talking about the ongoing French Revolution of his time summed this up when he said, "the French are rightly replacing kings with laws and priests with reason and conscious." From Plato through to the medievals the idea that a just society could be constructed without virtuous rulers was incomprehensible - for the ancients, the ethics of individuals could not be separated from the conduct of politics. From this perspective, political systems had to be ruled by the virtuous and wise to be successful. The modern era took a radical departure from this, recognizing that political society will often have to continue without moral virtue and still find a way to be just and stable without it. That stable outcome and order could emerge from the interaction of purely self-interested individuals. Political theory in the modern era became increasingly based around the idea of the rational self-interested individual and how to develop systems for managing politics.
based upon reason with an aim to provide the maximum benefit to all. Governance in the modern era came to be understood in terms of social contracts to serve rational self-interested individuals.

The rise of rational institutions is most clearly seen in the formation of the social contract theory of the state, which rejects the idea that religion or tradition should determine politics. Social contract theory starts with the idea of humans in a state of nature where all are equal - which is an explicit rejection of many traditional social systems engendering innate inequalities, such as the aristocratic system or the caste system. Thinkers like Thomas Hobbes, John Locke and others formulated a basis for public authority as a social contract among rational self-interested individuals for the sake of personal security and advancement. Modern political philosophy searched for the foundation to political organization and legitimacy in the individual's rights and self-interested reasoning. The test of a political system came to be formulated as whether rational self-interested people would choose it. Power and authority belonged to law and offices, not to people and only as long as they perform their functions while tradition and religion were seen to have no place in determining political organization - which are very radical ideas given the existing status quo for most of human civilization.

Social contract theories then go on to construct a foundation for government based on the assumption that people are rational beings. The idea of social contract theory is that a political system is just if it would be chosen by rational self-interested individuals in a pre-social state of equality; the so-called "state of nature".

Because the state of nature is seen to be a war of all against all - as Thomas Hobbes posited - out of entirely rational self-interest each individual will come to the conclusion that if they can leave this condition they should due for purely self-interested reasons. Everyone will lay down their weapons and cooperate, each allowing others an equal amount of freedom, as long as this works the individual will stay true to the agreement and that is the social contract. But in order to solidify this construct, it is necessary to have some overall third party organization to enforce it and make all obey or else it is of little value. Thus power must be transferred to the sovereign to allow it to enforce this contract.

Thus free pre-social individuals out of their rational self-interest come to give up some of their freedom to a political body for the sake of security. The government then only has those powers and rights that the members have given up in the contract. This is individualistic in that it posits rights on the individual instead of the whole, the individuals give their rights to the whole.

Most justifications for modern political communities is that order comes from the structures that self-interested citizens freely impose on themselves and is constructed out of deliberative reasoning and discourse by the people. Within this political paradigm, the government is seen to be a fiduciary power to act for certain ends of the community. A fiduciary is a trustee, one who holds money in trust for another. Governments are rational instruments for the public good and this limits government power. Governments only have the powers given up to them in the social contract and must use them for the common good.
Governments must always obey their constitutions and governments have many legal and technical limitations on their actions. This is the social contract, the dominant paradigm underlying the modern formulation of governance.
Political systems

A political system is a set of interrelated social institutions that collectively perform the function of public governance within a society. Politics is the process through which a group of people make collective decisions that affect all and implement them; the process of doing this we would call public governance. A political system is then the set of institutions required to conduct governance within a society. Whenever there is a group of people that are interdependent in some way their actions will affect each other and some form of organization is required to effectively manage this combined organization - thus arises the need for a political system. Political systems are then a response to the question of how this combined public organization will operate; whose opinion will be included? How will the process of reaching a decision be conducted? How will it be implemented and enforced? In order to facilitate this process in an organized and structured manner, a number of social institutions are required which constitute a political system.

Nations

Public governance takes place in and between a group of people that are interdependent as they share some commonality. Thus political systems have historically emerged out of a local geographic context and sociocultural organization. All forms of social systems have had some form of political system; bands, tribes, chiefdoms, states, and empires throughout history have all developed institutions for collective decision-making and implementation. People that share common cultural and social institutions and thus identify with each other as a single sociocultural organization have historically formed the basis of political unity. However, political systems do not necessarily need to be based on people sharing a common cultural and social structure. For example, the great agrarian empires, such as Rome, regarded subjects of vastly different ethnic and cultural heritage to be equally subject to aristocratic and central authority. The legitimacy of the emperor, king or aristocracy had nothing to do with what language they spoke.

With the rise of the modern era, nationalism became a dominant paradigm for political organization. Nationalism means a sovereign state that itself represents one culture or ethnic group over a large area and the belief that this ethnic group or people ought to be self-ruling - this can be seen as a relatively modern idea. An ethnic group or ethnicity is a category of people who identify with each other based on similarities such as common ancestral, language, social, cultural or national experiences. The idea that people of the same nation are connected to each other is called nationalism. The concept of the nation-state becoming equation to the "nation", became dominant by the 20th century in Europe.

It's true that humans have always lived in groups that shared a common culture, religion, ethnicity, or race, but these were not what we would call states. They were predominantly local, kin-based associations, perhaps with a dialect of a language spreading over a number of villages a short distance from one another. The idea of a nation is a relatively modern
phenomenon. The central idea of nationalism is as Ernest André Gellner stated it "to each people, a state; to each state, one people." Nationalism when hand in hand with the rise of the commercial class and capitalism during the modern era as a centralized government over a large area can provide an ideal platform for commerce "standardized, homogenous, centrally sustained high cultures, pervading entire populations and not just elite minorities" as Ernest Gellner noted.

The idea of nationalism is that people have a right to self-rule, in order for government to be legitimate it has to share and express the culture of the people. This is typically not what occurred in the past, the legitimacy of the ruler's power over subjects had nothing to do with them sharing a common culture. To say that the Japanese should rule themselves and not be taken over by the Korean is a nationalist idea. We can note that nationalism is, in essence, idealistic in that instead of the foundation of political authority being based on power it is seen to be based on shared culture.

The idea of nationalism is to say that the peasant and the nobility share something in common that is greater than their differences, this would have been abhorrent to the nobility of the Middle Ages. Nationalism promotes equality within the nation, but may also do this at the expense of inequality between nations. It requires literacy and a degree of education because people over a large area must know that they share a common history and identity; it is unifying and centralizing. Your loyalty to the government is based upon you shared identity. Thus nationalism has had a huge homogenizing effect on culture during its rise as out of the many thousands of cultures that previously existed on the planet today only a small fraction have become national cultures.

Benedict Anderson pointed out in his influential book Imagined Communities the nation is an imagined community, the vast majority of the people will never meet and will live very different lives from each other but they have some conception of a shared identity. Anderson traced the formation of the nation state back to the printing press as a key element in its formation, where people consuming the same media came to see they had something in common. The book illustrated how the printing press played a powerful role in the development of a shared sense of identity, that is the nation. Imagined Communities suggested that nationalism is not the awaking of an existing community but the invention of one. The nation is an abstraction, it emphasizes the commonalities amongst a group of people above their differences.

Nationalism creates one dominant culture over a large geographical area and promotes this as the foundations to political legitimacy. For example, today Ethiopia is composed of more than 80 different peoples and cultures but the government still promotes itself as representing one people. A nation defines itself and others through race, history, culture and common language. For example in contemporary France, if you know the language and the history you can be considered French. This can be called cultural hegemony. Hegemony is when one element rules without question. Cultural hegemony is when one cultural perspective dominates all others.

The political theorist Antonio Gramsci argues that the political state produced cultural hegemony to maintain its rule. Cultural influence is a crucial part of the maintenance of a
state and that is why language and culture feed into the power structure and the state will try to control them to varying degrees. He posited that the state uses an often subtle array of means and cultural institutions to do this - from the media to the educational system - to create a cultural assumption of its validity and the validity of the cultural narrative that supports it.

State

For a political system to operate and exercise governance it must have the institutional means to affect or influence the members it governs. This set of political institutions can take different forms from bands to tribes, chieftains, and empires, but the contemporary form through which governance is exercised is called the state. In terms of a political entity, a state is any politically organized community living under a single system of government. The Oxford Dictionary defines the state as a "territory considered as an organized political community under one government."

The key aspects of statehood are population, citizens, territory, and government. States are defined by a given territory with boundaries to it and they exercise governance within their confines. States have a permanent population, a defined territory and a government that is capable of maintaining effective control over the corresponding territory and of conducting international relations with other states. These elements are summed up in Max Weber's definition which describes the state as a compulsory political organization with a centralized government that maintains a monopoly on the legitimate use of force within a certain territory.

For most of human history, people have lived in stateless societies, characterized by a lack of concentrated authority, and the absence of large inequalities in economic and political power. The earliest forms of the state emerged whenever it became possible to centralize power in a durable way. Agriculture and writing are invariably associated with this process: agriculture because it allowed for the emergence of a social class of people who did not have to spend most of their time providing for their own subsistence, and writing because it made possible the centralization and dissemination of vital information.

But it is only in relatively modern times that states have almost completely displaced alternative "stateless" forms of political organization of societies all over the planet. Roving bands of hunter-gatherers and even relatively large and complex tribal societies based on animal husbandry or agriculture have existed without any full-time specialized state organization. These "stateless" forms of political organization have in fact prevailed for all of the prehistory and much of the history of humans and civilization.

Initially states emerged over territories built by conquest in which one culture, one set of ideals and one set of laws have been imposed by force or threat over diverse nations by a civilian and military bureaucracy. The modern state arose from the break-up of European Christendom during the early sixteenth century. The Reformation instigated a century of religious wars between Catholics and Protestant powers. By the end of the century, the modern state had been established in Western Europe: a centralized power with exclusive lawmaking and law-enforcing authority over a territory. Conventionally, however, the modern state and state system is dated from the Treaty of Westphalia (1618–48) after a long period
of inter-European warfare. Westphalia established the key principle of modern statehood: sovereignty. Since the late 19th century, virtually the entirety of the world's inhabitable land has been divided out into areas with more or less definite borders claimed by various states.

However, even within present-day states, there are vast areas of wilderness, like the Amazon rainforest, which are uninhabited or inhabited solely or mostly by indigenous people. Also, there are states which do not hold de facto control over all of their claimed territory or where this control is challenged, what we call failed states, such as Somalia or contemporary Syria. Currently, the international community comprises around 200 sovereign states, the vast majority of which are represented in the United Nations.

Nation-states often force into a single mold a diverse set of people and cultures that historically have little to do with each other. The state tries to mold them into a single entity under a single rule of law and subject to the same fixed rules. To achieve this nation states often worked actively to foster a sense of national culture over that of local cultures. If we look around the world most of the nation-state borders are those that were imposed in a very artificial way by the colonial powers and today remain fragile. Iraq is one such example being a product of the British carving out of a territory according to their own interests, not in the interests of the indigenous people. For example, the northern border of Iraq was drawn so as to enable the British to exploit the oil, or the line that the British drew separating Pakistan from Afghanistan cuts right through the Pashtun area. The colonial empires had little interest in developing the institutional capabilities required for the state before leaving. In the absence of the required institutions, many nations around the world have remained weak, particularly in Africa and the Middle East. However, the nation state remains the dominant institutional framework on a global level through which political order and organization is maintained and are the primary unit of analysis of much contemporary political science.

**Sovereignty**

States may be classified as sovereign if they are not dependent on, or subject to any other power or state in exercising influence over their territory. States may or may not be sovereign. For instance, federated states - like that of contemporary Germany - are members of a federal union, and may have only partial sovereignty, but are, nonetheless, states. Some states are subject to external sovereignty or hegemony, in which ultimate sovereignty lies in another state or some super-state institution. States that are sovereign are known as sovereign states. Sovereign states exercise supreme authority within a limited sphere, the ability to rule absolutely within a territory, where no outside force can dictate the inner working of the state.

Sovereignty implies supreme rule or authority, this authority can be achieved through what the people see as legitimate or illegitimate means. Illegitimate means are those that people do not see as correct, the most obvious being the arbitrary use of physical force. Legitimate means are those that the people see as being right or correct when a government is seen to be legitimate people act in accordance with the government’s will because they recognize its authority as deriving from something higher and more valid than their own specific interests.
Cultural and national homogenization figured prominently in the rise of the modern state system. Since the absolutist period, states have largely been organized on a national basis. However, even in the most ethnically homogeneous societies, there is not always a complete correspondence between state and nation, hence the active role often taken by the state to promote nationalism through emphasis on shared symbols and national identity.

**Government**

A state can be distinguished from a government. The government is the particular group of people and organizations that control the state apparatus at a given time. That is to say, governments are the specific means through which state power is employed. States are served by a continuous succession of different governments. States are immaterial and nonphysical social objects, whereas governments are groups of people with certain powers.

A government is the means through which the abstract concept of governance is realized within a particular community. The government is the organization within the state framework that manages the process of governance. The relationship between a government and its state is one of representation and authorized agency. Governments manage societies and they do this by defining the protocols or rules under which that society will operate. They then have to implement those rules, enforce them and adjudicate them.

Governments firstly need some system for defining who gets participation in the decision-making process; what may be called an electoral process. Secondly, in order to make decisions and create rules, a decision-making body is required; what can be called the legislative. Third, there needs to be some organization for executing on the initiatives and rules agreed by the group; what may be called the executive or public administration. Finally, there needs to be some organization for ensuring that members adhere to the rules of the government and adjudicate on disputed issues; which is the judiciary and law enforcement agencies.

In political systems based on the principle of separation of powers, authority is distributed among these several branches in an attempt to prevent the concentration of power in the hands of a small group of people. Although it should be noted that the mere existence of such institutions in law does not guarantee a separation or balance of power. Many autocratic political systems have all the institutions designed for a balance and separation of power, while behind this power remains concentrated within a central group.

**Electoral System**

Governments manage the public sphere and they have to decide the best choices to make or what is the best direction to go in. This starts with deciding who gets a place at the decision-making table; whose opinions are included in the final decision. Different political systems will decide this in very different ways. Some will be restrictive, reducing the number of people, some will be expansive; some will be based upon the use of force some on individual rights and representation. In an autocratic system decision making is concentrated in a single center with a limited number of members having representation within the decision-making process based on their access to the source of power. However today almost all political systems around the world purport to be based upon the interests of their
people and display the institutional apparatus for public opinion to be expressed within the
decision-making process - of course in autocratic systems this is merely for appearance
only.
In a modern republic based on a social contract, the law ensures that the decision-making
process is open to those who have citizenship within that nation. In such systems, the
decision making power of the citizens has come to be mediated through a representative
body that is elected by the people.
Broadly speaking, an electoral system can be defined as the regulation of the election of
public officials. In a more constrained definition, an electoral system can be seen as the
regulation of the relation between voting and the elected officials. Therefore, an electoral
system is the way in which public opinion and interests through votes can be translated into
elected representatives and ultimately the decisions that the citizens wish to see enacted;
even if this is a highly mediated process. The design of electoral systems determines the
ways in which votes are turned into public offices. The constitution of most countries today
both provides the legal framework for that country and serves as the basis for the conduct
and delivery of free, fair, credible and legitimate elections - although this is only realized in
practice in a subset of political systems.

Legislators
Those who are elected to government form part of the legislative system. The legislation
makes laws that are binding for the community. Modern democratic political systems based
on law, are designed to formulate new rules based upon the use of reason through debates;
this process is called argumentation. Individuals have particular perspectives from which
they derive opinions on a topic, they then construct a case for a particular action or set of
rules. In reasoned argument, people construct a case by presenting data and creating
premises and drawing inferences that lead to conclusions. However, not all arguments are
reason based in which case people resort to various other means, such as persuasion and
manipulation.
People present their various cases before an audience with the hope of persuading them to
adhere to their course of action. Ultimately the outcome of the process depends on the
audience that will in some way express their approval of some options over others which
then go on to be implemented by other governmental institutions. What the legislators can
and can not do is governed by the constitution. Indeed the constitution is the expression of
the social contract made by the people in forming the government and thus defines what the
whole government can and can not do. A constitution is a set of fundamental principles or
established precedents according to which a state or other organization can legitimately
operate. These rules together make up what the entity is. When these principles are written
down into a single document or set of legal documents, those documents may be said to
embody a written constitution. Few states in the modern world have constitutional
arrangements that are more than a century old. Indeed, the vast majority of all the world’s
states have constitutions written in the 20th or 21st century.
**Executive**

The executive is the organizational structure through which management over the state is executed. The executive is the element within the political system exercising authority in and holding responsibility for the management of a state. Modern public administrations take the typical bureaucratic form found within most organization such as a corporation. As per a typical hierarchical bureaucratic system of management the operations of the executive are broken down into various departments with department ministers or heads responsible for the provision and maintenance of various public services. In a presidential system, the leader of the executive is both the head of state and head of government. In a parliamentary system, a cabinet minister responsible to the legislature is the head of government, while the head of state is usually a largely ceremonial monarch or president.

**Enforcement**

It is very often said that politics is about power and power is the ability to impose one’s will on another. For the state to have power it must have some apparatus for influencing or controlling people towards its decided ends. Ultimately politics involves power in that it requires the implementation and enforcement of rules made by the collective on the individuals of the group.

The origin of the state is to be found in the development of the art of warfare. Historically speaking, all political communities of the modern type owe their existence to successful warfare. The exercise of power through the use of force is the origins of the state and it remains a critical element of it; this power of the state is exercised through the law enforcement agencies.

Law enforcement is that element of the political system by which members of government act in an organized manner to enforce the law by discovering, deterring, rehabilitating, or punishing people who violate the rules and norms governing that society. A modern law enforcement system will include such elements as a police force, courts, jails, intelligence and surveillance agencies, army etc. Law enforcement agencies are largely limited to operating within a specified jurisdiction, outside of this the military is responsible for state security.

Questions of interpreting and applying the law within specific context are managed by the judiciary, which adjudicates between the written code and its application. The judiciary is the system of courts that interprets and applies the law in the name of the state, while also providing a mechanism for the resolution of disputes.

In some nations, under doctrines of separation of powers, the judiciary generally does not make law or enforce law but rather interprets law and applies it to the facts of each case. In other nations, the judiciary can make law, known as Common Law, by setting precedent for other judges to follow, as opposed to Statutory Law made by the legislature. The Judiciary is often tasked with ensuring equal justice for citizens under the law.
Types Of Political Systems

Politics is the process through which a group of people make collectively binding agreements. A political system is a set of social institutions through which this process is conducted. Governments make collective decisions that bind members of their community into agreements, in so doing they exercise power over people. A primary factor to consider in the analysis of any political system is then to ask on what is the exercise of this power over people based. A government's power is in its capacity to define people's choices for them; people have to in some way give over their individual choices and agency to the collective organization. We can then ask why do the individuals do this? Why do individuals submit to the will of the combined organization and give over their individual agency to it? On what basis is the political system's authority seen to be legitimate by the people? As the legitimacy of a political system is foundational to is construction it will shape its basic overall structure and workings.

Legitimacy is commonly defined in political science and sociology as the belief that a rule, institution, or leader has the right to govern. It is a judgment by an individual about the rightfulness of a hierarchy between rule or ruler and its subject and about the subordinate’s obligations toward the political system. Legitimacy is a value whereby something or someone is recognized and accepted as right and proper.

Three types of political legitimacy have been identified by the German sociologist Max Weber, which he described as being traditional, charismatic, and rational-legal: Traditional legitimacy derives from societal custom and habit that emphasize the history of the authority of tradition. Traditionalists understand this form of rule as historically accepted, hence its continuity, because it is the way society has always been. Charismatic legitimacy derives from the ideas and personal charisma of the leader, a person whose authoritative persona charms and psychologically dominates the people of the society to agreement with the government's régime and rule. Rational-legal legitimacy derives from a system of institutional procedure, wherein government institutions establish and enforce law and order in the public interest.

Autocratic

On the most basic level, a political system can maintain power through the exercise of forceful coercion. Through the exercise of physical force or the threat of it, they can get people to give over their agency and choices to the political organization. In such a case the term "might makes right" defines the authority of the organization although this will likely be
masqueraded in various forms. Such a political system may be defined as being autocratic, which is government by the few who are strong enough to seize power through forceful means. Autocratic means of or relating to a ruler who has absolute power and takes little account of other people's wishes or opinions.

Autocracy is often termed the oldest form of government and it can be seen to be inherited from our closest ancestors in the primate group - where social order is often maintained through what is called a dominance hierarchy. A dominance hierarchy arises when members of a social group interact, often aggressively, to create a ranking system. In animal and human social systems, members are likely to compete for access to limited resources. Animal decisions regarding involvement in conflict are defined by the interplay between the costs and benefits of agonistic behavior. Rather than fighting each time they meet, relative relationships are formed between members. Based on repetitive interactions a social order is created that is subject to change each time a dominant member is challenged by a subordinate one.

Quite simply the dominance hierarchy that defines autocratic systems means that those who are the strongest will rule others and have the power to determine their actions. In such a political system power ultimately rest on the fear of the individuals being ruled. The subordinates follow the actions decided by the rulers because of the fear that they have of the consequence of not doing so. Thus the system ultimately rests on the capacity, of the rulers to induce fear in the subordinates and thus control their actions towards the ends of the ruling members. Without this capacity the subjects would not do what the rulers command and the political system would lose its control and power.

Achieving power over others through the capacity to induce fear in them can come in many subtle forms and be mediated through many channels. For example, many authoritarian political regimes maintain power by creating some threat that is external to the group and posit their maintenance of power as the only means of avoiding that threat. For example, contemporary North Korea inculcates a sense of imminent threat from external aggressive nations in its people, thus validating the maintenance of a strong military rule by the regime.

Autocracy is characterized by the concentration of power in a central organization, be it an individual dictator or a group of power holders such as a committee or a party leadership. This center relies on force to suppress opposition and to limit social developments that might eventuate in opposition. The power of the center is not subject to effective controls or limited by genuine sanctions: it is often absolute power.

Autocracies attempt to borrow legitimacy by adopting the language of the constitutions of non-autocratic regimes or by establishing similar institutions. It is a common practice, for example, in many modern totalitarian states to establish institutions such as parliaments, courts, legal codes, elections etc. that appear to have the institutional structures of democratic republics. Similarly, the language of totalitarian constitutions is often couched in terms of the doctrines of popular rule or democracy. The difference is that in totalitarian regimes neither the institutions nor the constitutional provisions act as effective checks on the power of those at the top of the political hierarchy.
Conservative

The first form of political system that may be thought of as being legitimate in the sense identified by Max Weber is that of legitimacy based on tradition. Traditional legitimacy derives from societal custom and habit that emphasize the history of the authority of tradition. In many premodern societies, some religion, social or political order that was laid down in the past comes to be accepted without question and in a conservative system, it is the function of the present organization to uphold and perpetuate that order. This can be seen to come both from some veneration of the past, a desire for continuity and a recognition that what has stood the test of time must in some way work. The institutions of traditional government usually are historically continuous, as in monarchy and tribalism where the system is typically organized to perpetuate the rule of a particular family that ruled in the past.

In a political context, this may be call conservatism. Conservatism is a political and social philosophy that promotes retaining traditional social institutions; conservatism emphasizes stability and continuity in the sociopolitical order. There is no single set of policies that are universally regarded as conservative, because the meaning of conservatism depends on what is considered traditional in a given place and time. Thus conservatives from different parts of the world - each upholding their respective traditions - may disagree on a wide range of specific issues. However at the heart of conservatism is the philosophy of communitarianism; conservatism aims to preserve the unity and integrity of a given community and to resist change that may threaten, destabilize or disintegrate the existing institutions that form the sense of community and shared heritage of a given people.

Communitarianism is a philosophy that emphasizes the connection between the individual and the community. Its overriding philosophy is based upon the belief that a person's social identity and personality are largely molded by community relationships, with a smaller degree of development being placed on individualism. A core tenet of conservatism is the rejection of the application of abstract reasoning towards remaking society based upon theoretical principles. Instead asserting that political reality is an embedded phenomenon; embedded within existing social cultural and political institutions that conservatism desires to retain. From this perspective, politics should be about using existing institutions to respond to current changes while maintaining them.

Conservatism is non-theoretical in nature, it can only be understood from within the context of the community whose integrity it wishes to preserve. From a conservative perspective, reason is not a basis for the judging of authority. Traditional practices, actions and ways of acting should not be open to reason-based inquiry in order to determine their validity. Their validity is determined within the context of upholding and maintaining the integrity of the existing community. That reason is fundamentally limited in scope and as a modality for the construction of culture and political organization is a new and relatively untested innovation compared to the tried and tested historical religious and social arrangements. Authority in
the form of tradition and power and people's' unquestioned respect and fear of them are required to maintain social stability and order.

Traditionalist conservatism is a political philosophy emphasizing organic unity based on a common territory often coupled with one dominant faith system. This combination creates a sphere of loyalties and responsibilities that the individual is bound to; a modern expression of this is often found in nationalism, where the nation is the identified community. Political conservatism emphasizes the need for the principles of natural law. Natural law begins with the premise that all of our rights come from God or nature and are inherent to our being. It is sometimes defined as "the law above the law." Natural law is a vital part of the conservative intellectual heritage where it is generally assumed to be the proper basis for legislation, above positive law that is constructed through the application of reason alone.

Instead of appealing to reason as a foundation to political organization, conservatism is more inclined to search for its foundation in what we might call "human nature". According to Quintin Hogg, a former chairman of the British Conservative Party, "Conservatism is not so much a philosophy as an attitude, a constant force, performing a timeless function in the development of a free society, and corresponding to a deep and permanent requirement of human nature itself."

Conservatism in general defends the idea of social and economic inequality which can be seen to derive from the conception of "human nature" as in some way akin to that of the construct of "man in a state of nature" where there is seen to be a natural struggle for resources between communities and people; where the strong survive and we get the formation of a natural hierarchical structure to society.

Such a hierarchy is seen to be both natural and the correct order of things and thus interventions by the state based on theories of equality between people are seen as detrimental and at times deeply offensive to those who hold a conservative philosophy. Conservatism today often takes the form of a desire for limited state intervention. In a contemporary context, the market system can be seen to replace the more traditional domains within which peoples and groups compete and prove their merit within the hierarchy. As such both economic, political and social inequality are seen to follow naturally from this premise of human nature.

**Liberal**

The third form of legitimacy for governance that Max Weber outline was that of rational-legal legitimacy. This form of legitimacy is derived from the rational self-interest of the members of the community. That is to say, the people do what the government tells them to do because ultimately it is in their collective interest.

This idea is formalized in the construct of the social contract. The basic intuition of social contract theory is that people have rights and they give over these writes to a single governing organization in exchange for the protection of their life, liberty, and property. In such a formulation of government, power is seen to come from the individual members of the community; they give up some of their freedom and invest it in a centralized authority, ultimately because they see it as in their best interest. The government is then formalized in
terms of contracts where in freely consenting individuals give over their actions and submit to follow a centralized authority out of their own interest.

There are a number of key elements in this model to note. Firstly that power is seen to derive from the people; it derives from the inalienable rights of the individual. Secondly, that the system is one based on reason and rationality as encoded in contracts and laws. Thirdly, that the ultimate aim of the system is that of personal fulfillment and the greatest benefit to the greatest number of people.

In this form of political system, power is seen to derive from the people. A political organization wherein ultimate power is seen to rest not with some governing organization but instead, with the people, is called a republic. A republic is a state in which supreme power is held by the people, but is typically exercised by some set of elected representatives. The term republic is the broader term for rule by the people, which must include some democratic elements within it. Theoretically, power and freedom reside with the individual citizen but they freely consent to give over this to form governing institutions. Government institutions are then designed to establish and enforce law and order in the public interest. If the government fails to act in the common interest then the people have the right to replace them with a new government.

The theoretical construct of the social contract and republics is expressed in constitutions which often start with the implicit or explicit statement that the constitution is an expression of the people's will and rights. In the modern world, constitutional democracy is the chief type of non-autocratic government. The minimal definition in institutional terms of a constitutional democracy is that it should provide for a regularized system of periodic elections with a free choice of candidates, the opportunity to organize competing political parties, adult suffrage, decisions by majority vote with protection of minority rights, an independent judiciary, constitutional safeguards for basic civil liberties, and the opportunity to change any aspect of the governmental system through agreed procedures.

The move towards liberal republican political organization that has taken place during the modern era has been underpinned by the underlying cultural transformation from a religious-based to a reason-based form of culture. The rise of reason and rational social institutions throughout the modern era has, within the political realm, been translated into a huge rise in liberal republicanism.

In a pre-modern conception of governance is based upon natural law. Natural law is a philosophy asserting that certain rights are inherent by virtue of human nature and are typically seen to be given by some religious tradition or a transcendent source. Good governance is then largely equated to what the moral code deems to be correct, good or right. Traditional political philosophy believed that political society required virtuous rulers.

In the modern era social institutions come to be designed around rational self-interest and the role of natural law, human nature and virtue are diminished. This break from tradition was most famously expressed in the work of Niccolò Machiavelli, who was one of the first political theorists to decouple ideas of human virtue from practical matters of exercising
political power. After Machiavelli, modern political philosophy tried to design procedures that would lead to a just outcome without presuming the presence of virtue in the system. Political society was to be based only on rational self-interest as was found expressed in the work of Adam Smith who tried to illustrate how overall beneficial outcomes for society could be achieved even when people followed only there self-interested ends.

A key feature of the development of the modern era has been the decoupling of social institutions from the spiritual dimension of the community. The spiritual dimension became increasingly seen as something personal while the realm of the public comes to be seen as the realm of the rational. Politics becomes increasingly decoupled from ethics as political institutions became decoupled from religious institutions.

Positive law attempts to create a rule based framework for governance through the application of reason where all are equal before the legal system. Since the Enlightenment, the cosmopolitan ideal attached to liberal republicanism and capitalism has been that individuals from different races, ethnicities, cultures, and civilizations can adopt a set of culturally neutral practices, allowing them to interact to one another’s advantage being equal before the impersonal apparatus of the law. Part of the legitimacy of rational forms of political organization derives from their equal application to all; the constraint of processes to logic and the transparency of that logic to all. As Tom Tyler, writes in his book The Psychology of Legitimacy: “the roots of legitimacy lie in people’s assessments of the fairness of the decision-making procedures used by authorities and institutions.”

A third major dimension to the legitimacy of rational political institutions is that of utility. Utilitarianism became a highly influential philosophy during the formation of the modern political system. Simply put it sees the legitimacy of rational institutions to lay in their capacity to provide the greatest good to the greatest number of people.

Within the rational formulation to the legitimacy of authority, the government is seen to derive its legitimacy from its utility. The government is a rational instrument designed to express the communities interests and provide certain services in the most efficient manner possible. Its capacity to fulfill this function and provide the desired services is a basis for its reason for being, and a primary metric for an assessment of its validity. Instrumental legitimacy rests on the rational assessment of the usefulness of an authority and describing to what extent that authority responds to shared needs. Instrumental legitimacy is very much based on the perceived effectiveness of service delivery. Thus governments become rule-bound bureaucratic systems similar to other forms of rational institutions such as corporations, which are measured according to their efficiency in delivering the desired results.

**Voluntary Normative**

Finally, we can identify one last source of legitimacy to the foundations of a political system as that of normative values. Political order and the foundations to political action can be created through the use of forceful coercion, through reference to tradition and continuity, to self-interest within rational institutions but people can also be moved into action by normative motives. Normative organizations are those organizations in which membership is voluntary and which are joined in order for members to pursue a common interest. A normative organization is one that shows a strong commitment toward supporting a particular cause.
People voluntarily join a normative organization because they identify with the organization’s goals and view these goals as socially or morally worthwhile.

A normative organization differs from the other forms of organization, in that the individual is not coerced, nor are they bound by tradition to take action, nor is there any immediate tangible reward for joining such an organization - they do it out of their own volition to full fill some normative value that they believe in. People join normative organizations to pursue goals they consider morally worthwhile. The interests of such organizations can be, for example, community services, social action, or environmental protection. They are concerned with specific social issues. Examples of voluntary normative political organizations would be Green Peace or Amnesty International, in both organizations members combine their political resources towards a common end that is not given by tradition, enforced or gives immediate remuneration, but they do it because they believe in the value of the environment or that of freedom. Other examples would include Edhi Trust, Red Cross, The Lions Club. Voluntary organizations typically strive for participatory democracy, in which all members have an equal opportunity to discuss and decide important questions affecting the organization. Of course, virtually all political systems will be a combination of all these bases for legitimacy. Virtually all forms of government will use forceful coercion in some way, they will base their legitimacy on some cultural and social heritage that they purport to maintain and develop; virtually all governments today employ rational institutions and the language of reason based governance and many will appeal to normative aspect within their citizens.
Political Self-organization

Self-organization is defined as a process by which systems that are in general composed of many parts spontaneously acquire their structure or function without specific interference from an agent that is not part of the system. Political self-organization then refers to the formation of political patterns through the local interactions of the members only; this can be seen in the formation of public opinion, political movements, and political revolutions. In a cultural context, self-organizing processes can be seen in the formation of customs and the development of beliefs. In a socioeconomic context self-organization can be seen in the growth, competition, extinction of companies, national economies and the stock market.

When we look at a map of the globe, we find a world divided out into sub-political units of regions, states, and provinces. The first thing we might ask in our reasoning about this political system is how was it created? Without prior experience of such a phenomenon the political organization of the world would look rather random - small countries, big countries, straight lines running through deserts, zig zag lines, one would be puzzled as to who make such a contraption or at least intrigued as to the underlying logic of such a creation. Of course, the political world looks somewhat bizarre through the lens of this question precisely because no one actually created the system. The socio-cultural and political patterns of organization taken as a whole are a product of a millennia-long evolutionary process of self-organization. Thus in understanding our existing sociopolitical systems of organization one needs to know something about the dynamics of this process of political self-organization.

Political systems represent a type of social institution that provides order or organization that enables a society to function. There are essentially just two major paradigms surrounding how order can be achieved within systems. It can be imposed by some external entity which works to formulate and implement a design pattern within the system, or it may be generated internally through the interaction between the members, as patterns emerge from the bottom-up.

The former approach - that order must be in some way imposed on the system - is the foundational assumption behind hierarchical forms of political organization. Traditional sociocultural systems have typically been based around the idea of the order in the world around us as being exogenously given. That is to say, some supernatural entity created the universe and that the socio-political order within human society should reflect that order and is endorsed by it. The classical example of this, being the absolute monarchs of the late Middle Ages whose rule was endorsed by the Catholic church giving the leader some mandate from God to rule.

A somewhat radical alternative idea gradually formulated over the course of modern political and social theory; that the order to a society could, in fact, emerge out of the distributed
interaction between people in a spontaneous fashion as talked about by Adam Smith but later picked up by Friedrich Hayek, who both saw in the new market system the capacity for organization to form simply through the peer to peer interactions between members of a society. The basic theory behind these ideas was later in the 20th century developed by those working in the areas of cybernetics, systems theory. Today with the study of complex systems the theory of self-organizing systems has taken a coherent shape.

Today this process of self-organization is understood as the evolution of a system into an organized state from local interactions in the absence of external constraints. Such a process involves some initial degree of randomness in the system; dense nonlinear and distributed interactions; feedback dynamics that create what are called attractors which work to move the system from a large region of possible states to some subset of possible states. In so doing the degree of freedom to individual parts is reduced and some overall pattern emerges.

Organization

The essence of social systems and political life is the interdependence between members of a community; the fact that they share something in common. In a state of independence, there is no organization, no society, and no politics. Politics is always formed out of some underlying social interdependence. Interdependence means what one does affects another and vice versa. In such a case no person is an island, but all to some extent have to share some dimension of their self with others. This is the heart of what makes politics such a deeply personal phenomenon. The fact that part of our very being is being defined and controlled by some other organization.

Like all forms of organization, this order is the result of the coordination between members of the social system. The greater the coordination, the greater the order within the system. Inversely the greater the independence between members the greater the potential for disorder. These correlations can be positive or negative. A positive correlation means that the variables associated with some aspect of each member involved in the organization move in the same direction. For example, if one becomes more popular than the other will likewise or if one become less popular than the other will likewise. A negative correlation means that the variables move in the opposite direction, if one person gets rich then the other will get poor, or if one gets promoted the other demoted.

These types of correlation then help us to capture one of the most basic and important factors of social reality; that of sameness and difference, or ingroup-outgroup. It tells us where the boundaries of a specific organization lie, they lie wherever positive correlations start to become negative correlations - wherever people stop seeing the connection between their well-being and that of others. The stronger the positive correlation the more closely knit the community, the more they will identify themselves as one and are incentivised to work cooperatively. In forming relationships and organizations people are required to share part of their being with others and in that sharing our well-being becomes positively correlated with those others in the organization; whether this is a family organization, a sports team, a business or nation. The stronger the negative correlation, the stronger the divide and the stronger the potential for competition and conflict. As each side sees that they can increase
their well-being at the expense of the other; a zero-sum game. The essence of sociopolitical organization is interdependence and the key parameter is that of positive or negative interdependence, which defines whether, and where, a set of people are united or divided.

**Entropy**

Self-organization is defined formally in terms of a decrease in statistical entropy within a system. Entropy is a measurement of the number of degrees of freedom a system has on the micro-level. Without correlation between the states of the elements within a system, the state of each element is determined independently thus the number of degrees of freedom goes up, the disorder goes up and the entropy goes up likewise.

Social entropy can then be seen as the lack of constraints on individual elements allowing them to take a wide spectrum of states, where they are not bound within some overall pattern of organization. Thus it may be equated to the concept of political anarchy. Anarchy does not mean chaos, anarchy simply means the absence of overarching structures of political order and in such a context the unconstrained individuals may assume a diversity of states. High social entropy should not be equated to chaos, as chaos has negative or destructive connotations.

When the entropy in a system goes up it requires more information to describe the state of the system and it would require work to be done in order to reconfigure it back into its original ordered state. As such entropy is a key measure in information theory where it quantifies the uncertainty involved in predicting the value of a random variable; as the variables become more independent and random the information goes up and the entropy goes up.

In closed systems energy tends to disperse over time as the system moves towards an equilibrium state of maximum dispersion of energy, at which point the entropy is maximum. Because work in a system is only realized as energy flows from a higher potential state to a lower potential state, as a system approaches equilibrium - maximum dispersion and thus minimum potential energy - the capacity to do work goes towards a minimum rendering the system nonfunctional. An entropic system is nonfunctional, there is no order to the arrangement of parts, thus no structure to perform order processes, no potential energy and work can not be realized. A nonfunctional social institution does not mean that it is destructive or conflictual it simply means that it can not perform a function.

Anarchy and nonfunctional institutions only equate to chaos when the system has become dependent upon the functioning of the social institutions. Today we equate anarchy with chaos only because we live in advance political systems that are highly dependent upon the functioning of their complex institutions. If the governments of advanced economies stopped working tomorrow the result would be chaos, but prior to the advent of advanced civilization, people lived in a state of virtual anarchy for millennia. Social entropy can refer to the decomposition of social structure or of the disappearance of social distinctions. Much of the energy consumed by a social organization is spent to maintain its structure, counteracting
social entropy, through the maintenance of legal institutions, education, and other cultural activities.

As an example of entropy, we could think about the term anomie. Anomie is a "condition in which society provides little moral guidance to individuals". It is the breakdown of social bonds between an individual and the community, resulting in fragmentation of social identity and rejection of self-regulatory values. The sociologist Emile Durkheim used the term anomie to describe the "derangement" of traditional social cultural bonds with the rise of the industrial age, as traditional institutions were disintegrating in the presence of large modern sociocultural organizations. Equally, social entropy might be equated to what the social contract theories of politics would equate to the state of nature, a time before people lived with macro-level political institutions.

Pattern Formation

Self-organization requires some degree of entropy to initiate the process. Self-organization takes a system from an initially unorganized or homogeneous state into an ordered state; this essentially means an increase in the number and strength of correlations in the system. Because order and organization are a product of correlations the process of self-organization is going to increase the number and strength of the correlations between the states of members. It does not matter if they are positive or negative, both will decrease the amount of information required to describe the system and thus bring it from disorder into order, but in different ways. Positive correlations will define a single organization, while negative correlations will define a divided system.

The process of self-organization is often understood with reference to the model of a state space. A state space is simply a two or three-dimensional graph that represents all the different states that any element within the system could take. So an initial state of disorder within the system means that its parts are occupying many of the different possible states and are thus spread out across a large section of the state space. Because self-organization is about the creation of order it will work to reduce the number of possible states to a small subset. Thus in the state space model, we will see the members become condensed within some subset of the overall space.

For example, if we take a plaza of people that are unassociated, they will likely be performing different activities such as talking, walking, purchasing products, sitting etc. but if there was instead a political protest in the plaza, they would all be synchronized in some way, all chanting the same script, all marching together or moving their arms in a synchronized fashion. Such a system is more ordered and structured as it is trying to perform a combine function. Likewise, members now occupy only a limited set of all the possible states that were previously present.

This transition from disorder to order through self-organization is driven by what we call positive feedback. Which is a type of interaction where the action of one induces others to perform more of that same action. So in our example of the political protest, if there was only one person performing the act of protesting then others would feel no great external incentive to join, however, the more people that join the more inclined others will also be to
join in the protest. Or as another example, if only one person speaks some given language then others will not be induced to learn that language, but the more people who speak a given language the more people who will want to learn it - the most spoken languages in the world, such as English, Spanish or Chinese, are also the languages that the most amount of people want to learn. This is positive feedback where more begets more. Positive feedback is a powerful force driving change as it works to align elements within the same configuration. This synchronization of activities and states typically reduces transaction cost, improves cooperation and creates other efficiencies within the system that makes it more effective than others, thus amplifying its capabilities, attractiveness, and prominence. The same can be seen more generally in the formation of political regimes and cultures, the more traction that a culture or regime has, the larger its value will be for a member to form part of those cultural or political institutions.

In this respect, we can note how through increased interconnectivity during the modern era we have greatly consolidated the number of languages, cultures and political systems in the world. Of the thousands or tens of thousands of languages, cultures and political systems at the beginning of the modern era most people in the world today form part of just a handful of social groups speaking a handful of languages, like Chinese, Spanish and English, that form part of a hand full of large nation-state political units and cultures. Forming part of one of these large cultures or political systems offers one greatly more opportunities than forming part of the many smaller indigenous cultures - thus around the world, people continue to flock to cities and to learn English.

**Emergence**

Positive feedback works to align members into a synchronized state and thus creates some subset of organization within the overall system, we call this subset of the whole system an attractor. Because of the positive feedback, anyone close to, or within the sphere of the pattern of organization will be attracted to it because of its efficiencies of scale and reduced interaction cost. However, because this process of self-organization takes place from the bottom-up without overall global coordination it often takes hold at various locations within the overall state space of the system. This is what we see in practice, many different cultures and socio-political organizations have emerged over the millennia at different locations around the planet, largely due to physical geographic constraints. For example, geographic barriers like the Alps in Europe or the Himalayas in Asia reduce the level of sociopolitical interaction across them. Interaction either side of these geographic divides would have been much greater than between them and thus the process of self-organization would have taken place independently either side resulting in two distinct patterns of organization - such as the sociocultural groups of India and those of Han China or those of the French and the Italian states.

Specific organizations form and endure because of the value that is created through synchronizing the states of the members, such synchronization makes it possible to rationalize the system and achieve economies of scale, which result in the organization having greater capacities and potentially greater payoffs to the members.

As the pattern develops and becomes rationalized, its internal structure becomes differentiated. As a distinct socio-political pattern develops a center comes to form, with a
hierarchy between those at the periphery and those at the center forming. As it becomes more rationalized and achieves larger efficiencies of scale, more resources are generated and more resources can flow to the center. This allows for greater stratification within the organization that can be identified by the different levels of access that members have to the resources within the system. This may be economic resources, it may be social or cultural capital or it may be political capital. For example, as large nation-state political systems formed those at the center of the political hierarchy come to have more power as they now rule over more people than those in small political units. As the pattern stabilizes hierarchies form within the different sociopolitical organizations and those within the hierarchy who gain the most from them and are the most dependent upon their specific pattern work to promote it above that of others. It is inherent in the structure of the hierarchy that those higher up will work to promote the organization. Those who form a central part of the hierarchy, for example, the Catholic church, will have strong structural forces acting on them to promote that system even if it is at the expense of other systems of organization external to them.

Eventually, as the various local patterns that have formed gain more resources and expand the different patterns with their own internal rules and hierarchical structures will come into contact. As they come into contact they will invariably find they have different protocols, values, expectations, languages, religions etc. but will be required to create some form of consensus or common protocol for interaction. In doing this they will either have to compete as one tries to impose their design pattern on the other or they may cooperate to create common procedures. Either way, this new set of protocols will again create a new level of organization, a new pattern of interaction and rules will be weaved as a new level of organization emerges. If that combined pattern is successful people will come to see its advantages, they will adopt its practices and eventually identify with it above that of any of the individual parts.

This process of self-organization leading to the emergence of new levels of organization can be seen, for example, in the development of Europe over the past centuries, where local political organizations were brought into contact, often engaging in intense conflict before a new set of protocols, in the form of the European Union, were formed. Now that this transcontinental political organization is formed and people see its benefits, people come to identify themselves more as Europeans. But of course as is always the case with evolution the old structures do not just disappear, they become embedded within larger structures. With globalization we can see this same process taking place today at the global level, where individual nation states find themselves increasingly interdependent as they have to increasingly form networks of treaties and binding agreements to regulate the global sphere; which is one form of global organization that regulates and enables global political processes to take place and thus global systems of organization.

Management

Thus we can see how connectivity is a very fundamental parameter, when we turn up the degree of connectivity above a certain level this will change the system in very fundamental and often irreversible ways. We can say that connectivity is the ultimate parameter that we are dealing with because although interdependence is the essence of organization connectivity comes before interdependence, it is only with connectivity that there is the
potential for interdependence and self-organization. In the analysis of any socio-political system, connectivity is then the primary parameter to identify.

Politics is ultimately a type of management, it is the management of the public. Thus because connectivity is such a fundamental parameter to sociopolitical organization, the type of political system that is viable will always be relative to the degree of interconnectivity within the system and environment. At a low level of complexity and interconnectivity, top-down systems will invariably prevail. However, as the complexity and connectivity increases, this can be harnessed to create self-organizing systems, such organizations are better able to deal with rapid fundamental change.

Politics is a form of management, management has become closely associated with bureaucratic top-down forms of management, but here we are using the term in its basic sense, that is to say, the process through which we organize resources and people towards achieving desired ends. The self-organizing paradigm to politics then presents us with one approach to this process that is very much different from the traditional hierarchical model that we are used to.

In all cases in management, we are searching for optimal outcomes to the system. We are developing political organizations that attempt to achieve certain desired results, such as avoiding conflict, achieving prosperity, justice, equality etc. But there are different ways of approaching this management process. In the hierarchical model, we focus on the outcomes, we try to directly intervene in the system so as to achieve the outcomes that society desires. In politics, we traditionally spend a lot of time discussing what is the best result and trying to adjust the outcome for it to conform to some value that the society holds. For example, many see some degree of economic equality as a desirable outcome, and to achieve this we monitor the system to identify imbalances and use direct interventions, such as taxes and regulation, to move money from the wealthy to those less wealthy and thus achieve our desired end.

The self-organizing approach would not focus on outcomes though, but instead on initial conditions and the process, asking how can we create equality in the process. This approach to governance would not search for the means to manipulate the ends through direct intervention but instead search for the best context within which actors could try to achieve their ends. In this example, we would search for input equality, that everyone has the means to succeed. As a political philosophy, the self-organization paradigm does not search for outcome equality but instead ask what resources people have available to them at inception and how people pursue their ends, thus focusing more on the context rather than defining specific outcomes. Instead of intervening to prevent people from doing things or making them do other things, it asks how can we create attractors towards the outcomes that are desired. Instead of talking about how we can prevent people in a disadvantaged community from taking drugs we would talk about how we might make more constructive activities attractors.
Dynamics

Finally, it is important to note the dynamic nature to self-organization. Self-organization as a method for generating order within a system only occurs in the absence of an imposed design, in the absence of an externally given order. The theory of self-organization recognizes the importance of disorder; it ultimately involves a recognition that order is created out of disorder, in what we might call a process of creative destruction. Within this paradigm, order is not seen to be some inalienable given that simply exists and should always exist in some static timeless sense. It is instead part of a process that involves entropy and disorder, order is something that has to be perpetually created through a dynamic process, and disorder is an inherent part of that process, which can not be externalized without destroying the process itself. This is a very different way of looking at things.

Self-organization typically does not deliver optimal short-term results, rigid hierarchies can often achieve greater short-term efficiencies relative to self-organizing systems. However as with all systems, the effectiveness of the structure of the system will be contingent on the environment that it is operating within. At low levels of connectivity and interdependence hierarchies will often greatly outperform self-organizing systems, at least in the short run. However, as the complexity of the environment increases; as the connectivity increases and the pace of change increases, self-organizing systems become greatly more capable at delivering results both short term and long term. And this is a key part of the dynamics of the fundamental political changes that are taking place in our world today.
Open Political Systems

The term open political system refers to political systems that have the characteristics of open systems in general; namely that they have a high degree of exchange with their environment and are normalized to respond to changes through feedback and adaptive capacity. Likewise, they are open in the sense of being able to include the distributed perspectives and interests of a wide section of the population into the decision-making process. Open political systems are dynamic in nature in recognizing the need to be responsive to changes within the external environment and to adapt to those changes. The open–closed political spectrum has become in recent years identified as a replacement to the traditional left-right spectrum to define the most important features to political systems in the age of globalization and increased interconnectivity.

In a 2016 article in the Economist the author write; "From Warsaw to Washington, the political divide that matters is less and less between left and right and more and more between open and closed. Debates between tax-cutting conservative and free-spending social democrats have not gone away. But issues that cross traditional parties lines have grown more potent. welcome immigrants or keep them out? Open up to foreign trade or protect domestic industries? Embrace cultural changes, or resist it?"

Predictions and classifications based on traditional political distinctions are becoming less relevant in the rapidly changing world of globalization and the growing force of hyper-connectivity. From Spain and France to the USA incumbent political organizations based on the traditional spectrum are finding themselves less relevant to the issues that matter to people and increasingly are becoming displaced by those political movements who recognize a new set of concerns and interests that have moved to the forefront.

Speaking at the inaugural meeting of the Open Government Partnership in Brasilia, a well-known politician stated "In the 21st century... the most significant divisions between nations will be not between East or West, nor over religion, so much as between open and closed societies. We believe that countries with open governments, open economy and open societies will increasingly flourish." She when on to say that those countries that are closed to "change, ideas, cultures, and beliefs that are different from theirs will quickly find that in an internet world they will be left behind."
The open-closed distinction to political systems is a recent alternative to the standard left–right system; especially used to describe the cleavage in political systems in Europe and North America in the 21st century. In this system, parties and voters are arranged on an axis from open - socially liberal and globalist - to closed - culturally conservative and protectionist. A political realignment along these lines across the Western world has been described by political scientists in the wake of the financial crisis of 2007–2008, the Great Recession and the European migrant crisis, with mainstream left-wing and right-wing political parties shifting or falling behind populist parties and independents. Examples of elections described as having been best interpreted along open-closed lines include the Brexit referendum, the elections of 2016-17 that took place in the United States, France, Austria, Poland and the Netherlands. From this perspective, the central political issues of our time - such as immigration, nationalism, international trade etc - are all issues of open and closed political systems.

**Closed Systems**

To understand the distinction between open and closed political systems it is of value to first understand the distinction made between open and closed systems in general. The systems theorist Ludwig Bertalanffy describes two types of systems: open systems and closed systems.

Closed systems are held to be isolated or closed off from their environment where the feedback mechanisms between the system and its environment are limited. This is typically the case due to a strong boundary separating the system and its environment. Closed systems have a strong boundary condition that separates the internal workings of the system from its external environment and limits the exchange of resources and information between them. The boundaries to closed system are largely impenetrable.

With a strong boundary condition, limited influence from the environment and no perceived need for adaptation, in closed systems the emphasis is on internal structure. Within closed social organizations where interactions and information are transmitted almost exclusively within the organization, management analyze problems by examining the internal structure of the organization with little consideration of the external environment.

Closed systems tend towards equilibrium over time, and this equilibrium is used to manage the system, where different forces are counterbalanced in order to maintain stability and structure. In the context of organizational management, this involves using various direct incentive mechanisms to exert an influence on the members in order for them to conform to the existing governance structures. In the absence of interaction with their environment closed systems lack adaptive capacity and can thus be seen to be more deterministic in their nature. Moreover, closed systems are generally static and do not provide room for multiple alternatives for accomplishing the same result. Closed organizations tend to hold internal efficiency and control as the highest goals.

Unlike open systems, closed systems are dependent upon their separation from their environment; their boundary and the structure that maintains a fixed order within the system. If the exchange with the environment becomes too high such structures are rendered limited in their capacities.
Open Systems

Open systems are systems that allow interactions between their internal elements and the environment. An open system is defined as a system in exchange of matter, energy or information with its environment; continuously maintaining imports and exports, building-up and breaking-down its structure according to the information it receives from its environment.

Open systems are dependent upon this feedback exchange with their environment. For example, all biological creatures are open systems in that they have to continuously maintain an exchange of energy, resources, and information with their environment. This gives rise to the capacity to adapt and respond to change within their environment and to grow over time; which is an emergent process. Open systems are characterized by a feedback exchange with their environment that enables them to adapt and respond through an internal self-organizing process. Where the information and resources received from the environment enable the elements within the system to self-organize into new structures that are better adapted to the environment and thus able to intercept more or better quality resources, which in turn enables them to continue to grow. In contrast to closed systems which are defined by their internal structure, open systems are defined by their exchange with their environment, that is to say, the processes through which they transform inputs into outputs.

Environment

Closed systems and open systems represent a continuum along which organizations are more open or less open to their environment. The key defining variable governing this degree of openness is the complexity of the environment in which the organization is situated. The effectiveness of all systems is relative to the environment they exist within and this is particularly true for social organizations and how they are managed. Close linear hierarchical forms of management work best in simpler environments where a finite amount of elements are interacting in a well defined linear fashion; where there is a low level of interconnectivity and interdependency and change is limited to a relatively low level.

The historian Yuval Noah Harari illustrated this when he said: "The old 20th century political model of left versus right is now largely irrelevant and the real divide today is between global and national, or global or local, and you see it again all over the world that this is now the main struggle and we probably need completely new political models and completely new ways of thinking about politics. In essence what you can say is that we now have a global ecology, we have the global economy, but we have national politics and this doesn't work together. This makes the political system ineffective because it has no control over the forces that shape our lives."

Globalization represents a new level of socioeconomic complexity and this is a central challenge facing national institutional systems that were designed for a more simple environment. While the political and economic environment remained relatively stable and simple the distinction was between ideology. As the world becomes more complex the cleft is growing between those organizations that can deal with that complexity and those that can
not. Over the past couple of decades with the rise of globalization and information technology, national politics has become hollowed out as nations are increasingly required to operate within a global economy.

In the face of increased complexity and global interconnectivity, at best national political systems have been made increasingly irrelevant. National political systems without the capacity to deal with the complexity of these global processes have been made increasingly irrelevant in the perception of the public.

In the face of hyperconnectivity, political systems that have remained closed would appear more threatened and less stable. The boundaries and walls of closed political systems may hold out the rest of the world but they also hold up the ceiling. When the political organization is not yet ready for hyperconnectivity and globalization, then as the wall start to come down so too does the ceiling, threatening societal collapse in some instances. Openness also means transparency and as institutions become more transparent all of their failings become more apparent and people start to lose faith in them; whether this is with political systems and corruption; cultural institutions like the Catholic church or social institutions like the family.

Responding to Complexity

In general, open systems are potentially more effective at dealing with complexity due to a number of factors inherent to their design. They can potentially scale larger, they are normalized for nonlinearity, interdependence, interconnectivity and dynamically changing and unpredictable environments.

Formal hierarchical closed sociopolitical systems are limited in their scale. As the author Clay Shirky notes in his book Here Comes Everybody, closed organizations have both an upper and lower limit in their operating space; what is called a Coasean Ceiling and Coasean Floor. The Coasean Ceiling is the point above which the transaction costs of managing a standard institutional form prevent it from working well. Institutions which grow too large hit the ceiling and become so unwieldy that the transaction costs of managing a standard institutional form prevent it from working well. Typically the largest hierarchical organizations are a few hundred thousand people - a very few are a million or two million - the idea of creating a closed form of hierarchical political system for the entire planet would seem virtually impossible due to too many levels of bureaucracy and the bottlenecks inherent in such centralized systems. Because open networked organizations are distributed they have limited bottlenecks and hierarchical levels this allows them to scale beyond that of hierarchies. Open platforms like Facebook currently interconnect up to two billion people. As long as the network is distributed there is no theoretical scaling limit. Inversely the Coasean Floor is the point below where the overhead costs are too large for the level of transactions taking place. The author argues that open online platforms drastically reduce transaction costs, allowing loosely structured groups with limited managerial oversight to operate under the Coasean Floor.
Interdependence

Closed systems have problems dealing with high levels of interconnectivity and interdependence. The closed sociopolitical organizations of the nation state that we developed over the modern era all had in common one big idea, that of independence; that they were sufficiently independent and could thus manage and control their internal affairs. National identity was maintained in the face of the other outside of the border. Independence, borders and the centralized regulatory apparatus of the government enabled policy systems to regulate their internal workings. But as interdependence increases, this means increasingly things that are outside of the control of the regulatory system affect it. This reduces its autonomy, credibility, and legitimacy to its people.

In environments where cross correlations of interdependence may traverse the whole environment and no single system can manage them this requires open platforms for interoperability to enable cross system governance. The greater the interdependence the more the requirements to manage phenomena that happen outside the borders of any specific political system and the greater any component in the system has to invest in the whole in order to get the desired results for itself. At a low level of interdependence one system can invest solely in itself to get ahead but the higher the interdependence the more it has to invest its resources in open common platforms to manage those eventualities outside of its immediate control. For example, the more the people of Europe's hinterland can see what happens in Europe and the easier it is for them to move there, the more Europe has to care about what happens in those nations and build collaborative platforms with them so as to enable both to be successful.

In complex and dynamically changing environments the true measure of political systems is not what political program it adopts but instead how it responds to change. Fixed plans and ideologies may work within relatively closed systems with limited change. But in dynamic complex environments, the primary parameter to the success of the system is in how effective it is at aggregating the distributed intelligence and information of its citizens and converting that into the required changes. An open political system is one that recognizes the fact that the world changes and there is a requirement to adapt to those changes.
Emergent Political Systems

Emergent political processes refer to the rise of political structures and behaviors without central planning and by the action of many individual participants in a distributed fashion. The phrase draws upon emergence theory for the idea that the simple actions of individuals can collectively create complex and unpredictable results. The most manifest example of emergent political processes can be seen in the formation and development of political movements and protests. Such processes of change emerge out of the distributed interests, opinions and discontent of civil society; they often have limited centralized organization, are typically spontaneous and self-organizing; and are dynamic and temporal in nature. Emergent political processes create some form of synchronization amongst the people which enables them to operate as a combined organization towards effecting the desired change.

Emergence

The term emergence describes a very general and universal process whereby new patterns of organization are created as we put elementary parts together. These emergent patterns come to have their own internal processes, organization, and features. Typically, this emergent organization is the product of only local interactions in a process of self-organization with only simple rules. The classical example being ant and termite colonies where the organization does not come from some centralized authority such as the queen, but instead emerges out of the local chemical exchange between the ants in a distributed fashion.

Such local communications inform the ants as to what is happening within the colony and they then perform certain tasks depending on that information. For example, when an ant finds a food source, it secretes a pheromone on its way back to the colony communicating where the food source is. The more ants that then follow this and find food, the stronger the pheromone trail that will be left for more to go and find the food. In such a way, the colony has managed to deploy members to retrieving the food without anyone coordinating the whole process. This method of distributed coordination is called stigmergy and is often present in self-organizing emergent processes. Stigmergy refers to an indirect, mediated mechanism of coordination between actions, in which the trace of an action left on a medium stimulates the performance of a subsequent action. The concept of stigmergy has been used to analyze self-organizing activities in an ever-widening range of domains, from social
insects to chemical reactions, to robotics, bodily coordination, web communities and human society. Such stigmergy enables complex, coordinated activity without any need for planning, control, communication, simultaneous presence, or even mutual awareness.

These emergent patterns that result from self-organization can typically not be seen in any of the parts that compose them but instead, the pattern exists in some way independently from the parts in that the components can be replaced without an accompanying change in the overall structure. With emergent processes, the new global patterns or properties are often radically novel with respect to the pre-existing components. The emergent patterns seem to be unpredictable and non-deducible from the components as well as irreducible to those components.

The development of the human fetus follows a similar emergent self-organizing process. Every cell in a person’s body contains a nearly identical copy of the genome and there is no master cell in the body telling all others what form to take as they develop. The cells take on their differentiated roles according to their interaction with their local biochemical environment. In essence, for each gene in each cell there will be differing levels of expression according to the conditions around the cell. Signals received at the cell surface membrane, and the specific cell type determine what form and type that cell will take. These signals can give the cell a sense of spatial awareness, so it 'knows' where it is in relation to the rest of the cells in the body. Cells divide and specialize according to local interactions until, in very short time, the cells have created a complex human body. The liver cells know how to turn into liver cells by sensing that their neighbors are also liver cells and reading the DNA code to understand exactly what it is supposed to do. There is no omniscient control, but just a huge number of independent cells following rules and communicating with and sensing the state of their neighbors, with the end result being the emergence of the complex differentiated system of the body.

This same emergent process is pervasive in our world from the formation of snow crystals to the development of galaxies. The emergence of social systems can be seen, for example, in the economic market system. Friedrich Hayek coined the term catallaxy to refer to what he called the "self-organizing system of voluntary co-operation" or "the order brought about by the mutual adjustment of many individual economies in a market." Catallaxy suggests that the emergent properties of a market such as prices, the division of labor, economic growth, etc. are the outgrowths of the diverse and disparate goals of the individuals in a community.

In all these examples, the intelligence of the organization is not contained within one specialized centralized component, it is, in fact, in the network. The organization and intelligence are in the simple rules of the members and the way they interact within a network; it is out of this that the overall order emerges. The brain is a canonical example of this. There is no master neuron, every single neuron is extremely simple in its information processing, it is just an on/off switch. The extraordinary capacity of the brain is in the way those simple elements are connected into complex networks and it is out of that that we get organized patterns that give rise consciousness.
Emergent Political Processes

The political process is one of formulating collective decisions and implementing them. As such, it can be understood as the process through which a group of people or whole society manages itself. Our traditional conception of management is very much focused on a particular approach of top-down hierarchical management within closed organizations. This is how we achieve order and functionality within most of our existing formal institutions today. However, this approach has its limitations. It works up to a certain level of complexity and then becomes less effective. None of the complex systems that we see around us are organized in this fashion. The global economy, the internet, ecosystems, global financial markets, international politics, social networks; in all of these cases the system organizes itself without a centralized coordinator through a process of self-organization that gives rise to global patterns of organization in a dynamic process.

Emergent democracy refers to the rise of political structures and behaviors without central planning and by the action of many individual participants. More recently, Clay Shirky has referred to this as "the power of organizing without organizations." Emergent political systems can be seen in the formation of protest movements. For example, in the Occupy Wall Street movement or the M15 movement in Spain. On 15th May 2011, around 150,000 people took to the streets in 60 Spanish towns and cities to demand "Real Democracy Now", marching under the slogan "We are not commodities in the hands of bankers and politicians". The protest was organized through web-based social networks without the involvement of any major unions or political parties. At the end of the march, people decided to stay the night at the Plaza del Sol in Madrid and they ended up staying there for weeks as people set up food stalls, markets, and even legal services. None of this was planned, but self-organized, as members assumed different functional roles based upon their interaction with other peer members. The movement eventually developed into the more formal structure of a political party that has since reshaped the political landscape of democracy in Spain, providing a voice for the economically disenfranchised youth. This political movement can be compared with many others like the Arab Spring and May 1968 in France. As is the nature of emergent processes, such movements are often spontaneous and unexpected.

The process of emergence takes place in the absence of overall structures and within open systems, where there is sufficient exchange of energy and information with the environment. In such a case, local interactions and available energy can be used to create new macro-levels of organization that enable order within the system and the capacity for it to respond to changes within its environment; even access new energy sources that require this overall organization to be present before they can be accessed.

An emergent political process is one through which the distributed activities, intelligence and opinions of the people at large form into a coherent movement and is eventually translated into change through formal political institutions. We might say that it is the way that the new ideas and interests prevalent within civil society at large come to form, and are translated into decisions within the more formal political institutions. Or even comes to completely reshape and reconstruct those political institutions themselves, as happens during periods of revolution.
Likewise, this emergent political process may not only reconstruct existing institutional patterns but also construct entirely new levels of organization. For example, this process can be seen in the formation of the early Chinese state - out of the many tribes that lived along the Yellow River. The historian Yuval Noah Harari talks about this process as such: "Thousands of years ago, the people who lived along the Yellow River in China; it was many many different tribes and they all depended on the river for survival and for prosperity. But they all also suffered from periodical floods and periodical droughts and no tribe could really do anything about it because each of them controlled just a tiny section of the river. And then, in a long and complicated process, the tribes coalesced together to form the Chinese Nation which controls the entire Yellow River and has the ability to bring hundreds of thousands of people together to build dams and canals and regulate the river and prevent the worst floods and droughts, and raise the level of prosperity for everybody and this worked in many places around the world. But in the 21st century, technology is changing all that in a fundamental way. We are now living with all people in the world, all living alongside the same river and no single nation can regulate this river by itself. We are all living together on a single planet which is threatened by our own actions and, if you don't have some kind of global cooperation, nationalism just is not on the right level to tackle the problems. Whether it's climate change or whether its technological disruption, all the major problems of the world today are global in essence and they cannot be solved unless through some kind of global cooperation."

This illustrates the continuous ongoing process of political emergence. As new levels of organization are formed, they then come to interact and once again begin to form another level of organization. Thus, through thousands of years of such a process taking place, we get the emergence of multiple levels of political organization, from the small tribe to the ongoing development of global institutions.

**Exclusive Institutions**

A central aspect in the question of how new emergent political movements are translated into the outcomes that the society desires is whether the political system is one that is inclusive or exclusive. Like the terms open and closed political system, a discourse surrounding inclusive and exclusive political systems is also developing as a new vocabulary to understand political systems in an age of globalization. The influential political scientist Francis Fukuyama has like others identified that traditional distinctions between left and right are becoming less relevant or at least identified as proxies for more fundamental parameters.

As he stated in a recent talk: "I've been arguing for some time that one of the big dividing lines in the world now is less between democracies and authoritarian regimes, than it is between modern impersonal countries and ones that are highly corrupt. In a certain sense, you know the problem with Putin's Russia is not that it's not democratic. I have no doubt that if there is an election, a free and fair election in Russia tomorrow that Putin would be reelected as president because he does seem to be extremely popular. What Russia represents is not a failure of democracy, it's really a failure of a modern state because he's
running a kleptocracy, meaning the regime is a group of insiders who exploit their political position for their own self-enrichment."

According to the editor of The Economic Intelligence Unit, over half of the world lives in a democracy of some kind, but only 15% - only 28 nations - of all people live in fully functioning democracies and nearly one-third of the world lives under an authoritarian leader. Such terms as democracy and authoritarian tell us something about the institutional structures of the political system. But in many ways, are just shorthand terms that often tell us little about the underlying workings of the system. If we want to get our arms around the true complexity of political systems, we need to get to more fundamental and granular parameters than these.

In a recent book published, "Why Nations Fail", its authors discuss the question of extractive and inclusive organizations as the defining metric of the socioeconomic success of a given society. The basic theme of the book is that what matters most in why some nations fail and others succeed is not, as earlier authors have argued, to do with the nature of their economic policies, geography, culture, or value system. But rather, it is to do with their institutions. Acemoglu and Robinson theorize that political institutions can be divided into two kinds - “extractive” institutions, in which some subset of members organize to maintain political structures that work to their advantage, and “inclusive” institutions, in which “many” people are included in the process of governance with the explorative process being diminished.

Extractive institutions are understood as ones that permit the elite to rule over and exploit others while excluding them from political processes. They try to illustrate how political systems with a history of extractive institutions have not prospered because entrepreneurs and citizens have less incentive to invest and innovate. In such systems, the ruling elite work to maintain existing structures and are afraid of the creative destruction process of annihilating old and bad institutions, while generating new ones that is required to evolve and adapt to changing circumstance. This creative destruction process would fabricate new groups which would compete for power against ruling elites, who would lose their exclusive access to a country’s economic and financial resources. The result of this type of extractive political system, the authors posit, would be possible short term success but long term failure as incumbent structures work against change.

Inclusive institutions, in contrast, enable and promote this creative-destruction process to take place; enable innovative energies to emerge and lead to continuing growth as exemplified by the Industrial Revolution. Extractive institutions can also result in growth but only when the economy is distant from the technological frontier. The authors argue that extractive institutions will ultimately fail to deliver results when they reach the technology frontier, and are required to deliver innovations through the harnessing of widespread intelligence and innovation within a creative-destructive process. Hence, they reason that, while success may be possible for a while under extractive institutions, continuing success is possible only under inclusive institutions.
As an illustration of this distinction, the authors present the contrast between North and South Korea manifest in the photograph of the Korean peninsula at night, where North Korea is dark and South Korea light. Here, two countries that started in the same place ended up very different due to the extractive North Korean institutions and inclusive South Korean institutions. Likewise, they cite the example of the distinction between the successful North of Italy and the economically struggling South of Italy where the national political institutions may be somewhat uniform, but, in the South, Mafia organizations stilted socioeconomic growth through widespread corruption, among other factors. They also argue that many small unpredictable incidents or small differences in initial circumstances can lead to either inclusive or exclusive institutions - or more broadly success or failure.

Extractive political institutions can then be equated to those that are exclusive, as some subset of the organization uses the political system to gain access to the resources from the community; resisting change which creates inertia and the incapacity for the required, creative-destructive emergent process of change to take place. In contrast, a functioning political system involves political institutions that enable this self-organizing emergent process to take place; where the ideas, perspectives, and interests of the members of the broader society can be effectively translated into change through inclusive political organizations.
Political Micro Macro Dynamic

The term micro-macro dynamic, refers to the dynamic interplay between the micro-level to a system and the macro-level, each of which may have different emergent structures, inherent rules, and processes but have to interact and coexist within the same overall system, thus creating a core tension between them. The political micro-macro dynamic describes the same phenomenon within sociopolitical systems, where it is also referred to as the agent-structure problem; an explicit recognition of the tension within all sociopolitical systems between the individual's freedom to act and initiate change, versus the overall political and social institutions that are designed to maintain order and structure which typically requires the imposition of constraints on the individual.

Agent Structure

The relationship between the individual and the collective has always been one of the most fundamental issues in the social sciences. This relationship was a central element in the theorizing of the founders of sociology and economics, including the work of Weber, Simmel, Smith, Durkheim, and Marx. Contemporary organizational theory is very much concerned with how organizational structure influences individual action and how individual behavior results in the emergence of global organizational properties. In the social sciences, this relationship is known as the agent-structure problem. Agency is the capacity of individuals to act independently and to make their own free choices. Structure is the recurrent macro patterned arrangements which influence or limit the choices and opportunities available.

For example, a researcher may observe that individual political opinions and voting behavior are affected by their social class, thus indicating an empirical linkage between micro variables - political opinions - and a macro variable - social class. In most attempts to develop theories that link micro to macro, however, conceptual gaps appear in the resulting attempt. In most sciences today including, physics, biology, economics and many other social sciences this is the case. These gaps typically involve an inability to specify conceptually the processes by which micro- and macro-level forces influence each other.

An understanding of the micro-macro dynamics to sociopolitical systems can help us structure and formulate key questions of interest within political theory. For example, the concepts of duty, justice, freedom, and diversity are just some of the questions that lie at the
heart of political theory that can be understood with reference to systems micro-macro dynamic, as we will illustrate in this article. The key issue here is that of emergence, the process of emergence defined how micro-level parts are aggregated to form new macro level patterns. Thus an understanding of emergence tells us how we go from the micro-level to the macro level. The idea of emergence lies at the forefront of science today and thus within many domains, it is far from fully understood exactly how this process works to integrate the different levels.

**Emergence**

The process of emergence as it plays out in all kinds of systems creates new irreducible levels of organization. As we put parts together new processes come to take place on new levels, for these processes to take place effectively new rules have to be created and imposed on that level of organization that does not exist on other levels. As illustration we can think about a house fire taking place within a small community, a group of people form to carry water from a local stream to put out the fire. They could all individually carry a bucket of water from the river to the house or given some form of coordination they could form a human chain standing still while passing the buckets along; this organization would be more efficient and quicker. But we can note that in order to get this new functional process of the whole, a new level of organization and a new set of rules had to be imposed and this new pattern of organization had to exert a downward constraint on its parts; all the members have to stand in the line and pass the buckets if not this emergence overall pattern will disintegrate and we will not get the functionality. This is the same for all sociopolitical institutions, they are emergent patterns of organization that enable certain functions, but to do that the whole organization typically has to exerts some downward effect constraining the parts so as to achieve the optimal overall organization.

A complex social system is composed of many such levels of emergent organization from processes that take place only on the individual level to those within specific organizations to those within a whole nation or the whole of humanity. This emergence of new processes and rules on new levels is why we get two distinct rules for the micro-level and macro-level of the system. The parts create the whole but then processes take place on the level of the whole that require specific structure and rules to enable them. These macro rules then feedback to constrain the agents on the local level. This is a micro-macro feedback loop, the parts create the whole but then the whole feeds back to constrain and enable the parts. The upward effect of the individual members of the political organization on the macro institutions is called upward causation. The downward effect of the macro institutions on the individual is called downward causation; as the institutional structures are seen to cause the behavior of the individuals. This micro-macro dynamic is a core source of irreducible complexity because each level represents a different set of rules, but also these rule sets must interact in some way; political institutions can not exist without members, and likewise, the individual members can not achieve optimal outcomes in the absence of these overall institutional structures.
Conflicting Rules

To understand the difference between the micro and macro rules we can take the example of the different interpretations of the concept of freedom. As noted by the political writer Benjamin Constant, there are two primary formulations to freedom within Western political philosophy. That liberty is the absence of coercion or that liberty is self-determination. The first version which is a form of “freedom from” things is called negative freedom and the second “freedom to.” is called positive freedom.

Negative freedom is a form of freedom where the individual is liberated from overarching constraints and is thus free to pursue their own desires and interests without being bound by common rules or inhibition by others. For example, in this formulation of freedom, having lots of money would equate to freedom, as it liberates one from constraints by others and one could purchase all of the things one might desire, thus the person would be free in this sense. But say one was both a multimillionaire and a drug addict, such a person could then have access to all the drugs that they might desire without constraints, making them free in this sense. But at the same time, it could be said that the individual is a slave to their addiction and thus not really free. This would then lead to an alternative formulation of the concept of freedom, that of positive freedom.

Positive freedom is the freedom that one has from one's own desires and instincts; what we might call a freedom to be oneself. Positive freedom typically distinguishes the true or higher self from the false or lower self. Liberty occurs only when the higher, true self-determines one’s acts, not when the lower self is in charge. Freedom is not just the absence of coercion; it is when the higher self-acts. From this perspective, freedom is to be found in one's self-realization within some whole, rather than the capacity to do whatever one wants. This is the foundations of freedom as espoused by the political philosophy of Jean-Jacques Rousseau who not only accepted liberty as self-determination, but freedom, he reasoned, was determination of one's acts by one's true or highest self, and that self is the part of the citizen that is acting within the context of the whole community. True freedom in this sense is obedience to the general will. When people violate the general will, it is legitimate to coerce them into obeying it. Further, when the community brings these people back into line, it is not coercing them but making them free because freedom is obedience to the general will. And from this, we get Rousseau's famous remarks that those who try to disobey the general will, must be “forced to be free.”

Thus we can see the two formulations of the concept of freedom, one based on the rule sets of the micro-level, where freedom is the lack of constraints on the individual, the other based upon the macro-level of the whole where freedom is liberation from one's own desires; the kind of freedom that the Buddha might have been searching for in renouncing worldly desires.

The fact that new rules emerge on the different levels is what creates the potential for these rule sets to be in conflict. The rules that govern the whole are irreducible to the rules that govern the micro-level and this gives us the core tension at the heart of such ancient issues as duty and freedom. For example, there is a well-known dilemma at the heart of many
issues surrounding duty. Duty means "that which is owing" but the question is whether what is owed is to the whole organization or to the other individual parts? Is your duty to your family or to the whole of society or even to God.

For example, the Hindu scripture Bhagavad Gita begins with Arjuna, the Pandava prince, facing a life-or-death battle against his unrighteous cousins. However, in the opposing army, he also finds senior and much-revered members of his own family who raised him and his brothers when they had become fatherless as children. He was most grateful for the care, security, and teachings that they had given him as a child. But according to his dharma - which means "what is right" - Arjuna has to fight in order to establish justice and that means he has to kill the very individuals whom he worships with all of his heart. The result is despair — a situation where Arjuna feels caught between the two value systems.

Micro-Macro Process

There is no solution to the micro-macro dynamic, it is an inherent part of the dynamics of every system. All societies and political systems since the origins of social groups have faced the challenges of integrating micro and macro sociopolitical structures. The central question is not in removing this dynamic but instead how the political system enables it, that is to say how it enables the continuous feedback loop, whereby the local level distributed actions, interactions, opinions and perspectives of the agents are aggregated into forming macro structures and how those formal political institutions then feedback to shape the individual's decisions.

In this respect, we can identify a number of different possible outcomes to this process. The system may prioritize the social group over the members; it can prioritize the individual members at the expense of the group, or it could potentially develop sociocultural structures for enabling this feedback process to take place, creating some balanced interplay between the two.

A political system that emphasizes the organization of the whole society over that of the individual may be termed communitarian. Communitarianism as a political philosophy emphasizes the connection between the individual and the community. Its overriding philosophy is based upon the belief that a person's social identity and personality are largely constructed and modulated by community relationships and their place within the whole social system, with a smaller degree of development being placed on individualism. It is a political theory which emphasizes the responsibility of the individual to the community, both through their social connections and bonds to each other, but also typically to some overarching set of values and culture that endorses the value of the community over that of any of the individual member.

A classical example of political communitarianism within the context of the modern nation-state is that of socialism. Socialism is a political and economic paradigm that purportedly emphasizes the social group over that of the individual members. Socialism advocates for the means of production, distribution, and exchange to be owned or regulated by the community as a whole and used to wards the beneficial ends of the whole social group, rather than for the interests of individuals.
The communitarian approach to political organization has both advantages and disadvantages. David E. Pearson illustrated both of these when he said "[t]o earn the appellation 'community,' it seems to me, groups must be able to exert moral suasion and extract a measure of compliance from their members. That is, communities are necessarily, indeed, by definition, coercive as well as moral, threatening their members with the stick of sanctions if they stray, offering them the carrot of certainty and stability if they don't."

Communitarianism offers a sense of unity, certainty, and stability within the whole. However it is only interested in the individual in respect to their part in the whole, if you do not play that part then there is no basis for your value within the community; the individual has no inherent value, thus there is no basis to resist the actions and interest of the group.

Because individual identity is strongly constructed by the culture and social relations, there is no coherent way of formulating individual rights or interests in abstraction from social contexts. Everything comes to exist in relation to the whole social group and individuality appears to be expendable to that. The twentieth-century experiments with socialism and communism taught us much about the worst dangers of such political systems. Although they are not necessarily deemed to totalitarianism, they are certainly prone to becoming hijacked by a small group that then has unrestricted power over the people; the results can be disastrous as history has taught us.

On the macro-level, this approach may offer the community unity and coherence as a whole making it potentially more effective as a collective. Unfortunately, this coherence of the whole often comes at the expense of the individual. In emphasizing the whole over the parts, communitarian political systems will typically result in conformity and homogeneity. As individuality, diversity and different perspectives become dumbed down this limits the stock of diversity required for the system to renew itself over time in the face of new challenges, thus rendering it potentially unsustainable.

Inversely the sociopolitical system may prioritize the micro-level of the individual over the macro level, meaning that the system will become defined and driven by the interests of the individual members. Such a political system finds its expression in the political and economic ideals of liberalism and the free market.

Within this paradigm, the whole actually stops existing in its own right, the whole is seen as nothing other than all of the parts - what we call reductionism. Here what is best for the whole is simply what is best for all of the parts individually, the measure of the value of things - unlike in communitarianism where it is to the whole organization - is found in the utility to the individuals. The political organization within such a paradigm is based upon the writes of the individual, the whole political organization is nothing more than a set of contracts between the members that are entered into out of their own self-interest. Any binding political or legal responsibility that exists as separate from the individual is a product of those individuals freely giving over their consent and binding themselves into an overall organization, through a set of contracts that were believed to be formed out of their own self-interest.
As with prioritizing the macro level this approach also has both advantages and disadvantages. It is effective at harnessing the bottom up motives of the individuals, one of capitalism's greatest advantages. Likewise, it promotes the differentiation of the individual and groups, protecting them against the interests of the whole and maintains a diversity of potential solutions that are required to navigate change.

But in prioritizing individual motives and denying the existence of overall structures liberalism can render the overall social system dysfunctional. Social systems have emergent patterns, a downward cause has to be exerted on the parts to maintain the integrity of those processes, when that downward effect is removed the organization is removed and the functioning of the whole becomes diminished; the basic socio-cultural fabric of trust, identity and purpose becomes eroded and without this the formal political institutions cease to be able to function, they become increasingly paralyzed for lack of socio-cultural infrastructure.

**Sustainability**

The twentieth-century experiments into both socialism and neoliberalism have taught us much about the basic achievements and limitations of both systems, however, one thing we can say is that both systems are unsustainable. Both the micro and macro level approach are unsustainable over time, by prioritizing the macro level there is a loss of the differentiation of the parts and the diversity of solutions required to navigate long-term major changes. By prioritizing the parts the whole system becomes disintegrated. The underlying unity of the social and cultural fabric that enable social capital to flow effectively becomes depleted and the formal political systems are rendered dysfunctional in the absence of basic community infrastructure.

For a system to be sustainable it has to enable the full feedback loop between the micro and macro. Complex systems are hypothesized to exist on the so-called "edge of chaos" between integration and disintegration where they navigate them both to enable the process of creative destruction, wherein they are continuously broken down and built up. Indeed without going into too much detail, we can ask after the twentieth-century divide between socialism and liberalism, what is left today? The most successful and potentially the most stable and sustainable socio-economic organizations of our time are those that involve an emphasis on both the social and the free market and manage to integrate them in some way.

Those countries that constitute the so-called "Nordic model" are the most successful along virtually all metrics of sociopolitical and economic success. The Nordic model is a term coined to capture the unique combination of free market capitalism and social benefits that have given rise to a society that enjoys a host of top-quality services, including free education and free healthcare, as well as generous, guaranteed pension payments for retirees. Sitting between the controlled economy of Marxist regimes and unchecked capitalism at the other end of the spectrum, the Nordic model is sometimes referred to as “the third way." This is not to promote the Nordic model as an ideal, or to promote a centrist approach. Life happens at the edge of chaos, and the greater the interplay between integration and differentiation the stronger the emergence, this means continuously pushing
the extremes as well as maintaining enough balance to survive as a coherent pattern. The greater the system's capacity to do that the greater its capacity to innovate and evolve, which is what assures its survival in the long run. We can note also that most socio-political organizations throughout history have not stood the test of time and in times of fundamental and rapid change survival is the primary metric of success.

Nonlinear Political Science

Nonlinear political science is the application of nonlinear models to interpreting political systems. Since the advent of chaos theory in the 1970s nonlinear science has been growing and increasingly finding application in new domains of science. Some political analysts saw the importance of nonlinearity to political and administrative studies at this time but, more recently a growing number of scholars understand that the political world is increasingly characterized by nonlinearity and thus amenable to nonlinear dynamical techniques and models.

Nonlinear models can greatly help to support the realism of political models in that there can be limited doubt that social and political relationships are generally characterized by nonlinearity and complexity. Political systems often exhibit strong elements of sensitivity to small changes, unexpected consequences, non-equilibrium dynamics, the spontaneous emergence of patterns, and sudden changes in outcomes. A nonlinear approach implies the development and adoption of new theoretical models, but also new empirical methods to accompany these, such methods may include agent-based modeling and various forms of simulation, network analysis, neural network modeling, adaptive landscapes etc. Linear modeling within political science has its limitations in that it largely ignores networks of interactions between variables, synergies, and feedback dynamics and thus limits our capacity to identify and analyze the higher order patterns and processes of change that are manifest in the realm of complex social systems. Nonlinear methods can provide a rich and more extensive framework that would better allow researchers to model many topics of central interest within political science, such as regimes shifts, the dynamics of collective action and the emergence of political crisis.

Linear & Nonlinear Systems

The term nonlinearity refers to a nonadditive relationship between the parts within a system, or between events over time. This means that when we put two or more things together the combined organization is greater or less than the sum of its parts. Likewise, nonlinearity may be present over time, meaning that a series of events is not a simple summation of each effect in isolation. This nonadditive nature to nonlinear systems is a product of the way that they interact. These nonadditive interactions are called synergies. Relations that add value to the combined organization beyond that of the individual parts are called positive synergies, those that subtract are called negative synergies. Likewise, nonlinear
relationships over time derive from feedback loops between events, which work to compound or dampen down change as a system can grow or decay at an exponential rate.

Although nonlinearity can be observed in relatively simple systems composing of only a few elements - such as the canonical example of a double pendulum with just two component parts - it is a key characteristic of complex systems where many different variables are interacting in a parallel or networked fashion to amplify or dampen down the results.

Linear approaches take limited account of synergies and feedback dynamics; they search for a limited number of parameters that are seen to cause an event and that can be encoded into closed form equations. With linear models, we typically assume that the outcome is a product of either one or two or just a few direct variables. For example in asking why have we seen so much disruption in the political landscape this decade we might say that it is caused by the preceding financial crisis; thus identifying some direct cause and effect relationship between them. Another primary linear method used is to say that things are caused by many variables, but those variables are independent - like the atoms in a gas chamber. We can not say anything about any of the individual atoms but if we assume they are random we can use statistical methods which tell us something about the aggregate system.

However in complex sociopolitical systems the results of some macro phenomenon are typically neither of these - neither the product of a small amount of direct cause and effect interactions or the product of a random distribution of a large number of independent variables - they are instead the product of some network of interactions between a number of variables that affect the outcome and it is the specific way that different things interact that generates the outcome.

Nonlinear Political Systems

The distinction between linear and nonlinear works to define two different rule patterns within a system - or two different dimensions to the system. One which is linear and centralized and the other which is distributed and nonlinear. This distinction typically maps onto the divide within sociopolitical systems between the formal political institutions of the government and that of civil society.

In the linear dimension to a system, there can be identified direct relations of cause and effect with limited mediation between them. In such direct cause and effect interactions without feedback, small changes can only cause small effects and big changes will cause big effects. This direct cause and effect relationship can be used to control and manage the organization via a centralized regulatory system that has at its disposal the means to induce the causes required to achieve the desired effects in the system. For example, governments typically have central banks the have the means to alter the rate at which they will provide loans this is then used as a mechanism to affect the general rate of interest in the economy. Thus the government is using an identified linear cause and effect relationship to control the behavior of the system.
The formal management apparatus of government as we know it, is a centralized hierarchical model that is expressive of a linear conception to management; it is a traditional linear control system. Like all linear control systems, it is designed to maintain homeostasis within the system that it is regulating through various linear cause and effect methods disposable to it. In the same way that a person driving a car has to use their visual sense to receive information, their brain to process it, and their arms and legs to maintain the car on the road, all linear control systems perform this same function and a centralized government is just one such example.

Nonlinearity, in contrast, is uncontrollable through this traditional method of directly influencing the system. In nonlinear systems there are no direct linear and proportional relationships, you can try to affect the system in a certain way but you do not know what the outcome will be. The results of the same input effect may change over time depending on the context and specific arrangement in the system. Often such direct interventions into complex systems have many unintended consequences that create the opposite results from those that one may have predicted or desired. For example, the allied invasion of Iraq where the intent might have been to make the invading nations more secure would appear to have had the reverse effect, providing fuel to terrorism.

The nonlinear realm to political systems typically forms the vast majority of interactions and institutions within a society and which lie outside of the domain of direct influence by the government; what we might call civil society. Civil society is typically a very complex network of overlapping institutional structures. Civil society is composed of many peer networks, such as church groups, community groups, youth groups, labor unions, rotary clubs, interest groups, academic institutions, various charities, the media in various shapes and forms etc. Many of these are networked in their structure and do not exert any direct power over their members, being voluntary associations. The nonlinear dimension to a political system is then, the many overlapping networks throughout a society without centralized regulation by formal political institutions but still regulate public activities and opinions, and are sources of political power.

In this context, we could, for example, identify totalitarianism as an expansion of the linear domain into the domain of the nonlinear civic space, as it tries to disintermediate the various civil networks within society and create a direct relationship between the state and the population while limiting the direct peer to peer interactions between people.

Emergence

Because political science typically uses linear models we often spend a lot of time focusing on the centralized and linear formal political institutions, simply because they fit into our models. The nonlinear dimension to the system of civil society is often then dealt with through statistical methods, we take a sample of public opinion and generalize that to the whole population. Political scientist and analysts spend a lot of time talking about either the interaction between government leaders or public opinion derive from statistical sampling of the mass of people.
What goes unaccounted for in this method is the nonlinearly distributed set of connections, how people are connected, the different types of synergies that may exist within those connections and how that may lead to non-equilibrium outcomes that differ from pure statistical aggregations.

In this respect we can noted that as people become more interconnected such statistical methods that look at samples of masses assuming their independence will be limited in their result. It is only with reference to nonlinear models where we include distributed interactions between members and the potential for synergies between different networks of connections that we have the possibility to talk about emergence and non-equilibrium outcomes, which become key drivers in a system that exhibits heightened connectivity and interdependence.

As long as we are using linear models all we will see is that only big events can cause big outcomes, in trying to simplify our models we will then remove small events that appear to not have significant outcomes, with such events being deemed as negligible and thus not relevant. The result of this though is that we will continuously come back to focusing on the centralized major actors in the system, without the potential to see how small events can create large outcomes through distributed nonlinear interactions within overlapping synergistic networks. Such an analysis is relevant in a political environment with low levels of complexity, but will be rendered less functional given greater complexity. The more we turn up the interconnectivity within the system the greater the potential for nonlinear emergent outcomes and the more we will be surprised by the observed outcomes if we stay focusing on linear aggregations and centralized components.

Nonlinear distributed interactions give rise to emergent outcomes. Instead of statistical aggregations tending towards the mean or average the larger the sample we take, the opposite happens, we get power law distributions where statistical averages tell us little about what is going on in the system. A classical tool for modeling such nonlinear emergent outcomes would be agent-based modeling that is specifically designed to simulate the many distributed interactions between individuals and the emergent patterns that may arise from this. Whereas modeling complexity with linear models often involves adding an increasing amount of varying parameters making the model more complicated, the nonlinear approach recognizes that even with only a few variables complexity can arise out of their nonlinear interactions, through a process of emergence. Which is one of the basic ideas in complexity theory; that simple rules can create complex phenomena.

**Higher Order Change**

Linear models are inherently static. They are always in relation to equilibrium. They model systems in terms of the different forces acting on the system to bring it back to equilibrium. Such models may tell us about normal periods of stable and incremental change. They tell us about the linear interaction between the components where one thing interacts to cause another and only big players can cause big effects. What it fails to tell us about are processes of higher order change.

Nonlinearity implies higher order change, that is to say, the shift from one overall systems regime to another. For example, the move within Europe from the middle ages into the
modern era, or the move from the Warring States Period in China to the formation of the first unified Chinese empire are both examples of a higher order macro level change where in all the political institutions become reconfigured in such a period of fundamental change. An analysis of the major parts and their interactions is limited, one needs to also look at the aggregate level. As is often the case with nonlinear systems, because of the emergence of patterns and processes on the macro level one can not just look at the parts one has to also look at the whole to understand what is going on. Without having some macro model to the overall process of change as a society goes from being pre-modern to modern, one could not derive such a phenomenon simply from how the parts interact.
With linear models when one wants to account for high order changes, such as the fall of regimes, we can only resort to stochastic models. Political history is littered with examples, where in some cases small persons or incidents have ignited massive armed conflicts or war and in other situations, similar events have resulted in no appreciable changes in status quo. An understanding of such processes of change requires, not simply an analysis of the major actors but instead, some indication of the distributed state of the system and an understanding of feedback processes involving cascading effects that occur when the decisions of citizens are interdependent over time. Each person's payoff depends on the number of other people who do so at the same or later time. Cascades or herding effects in collective action are present when the adoption of a given behavior is dependent on interactions over time. In such a case the context within which people are making their choices to change or not is dependent not only on their personal propensities but also the context within which they are embedded; which itself is dynamically changing as events unfold. Effectively interpreting such emergent processes of change requires nonlinear models that identify feedback loops and the networks of connections present.
Political Field Theory

Political field theory is the application of the more general concept within science of a field to interpreting sociopolitical systems. The idea of a field has long since been used within modern physics to interpret how a pervasive force - such as spacetime or electromagnetism - within an environment can be the cause of change in any given object. This idea was then applied to social theory during the late 20th century by the sociologist Pierre Bourdieu who used field theory to examine how individuals construct social fields, how they are affected by such fields and how they, in turn, try to shape then towards their own interests. This more general social theory can then be applied to understanding political systems and the sociopolitical fabric of a society in terms of a multiplicity of differentiated subfields and the influence those fields exert over the actions of their members. Here we are interested in asking such questions as, how the rules are created and altered by the actors? How a single political force may influence the entire social field, or how specific subfields can exert their own autonomy and agenda in the face of external influence.

Field Theory

The origins of field theory come from the physical sciences where one finds varied expressions in electromagnetism, Newtonian gravitation, and Einstein’s theory of general relativity (Hesse 1970). These theories tried to understand such physical phenomena as the motion of objects without some direct interaction, but instead as directed by some pervasive force in the form of the spacetime fabric or an electromagnetic field. Unlike the conventional understanding of causality where variable A somehow directly impacts B, field theory understands motion as structured by a set of forces whose relations create effects that do not reduce to the properties of individual units. This paradigm shift corresponds to a change from substantial to relational thinking in modern science where the object of investigation becomes the system of force relations rather than the properties of particular substances.

Field theory is a nonlinear relational paradigm in that it is primarily concerned with the relations between actors. It is also holistic and non-linear in that it is looking at the whole environment within which something exists and the distributed set of forces acting on any entity within that environment. The concept of a field stands in contrast to most of social science where the basic unit of analysis is some well-defined set of entities such as institutions, organizations, markets, individuals, and groups. Field theory instead focuses firstly on the whole environment; the field. Field analysis brings these separate units into a
broader perspective that stresses their relational properties rather than their intrinsic features and therefore the multiplicity of forces shaping the behavior of each. Social field theory holds that what we see in sociopolitical reality are institutions, actors, cultures, nations but behind these lie fields that shape their actions.

In a sociopolitical context, the term field may be loosely equated to the term regime, where a regime is a system or ordered way of doing things. The term regime is an ancient one that was of interest to the Greek philosophers. As Aristotle defined it "A regime is the arrangement of society's parts, in particular, that of its most powerful parts" he also calls it "a certain ordering of the inhabitants of the polis" or "certain way of life [of the citizens]"

The ancients noted that the many different societies and cultures around them took many different forms and had different characteristics. The most striking difference was that between the philosophical and culturally sophisticated Athenians themselves and the authoritarian Spartan society. There was a recognition to the variety between societies but also how people within those societies are so strongly shaped by the specific culture that surrounds them. Such a recognition leads one not to focus on the specificities of the individual, but instead to identify how the context or social field within which people find themselves so strongly influences them. Thus we can understand a regime as the organizing structures that shape people's lives and how this can vary from one location to another, or one group to another.

Social Field Theory

The idea of a field as a powerful tool of modern social science was introduced by the social theorist Pierre Bourdieu in the late 20th century. For Bourdieu, social reality is constructed out of the interaction between individuals, without interaction in some form with others, there is no sociopolitical system. What is real is relational, social entities are defined by their difference in relation to others. In sociology, field theory has come to examine how individuals construct social fields, and how they are affected by such fields.

A field is a set of forces and rules within a specific social context that operate on the individual to influence their thinking and actions. Bourdieu defined a field as, “a field of forces within which agents occupy positions that statistically determine the positions they take with respect to the field, these positions-takings being aimed either at conserving or transforming the structure of relations of forces that is constitutive of the field.”

For Bourdieu, fields denote arenas of production, circulation, and appropriation and exchange of goods, services, knowledge, or status, and the competitive positions held by actors in their struggle to accumulate, exchange, and monopolize different kinds of power resources. Fields may be thought of as structured spaces that organize around specific types of capital or combinations of capital. Each field is governed by a rule set, which Bourdieu calls doxa and defines as the "Universe of tacit presuppositions that organize action within the field." These rules exercise a set of constraints on the actions of the agents; agents within the same subsystem will share a
common set of rules. For example, all members going to say mass in church on Sunday will agree that only the priest can talk during the ceremony; this is a rule operating in that field to modulate the behavior of the individual in that context.

According to Bourdieu's theory, each individual enters into a field with a habitus, which is their particular resources, or what he called capital. This capital might be social capital such as the social connections one has; it might be economic as in financial capital; it might be cultural as in our values and education. The habitus is something we almost inherit, through our educational background to our class background, and can influence how we think, talk and act. It is one's cultural and social acquired ways of thinking and moving. This habitus or capital of the individual that is essentially subjective becomes manifest and converted in symbols when the individual enters into a field. Your position within the field determines your taste and actions. Those with more capital tend to have a certain habitus than those with less capital; like the distinction between the upper and lower classes or high and low culture.

Sub-Fields

Modern sociopolitical systems have evolved into a multiplicity of differentiated sub-fields, with the power relationships within these and between these fields structuring human behavior. Examples of these subsystems within the overall field of a society might include business, academic, and science, journalism, art, the military, religious clergy etc. Each field carries its own rules of the game its own social hierarchy its own principles of social distinction for ranking and identifying the prestige of members. According to Dr. Eric C. Hendriks who studies regime theory "regime denotes the way in which social fields, their prestige systems, logic, and conceptions of human accomplishment are differentiated from each other and hierarchized." Dr. Hendriks identifies a number of central questions when analyzing an overall field such as what fields are there and how strong are they? How differentiated is the overall field and how hierarchical is it?

Traditionally a field has been modeled as a square plane with dots placed in this to represent the actors. The vertical axis in this model represents the degree of capital that the actor has, where capital is the amount of value they have within that system; if this was politics it might be power if this was business it might be financial capital etc. Actors higher up have higher prestige, those lower down have less capital and less prestige within that domain. The horizontal axis defines how embedded the actors are within the particular field and with the logic of the field. Those on the left are more engaged. Those on the right are less engaged, as they are on the fringes of the field and more influenced by external forces and the general field of the entire society, in particular, the general political and economic field shared by all of the subfields. For example, if this particular field was the military, if you are on the left of the field you would be a true soldier with your life dedicated to the service of your country, while those on the right may have just drifted into conscription in order to have a job. Those at the top would be high up in the military hierarchy like generals, those at the bottom soldiers.

A society will then consist of a great many of these fields. Social fields are environments in which competition between individuals and between groups takes place, such as markets, academic disciplines, musical genres, etc. The overall dominant regime within the society
will manifest itself in the outside forces that shape each semi-autonomous field. The most influential regime will be that which is most prominent across the whole system and affects all the different subsystems.

For example, if we take the sociopolitical system of a country like Iran all social systems are influenced by the overarching influence of the religion; this overall field exerts an influence on all others. Or in many modern free market sociopolitical systems such as America or Hong Kong, the dominant force is that of the economic sphere where commercial influences extend to all areas, while religion is more of a subset. In other countries such as Russia or North Korea, the political institutions are the dominant regime. Sociopolitical systems will vary greatly in their degree of differentiation, that is to say, how many sub-fields there are and how autonomous those subfields really are. For example if we take a political system like that of China, China has a long history of field unity, the legal system and military has only a limited degree of freedom from the political legislative. While in another system such as that of France the judiciary, legislative and army are separate entities with their own autonomous sources of influence.

Regime Change

As one set of rules are applied to a whole group or whole subgroup while there are different actors in that field, this will mean that the common rules will make it easier for some actors and more difficult for other actors to pursue their interests. For example, in a society where homosexuality is prohibited this makes it more difficult for a member of this group to pursue their desired social activities and maintain a favorable social status, while the rule may benefit those of a more macho mindset that wish to maintain a favorable position. By then changing this overall rule it would make it easier to express oneself as a member of the gay community. Thus at any given point in time, some members will wish to transform the existing rule structures and others will wish to conserve them with some form of political struggle pursuing. In such a situation players will make use of their capital and means of power to impose the rules on others that best suit their way of being.

When actors enter into a field they may try to use their capital to influence and change the rules of the field to their advantage. Fields feature different positions which social actors can occupy. The dominant players in the field are called the incumbents. They are generally invested in maintaining the field in its current form, as changes to the rules of competition risk destabilizing their dominant position. Fields may also feature insurgents who instead aim to alter the field so they can successfully compete with the incumbents. The dramatic change in previously stable fields can come from either successful incumbents or intrusion from other fields, or from government-imposed rule change. If an actor gains satisfaction within a system he or she will gain a vested interest in maintaining that field structure. When there is mutual acceptance by actors within a system there is equilibrium or unity which better enables the social system to deal with external influences. A regime change can be understood as a restructuring of this political field. For example, in the French revolution, the ancien regime of the king and Catholic clergy was displaced in a paradigmatic regime change that gave rise to a republican nation-state and a new kind of citizen with a new set of institutions.
Nonequilibrium Political Systems

In looking at the underlying dynamics to many of the greatest governance issues of today one can identify that they are inherently nonlinear. For example, today's environmental challenges are often modeled in terms of the social dilemma and tragedy of the commons, where certain types of interactions on the micro-level lead to very different emergent outcomes on the macro-level. Another such example of nonlinear dynamics is cascading failures, such as seen in financial crises, which are driven by feedback loops. Coupled to this are issues surrounding the butterfly effect where small actors or even individuals can have an increasingly disproportionate effect, terrorism, and cyber warfare being examples. Sufficed to say, as the world becomes more interconnected and interdependent it also becomes more nonlinear. In such a case one needs to think in terms of nonlinearity in order to effectively interpret events and develop the appropriate institutional structures.

The process of governance can be understood as a social function or institution that is designed to manage, make decisions and guide the development of a community of people. In so doing the institutions of governance have to in some way aggregate the opinions or intelligence of their members towards making decisions. Societies are invariably complex in that they consist of many parts - nations today consist of millions, even hundreds of millions of people, yet their primary decision-making institutions may consist of only a few thousand people, yet these governing institutions are expected to be in some way representative of the will or interests of the underlying much larger social systems. A central question of interest then is how do we go from the micro-level of the millions of individuals and distributed interactions to the macro-level of the formal political institutions.

An important question is how do we go from the vast complex system of the populace at large to the concentrated institutions of governance in a way that is representative of the larger populace. Here we can recognize the current political challenges that we are having with populism, and likewise, global governance can be understood as one surrounding emergence. As populism is driven by a disconnect between the populace at large and the smaller set of political institutions, the politicians, and the ruling elite. And this ties in with a broader unresolved major question of our time, global governance; how could we develop political institutions that go all the way from the local level to the global level in a coherent fashion that is inclusive enough and representative enough to be robust against populism? The study of nonlinearity in politics and emergent nonequilibrium processes can help us better understand such issues.
Equilibrium

In linear models the macro-level is nothing more than the sum of the micro-level, the whole is a simple aggregation or statistical aggregation of the micro-level. That is to say, if we want to talk about the system as a whole we use a process of generalizing, where we take the average and define the whole in terms of this statistical average. For example, if most Chinese people speak Mandarin as their primary language, then we simply equate the chinese language with Mandarin.

More formally this process is called renormalization or coarse graining. Coarse-graining is a term from physics which essentially means that we compress the information down into a reduced form. Like compressing an image on our computer, the computer uses an algorithm to reduce the small detailed variation down into a compact form. Coarse graining merges specific states of the world that have similar properties so as to reduce the underlying complexity. For example, we often coarse grain the voting system by taking an electoral area and instead of looking at all the details we define it by the average, what the majority vote for. In such a way we have coarse-grained the unit abstracted away from the detail and reduced the complexity. Because we have thrown out this information it is now much easier to deal with the whole system but also we do not actually know what is happening down below the level that we renormalized to - we have thrown out a large section of the complexity. In simple systems, this underlying information does not matter much, however, in complex systems it turns out that this is important information.

Various algorithms can be used to perform this process of coarse graining, but what happens when we renormalize or coarse grain through the statistical average is that we tend towards equilibrium. We take a complex distribution and search for the mean or average, then instead of dealing with all the details, we deal with just a representative of the whole; the average comes to represent the whole. Of course, the result of this is that everything becomes based on this average person. Part of the problem of throwing out the variety in this way is that you also throughout the particularities of the individual. The individual no longer matters it is all about the mass average person. This is the essence of mass media politics, it is about appealing to the average of the mass. And this should be something that we can identify with, as politics within developed economies has evolved into media politics and left behind to a large extent is ideological roots, there has also been a tendency towards the center, because in such a system if you are the average then you will win, if you are on the fringes you will lose.

This dynamic creates strong incentives to be the average, both for members of the population at large and also for politicians, because if you can appeal to the average then you will win. Variety is not accounted for and it is dumbed down; one person one vote irrespective of any other variation among the members. That one vote gets bundled up into a huge mass and averaged out. The end result is that if you are on the fringes you will virtually always lose. Over time this places a force on the agents to move back towards the center. The results of this are macro level equilibrium outcomes; on the micro-level, the system is configured to push the members towards the average and the result of this on the macro-level is an equilibrium outcome.
Equilibrium analysis has been a central tool of modern science. It has been a powerful tool that has given us much insight and traction on phenomena that were otherwise beyond our grasp. Equilibrium analysis is helpful in many ways particularly in simpler systems and stable environments when a system is in a stable basin of attraction. However, it will not tell us about major processes of change that inherently engender non-equilibrium dynamics; thus it will not tell us about a lot of things that we are really interested in. The unfortunate thing about equilibrium analysis is that it is really a shortcut, a shortcut that bypasses complexity and in so doing it gives us some insight into systems that are complex, but it does this by ignoring the complexity through cause graining and averages. This is not a major issue until you actually start to take an interest in complexity itself, in which case a tool that purposefully bypasses it is not going to be of much use to us. One then needs to shift to nonlinear models that allow for non-equilibrium outcomes which are characteristic of many social phenomena and particularly major processes of change.

Nonequilibrium

Nonlinearity is fundamentally a product of the interdependence between elements within a system or over time. When we turn up the interconnectivity, interdependencies come to form and the system goes from linear behavior to nonlinear behavior. Correspondingly we get nonequilibrium outcomes on the macro-level because of synergies and emergence and also nonequilibrium processes of change over time, driven by feedback dynamics.

The statistical output of nonlinear systems moves away from a normal distribution - which is dominated by the average - and tends to follow a power law distribution, where there are a very few very large events and a very many very small events. Outputs do not tend towards an equilibrium average; indeed they tend to diverge the larger the sample taken.

Normal Gaussian and power law distributions differ radically. The main feature of the Gaussian distribution can be entirely characterized by its mean and variance while a power law distribution does not show a well-behaved mean or variance. A power law, therefore, has no average that can be assumed to represent the typical features of the distribution and no finite standard deviations. A review of the different kinds of power law phenomena shows that underlying each is a collapse of the independence assumption. Once independence among data points collapses, and interdependence or interaction occurs, then the seeds of power law formations are planted and this changes the overall dynamics of the system in fundamental ways.

Unlike in linear systems, where the average value tells us a lot about the underlying variables, with power law distributions the average does not tell us much about the particularities of the variables underneath it. Thus we can not use the average as being representative of the whole system and coarse-graining through statistical averages stops working.

For example, if we had a population with a wealth distribution that was a normal Gaussian distribution, most people would have the average income of say thirty thousand dollars, while few would have very high or very low incomes, thus we could craft a political policy or an economic policy directed at that average and effect the whole system.
However, with a power law distribution, there will be a hand full of people that are extraordinarily wealthy while the mass will be relatively poor. The Power law distribution is also called a Pareto distribution or more popularly known as the “80/20” rule. It was named after the Italian economist Vilfredo Pareto, who observed that 80% of income in Italy was received by 20% of the Italian population. We can also note that today the net worth of Americans is in fact distributed according to a power law and this corresponds to what has been identified as the hollowing-out of the American middle class.

In a world of power law distributions, extreme events become much more prominent. Extreme events can take many forms, such as extremely wealthy individuals, or sudden and severe disturbances like a class 9 earthquake or a financial meltdown. Extreme events, which in a Gaussian world could be safely ignored, are not only more common than expected but also of vastly larger magnitude and far more consequential.

**Long Tail**

These extreme events have an interesting property they emerge first in the long tail - which is the portion of the distribution having a large number of occurrences far from the "head" or central part of the distribution - but then driven by positive feedback can gather momentum until they eventually break into the mainstream and change the game for the mass of the people. The challenge for public representatives is to sort out the signal from the noise in the long tail and spot early on the emergent extreme events that could reshape the landscape. The Gaussian focus on averages obscures these events, treating them as meaningless “outliers” where they get lost in the process of statistical coarse-graining. In such circumstances, new events only become noticed when they hit the mainstream at which time they have already grown high momentum and it is no longer possible to alter them.

Because of this, in complex systems, people sometimes say that it is "the tail that wags the dog." This means that because of heightened connectivity and interdependencies there is a much greater possibility for positive feedback to take hold. Small events on the fringes can get amplified into large changes. Change starts on the fringes - where there is diversity and space to experiment - then through feedback moves into the center. Because of heightened connectivity and compounding feedback, the move into the center can happen very quickly, if you focus just on the mass, average in the center, you will continuously be shocked and surprised becoming vulnerable and reactionary.

What happens is that when we coarse grain we through out the detail; because the diversity lies at the edges of the distribution by basing the abstraction on the mean average we also throughout the diversity within the system and in complex systems this has a consequence. The diversity and variation of the actors comes to be a critical element, which can not be ignored. This is increasingly an issue we face, as the world becomes more nonlinear and complex while models and institutional structures remain linear, we are continuously presented with surprises and shocks with the result being a reactionary mode setting in.

In a paper on the subject by McKelvey and Boisot, they described the “Gaussian perspective of the world” as one built on atomism, privileging “stability over instability, structure over process, objects over fields, and being over becoming.” There is a natural and very human
tendency to generalize so as to simplify; to seek out the typical or the average and to search for more predictability.

In linear systems, it is mainly the equilibrium that matters, in nonlinear systems though it is both the little parts that matter and also the overall emergent pattern. You can not just affect the average in order to effect the whole system, you need to dig into the complexity of all the parts and understand the variation to identify the specificities of the system. You have to know the details of the individuals and how they are connected. Previously this was not possible within large societies but with advancements in computation, the wealth of new data sources coming from all directions and new computational models this is increasingly possible. Dealing with nonlinearity invariably means using computational methods. Because one has to deal with all the little parts and their diverse characteristics this requires a massive amount of information and computation.

**Nonlinear Political Institutions**

This is not simply an academic exercise though, as information technology plays the same central role in the practical design of political institutions that are appropriate to managing complex social systems. When the complexity of the larger social system goes above a certain level the system can not be effectively coarse-grained into a linear model of representation. In order to harness the complexity and diversity in the broader social system, political institutions need to be direct, peer-to-peer and information technology now makes this a possibility.

The linear political institutional model of the Industrial Age, based on a representational political system and mass public opinion, was constructed around the constraints of the available technology of mass media one-way communications and the need to manage the newly formed mass population of the nation state.

However, as the influential author Clay Shirky notes, what is special about this current wave of information and communications technology is that it enables not just one to one telecommunication, as was the case with the phone and telegram, neither just one to many communication as with mass media like the radio or television, but for the first time in history many to many telecommunications and this is a game changer that is currently reshaping virtually all social institutions from business and commerce to media and entertainment. These collaborative platforms are reshaping organizations in enabling unmediated and automated interaction and collaboration between many people through which they can make collective decisions and coordinate towards implementing and enforcing them.Political institutions may well be the last to experience this transformation but it would appear unlikely that they can somehow avoid it and remain relevant in a network society.

The rewards for achieving a better understanding of how to operate in a nonlinear world of power law distributions are enormous and the results of staying within a linear model are diminishing with every new connection. As can be seen in viral videos on social media, small moves, smartly made, can lead to exponential improvements provided they leverage the deep structures that define nonlinear dynamics. In contrast to the scaling strategies that work in a linear world, different and even more powerful scaling strategies become feasible
in a nonlinear world of the internet and globalization, the only question is who will manage to leverage these, will it be the makers of ISIS or the makers of Wikipedia.

Political Regime Shift

A regime is a characteristic set of behaviors of a system which is maintained by mutually reinforcing processes of feedback. A regime shift is a qualitative, abrupt and major change in the topology and function of a system. These regimes shifts are nonlinear in that they usually occur suddenly when a smooth change in an internal stabilizing negative feedback process or a single external disturbance triggers a completely different system behavior. Such regime shifts have been studied most comprehensively within ecology - the classical example is the shift from a clear water lake to a eutrophic lake - but equally apply to all kind of systems. Political regime shifts involve periods of revolutionary change in the sociopolitical structures that govern a society. During such a period the major forces acting on and influencing the social system are reconfigured. Such change may be termed a social or political revolution which typically occurs rapidly and involves basic transformations of a society's state and class structures. Because regime shifts involve a transformation in the whole structure of a system they are inherently nonlinear processes of change.

The general theory of regimes shifts is based on the study of nonlinear dynamical systems that developed during the latter half of the 20th century. This framework is constructed out of a number of models from chaos theory, complexity, and systems theory; including ideas surrounding feedback loops, state space models, bifurcation theory, and attractors.

Nonlinear Dynamics

The dynamics of nonlinear systems are understood mathematically with respect to a model called a state space. In mathematics and physics, a state space of a dynamical system is a space in which all possible states of a system are represented, with each possible state corresponding to one unique point in the phase space. A state space is a model that maps out the different parameters that define a system. For each primary parameter for the system, there is a corresponding axis, a one-dimensional system is called a phase line, while a two-dimensional system is called a phase plane, but the system may have many more dimensions each representing the most important free parameters that defined the system. A point in this state space then represents a specific state of the system at any given time as defined by the values of the corresponding parameters.

As an example of this applied to interpreting social systems, we might think of the World Values Survey as a kind of phase space. The World Values Survey is a global research project that explores people’s values and beliefs, how they change over time and what social and political impact they have. The axis of the model represents two major dimensions of cross-cultural variation in the world: the first dimension is that of “traditional vs.
secular-rational values” and the second dimension is that of “survival vs. self-expression values.”

The global cultural map then tries to capture the relationship between different socio-cultural systems through their location within these two dimensions. Moving upward on this map reflects the shift from Traditional values to Secular-rational; where traditional values emphasize religiosity, national pride, respect for authority, obedience and marriage. Secular-rational values emphasize the opposite on each of these accounts. Moving rightward reflects the shift from Survival values to Self-expression values. Survival values involve a priority of security over liberty, non-acceptance of homosexuality, abstinence from political action, distrust in outsiders and a weak sense of happiness. Self-expression values imply the opposite on all these accounts. This same graph could, of course, be used to define the state of a sociopolitical system with respect to any two or more free parameters.

Attractors

As the system's state changes over time it then traces a corresponding path through this high-dimensional space. As a whole, the phase diagram traced out by the change in the system's state over time represents all that the system can be, and its shape can easily elucidate qualities of the system that might not be obvious otherwise.

Typically what we see when looking at the phase space of a system is some form of a cycle of its behavior as it moves through a set of states, but generally stays within the same subsection of the overall phase space. In general, systems may initially explore their full states space but over time they settle into some subset of the entire phase space; like putting a ball into a bowl as it rolls around before settling into a stable state. Or for example, we might think of going to live in a new city, one may initially explore the whole city but then after settling down one's movement becomes confined within some set of locations in the city. Due to certain constraints - such as having to work, visit friends, or do shopping - one finds that one's movement starts to form a coherent pattern within a limited confinement of the overall city. This typically stable behavior to a system towards which it naturally gravitates over time we call an attractor.

For example, when the person first arrives at the city they may go exploring in many different directions, but once their lives have become routinized, if we put them anywhere in the city they will invariably return back relatively quickly to their pre-existing pattern. Thus we can say an attractor or basin of attraction forms the typical set of states towards which a system will converge given any arbitrary value of its initial conditions.

This basin of attraction may be cultural, as in the World Value Survey illustrated previously, where a certain subset of ideas dominate within a society working to shape opinions and perspectives; it may be social where certain political rules shape the actions; it may also be economic where the financial constraints maintain people within a certain pattern, such as going to work in a particular job every day.

This basin of attraction is constructed out of a set of forces that are acting on the system to contain it within a certain pattern. A basin of attraction then forms a specific regime within the system, that is to say, a set of forces that are acting on the individuals to shape and organize
their behavior. These forces that work to constrain behavior within a given pattern or to create change can be understood in terms of feedback loops.

Feedback Dynamics

Feedback loops capture the essence of interdependence between elements over time. The model of a feedback loop describes how two variables affect each other over time through a cyclical interplay, where what happens to one now will affect another which will then feedback to affect the first. Feedback loops are a very basic model but also have an extraordinary descriptive capacity. As many dynamics can be understood in terms of feedback loops they are at the heart of all processes of nonlinear change, from population dynamics in an ecosystem, to financial crises, to the rise and fall of political regimes. Feedback loops come in two kinds, negative and positive. A negative feedback loop is where a change in one variable induces a change in another associated element in the opposite direction, thus working to counterbalance the movement in each and create stability. Positive feedback is where a change in one induces a similar change in another; where two things are moving in the same direction over time, up or down together as they both reinforce each other's change through the feedback dynamic.

Negative feedback is inherently stabilizing through the balancing mechanism that the loop creates. Punishment systems can be seen as a form of negative feedback loop that is designed to maintain the status quo within the system; the threat of punishment is designed to counterbalance the reward within the subject's mind to prevent them from taking an action. The less obedient they are the more they will be punished, the more obedient they are the less punishment they will receive, thus the feedback mechanism works to correct their behavior and keep them on the desired course. Negative feedback is what we might call "normal" in that it works to maintain things in a steady state. Negative feedback is inherently conservative in that it is always working to maintain the existing state of the system or regulate gradual processes of linear change.

Positive feedback is the opposite of this, inherently destabilizing because everything is going off in the same direction. An autocatalytic reaction in chemistry is a good example of a process driven by positive feedback. Autocatalysis is when a chemical reaction creates more reactions, which in turn create even more reactions; thus the rate of change is compounded as it speeds up over time. The author Jared Diamond, in his book Guns, Germs, and Steel, uses this concept to explain how certain technologies cause civilizations to develop at an exponential rate, making it difficult for societies that develop technologies later to catch up. The reason this happens is that technology builds upon itself, in other words, one invention depends on many others. Gutenberg's printing press, for example, depended on several other inventions, including a screw-press used previously to make olive oil and wine, as well as innovations in papermaking. When we view the development of technology historically we can see how it provides its own momentum, compounding upon itself. The more technology a society has, the more it can develop. Due to this compounding effect, positive feedback processes can happen at an exponential rate of change, they are typically short lived but drive major change within the overall system. When positive feedback becomes dominant
within a system it is a sign of a regime shift, the whole system is moving into a new regime at either a higher or lower state of operation.

**Bifurcation**

In times when a system is in a strong stable basin of attraction with much strong negative feedback acting on it, it is invariably resistant to outside influence and will not change easily. We may say that it is topologically closed as many processes are balanced and contained within that specific basin of attraction. A society in a normal state has a strong basin of attraction that represents the mainstream of people that are incentivised to stay within the existing pattern. Balancing negative feedback loops are linear in nature, they produce normal Gaussian distributions where everything is mainly in the middle of the distribution. The pattern has a sense of coherence in that it is closed and it has a sense of being balanced in the sense of fairness or justice; for example, if you work hard you will get remunerated for it. Here we might think about the heyday of the American middle class in the 1950s and 60s when one wage-earner earned enough to buy all the goods of a middle-class lifestyle because everything was cheap relative to their wage; working a normal job was sufficed to maintain a normal level of economic well-being, with a corresponding large and dominant middle class.

Change happens when the balancing feedback mechanisms that hold the system within a certain basin of attraction become broken and positive feedback becomes more prevalent and the system shifts from a linear to a nonlinear paradigm and a corresponding behavioral change. A move from normal distributions to power law distributions, from equilibrium to non-equilibrium, from incremental change to exponential change. For example, the global biosphere is regulated by many distributed balancing feedback loops that hold the overall ecosystem within a specific set of states. As human industrial activity breaks those feedback loops the basin of attraction becomes weaker and it starts to move away from the equilibrium within which it was held as we experience more extreme events out on the edges of the distribution. The same is true for sociopolitical systems, when basic negative feedback loops such as that of work and remuneration, crime and punishment, supply and demand, skills and employment become disintermediated or broken the system will become more nonlinear.

The negative feedback is what holds elements within the pattern, the weaker they are the farther from the equilibrium they can move; out to the fringes of the basin of attraction where they once again become influenced by external forces. As positive feedback becomes more prominent it becomes easier and easier to influence the system and it takes longer for the system to return to a normal state after an external alteration, what is called critical slowing down.

During this process, the system does not just stay cycling within a given pattern but parts of the pattern may start to move into a new location within the overall state space and form a new regime. A process whereby an attractor splits into two or more attractors within the overall phase space is called a bifurcation. Bifurcation theory studies qualitative changes in the topology of a state space. A bifurcation occurs when a small smooth change made to the
parameter values of a system causes a sudden 'qualitative' or topological change in its behaviour.
This may be deemed a critical state in that small change can have major effects in determining the long-term trajectory of the system into a new basin of attraction. As the pattern becomes eroded, more elements move away and a new pattern forms thus creating a bifurcation. During the transition, the system exists in what is called a state of bistability. In a dynamical system, bistability means the system has two stable equilibrium states. Something that is bistable can be resting in either of two states; which is not the case during normal periods when there is only one dominant basin of attraction, one stable state, that corresponds to what we call the mainstream within a society or culture.

** Unsustainability  
As noted these periods of regime shift are transient, they often involve the consumption and expenditure of unsustainable amounts of energy; just like in an autocatalytic chemical process they will not last long and the system has to explore new possibilities. It has to rapidly iterate to find new solutions and a new basin of attraction or else it will run out of energy and collapse back into the old regime, just like in a major protest, the system can't stay in a high energy, non-equilibrium state for long and new solutions have to be quickly found and developed.

As Professor Eve Mitleton-Kelly notes "What happens is when a system is pushed far-from-equilibrium the following characteristics come into play to create the new order. It will self-organize, it will explore possible solutions, it will co-evolve, new structures will emerge, there will be a sense of coherence, but also the precise behavior can neither be predicted, nor controlled"

Likewise, the social and political scientist Immanuel Wallerstein speaks of this process as such, "when a system, any kind of system enters a moment of bifurcation and is, therefore, coming to an end, two things happen. The structure becomes chaotic, and secondly, it becomes one in which small input gets great output, as opposed to a normally functioning system in which great input gets great output. This is very important to remember because that means we are in a chaotic, confused situation in which there is going to be real struggle about the new order, unlike fifty or a hundred years ago when we worked very hard and organizations worked very hard and didn't get very far, the revolutions didn't turn out to be so revolutionary. Now every little input will get very great output, every little touch by us in the next 20 to 50 years is going to have a big impact and it may not be the impact that we want if we touch it in the wrong way."

** Political Revolutions  
This final process of change, when the system has reached a critical state may be termed a social or political revolution. At such critical points, the system becomes highly nonlinear and chaotic as smaller and smaller events can determine larger and larger outcomes. This process of change is nonlinear in that each individual's benefits and costs of changing to a new regime depends on the number of other people who do so concurrently or did so. A
person who publicly opposes the incumbent regime pays an external cost that decreases with the size of the public opposition accumulating over time. The incentive of the individual at any iteration is contingent on the number of people that have already adopted, which creates a positive feedback dynamic.

Thus we get tipping points, where a process can start slowly but once it has gained traction can happen at an exponential rate. Models to such processes of political regime shift are usually looked at in terms of the cost benefit of the individual which is contingent upon; the level of opposition and power of the regime; the level of discontent of the individuals; the capacity of the members to connect and organize; but also the triggering of the action depends in a great way on the distribution of members.

In her 1979 book "States and Social Revolutions" the sociologist Theda Skocpol conducted an in-depth analysis of the process of revolution by looking at the France, Russia and China revolutions. According to Skocpol, revolutions involve a transformation in embedded institutions; a social revolution involves total social and political structure change to a society. Skocpol asserts that Social Revolutions are rapid and basic transformations of a society's state and class structures.

Skocpol made an important distinction between a ‘revolution’ and a ‘rebellion’. For her, a rebellion is simply an uprising by the subordinate classes, which may not cause structural change. Revolutions, on the other hand, occur when embedded institutions are transformed. A social revolution involves total political and social structural change to a society. Nothing is left the same.

Skocpol examined examples of social revolutions from the history of Russia, China, and France. She believed that all three displayed the same core features. Firstly, a social revolution required an old regime that based its power on maintaining traditional forms of economic organization. Secondly, a crisis, usually in the form of external pressure, was needed to weaken the grip of the ruling class. Third, a rebellion was led by the lower classes, and fourth, a new regime was developed and became accepted as legitimate. She argued that the state’s ability to respond to a crisis depends on its structure. If it is able to react, then a revolutionary situation will not come about; if it is not, then the social revolution will likely ensue.
Sociopolitical Networks

Sociopolitical networks are the networks of connections between members within a society that influence and shape collective decision-making and collective action. Sociopolitical networks may involve many overlapping heterogeneous and distributed networks throughout society, that influence collective decision making and the distribution of power. Such networks might include; social media and communications networks, economic and financial networks or cultural and ideological networks. The study of sociopolitical networks shifts the focus of political analysis away from an emphasis on the formal political structures of the nation state and towards the more distributed and complex set of informal social networks within the broader society.

The network approach to political science adopts a relational paradigm where social and political phenomena are seen to be best understood in the context of the relationships between people and groups which are seen to produce the outcomes that interest political scientists. Such networks are typically nonlinear and involve emergent phenomena. As such the tools of political network analysis differ from the more traditional methods used within the social sciences - namely those of statistical analysis - by looking at and visualizing whole networks of connections.

Network Society

The significance of network theory as a tool for studying sociopolitical phenomena has greatly increased as of the past few decades with the ongoing proliferation of networked forms of organization; as industrial societies are becoming transformed into network societies. Network society is the expression coined by social theorists in relation to the social, political, economic and cultural changes caused by the spread of networked, digital information and communications technologies. The theory of the network society has been expounded upon by a number of thinkers, most notably the sociologist Manuel Castells in his book The Rise of The Network Society.

In his interpretation, the rise of networks as the dominant modality for sociopolitical organization reshapes social structures as they no longer need to be tied to a physical space but simply to networks of information and communications flow. Traditional organizational structures based on geographical proximity and the synchronicity of time, come to increasingly exist alongside a new space of networks, where space is compressed and time becomes asynchronous; what Castells calls the space of flows and timeless time. These new organizational structures become based on the processing and exchange of information and ideas. Ideas become reify through information technology to make them something greatly more important in the immediate workings of society.
The theorist Van Dijk likewise looks at how a combination of social and media networks shape societies primary modes of organization and most important structures at all levels. He compares this type of society to a mass society that is shaped by groups, organizations, and communities - the 'masses' - organized in physical co-presence. In a network society increasingly power shifts from a traditional form - which is defined by one's position within a hierarchy, to increasingly becoming linked to one's access to and capacity to use networks enabled by technology. As networks come to occupy, mediate, and coordinate ever more spheres of social life, political organization becomes reconfigured around access - or lack of access - to global networks.

Castells argues that these networks are highly efficient because they are very effective at managing complexity and at adapting to changing conditions. Thus as our socioeconomics systems become more complex and more dynamic the divide between those who are able to access and use these global networks, relative to those who continue within existing Industrial Age institutional structures becomes greater as two parallel systems coexist.

This, in turn, reshaped sociopolitical organization on the macro-level. Traditional political divisions move to the background as new ones emerge based on a distinction between those who have the resources to access these global networks - in terms of education, cultural receptiveness, and technology know-how - and those who do not. We can note in passing how this divide has already fed through to disrupt traditional political dynamics as it has been expressed in the split of the American middle class into an upper middle and a lower middle with resulting political repercussions; in the divide in England over votes on Brexit; and on a global level between nations that want to close their borders and those that want to access these global economic networks; or those cultures that want to form part of a prevailing global culture and those that reject it.

**Relational Paradigm**

This change in the underlying structure of our sociopolitical systems then, in turn, requires a recalibration of methods and models within the social sciences in order to maintain relevance.

Before dealing with specific models, this change in approach first requires a reconfiguration of basic assumptions. Network theory is a relational paradigm as it is looking explicitly at the relations between actors, this is in contrast to a more traditional paradigm that focuses on discrete entities, people, and organizations. Most of social science, political science, and policy making to date is done based upon data sets that consist solely of data about individuals and their properties, which is of course only half the picture, just as important is how those people are interrelated.

We are increasingly waking up to the fact that we have been doing social science and policy making as if we were dealing with groups of people who have nothing to do with each other. In the past, we put a lot of effort into building up databases about individual people but now we have an ever growing amount of relational data about people, coming from social networks and other sources for free.

In political and social science, we tend to focus on well-defined organizations, as these formal organizations are easier to identify and they limit the number of entities that we need to track to a level that is more easily comprehensible. However, this focus on the parts of the
system can work to blind us to the complexity of the real situation. Viewing things in an object-based paradigm leads to an incomplete understanding and ensuing incomplete policies guided by this. Most notably it leads us to focus on the centralized formal institutions of political organization but blinds us to the complexity of the multiplicity of distributed informal overlapping networks that make up any society. As information technology greatly facilitates the development of these distributed information networks they become ever more important to understand what is going on in the system and in such a case it becomes important to switch our focus from looking primarily at the formal institutions to looking at the network of informal organizations around them. Society is just as much about who you are as with whom you are; when one continues with a focus on the parts when connectivity increases then things will stop making sense.

Network Density

The primary parameter that affects the overall workings of a networked system is its density of connections. Going from low connectivity to high connectivity is a paradigm shift that induces new patterns and behavior in the overall system; new rules for survival and success. At a high cost of making and maintaining connections, the network will have a low density. With a limited number of connections things are connected in a limited number of ways, which makes the system relatively linear; that is to say there will typically only be one way to get from A to B. To conserve on the limited degree of overall connectivity resources and information typically have to flow to a central point from where they are then redistributed. Thus creating centralized organizations and a hierarchy based on one's proximity to the center, where the mass of resources are flowing through - this is the same for a transport network, a financial network or a sociopolitical network.

With a limited degree of connectivity, organizations can have strong boundaries and be defined by those boundaries. As the cost of transaction is high most of the organization's resources need to lie within the organization, which in turn, works to reinforce the dichotomy between inside and outside and strengthen the boundary condition. In such a world it makes sense to focus one's analysis on the individual parts and their properties; those who have more resources internal to their boundary will likely prevail and be able to define the overall system.

As it becomes easier to make connections within the system, both the number of connections proliferate but also the number of channels may also proliferate, meaning that things do not just go on in a linear fashion with everything flowing to the center and back out, instead things can connect directly peer-to-peer. Information and resources can start to flow and connect things in a multiplicity of ways, the system becomes nonlinear in that there may now be a multiplicity of ways to connect things, with options as to which of those channels may be chosen. In such a world the nature of power changes. As power is relational and it is in one's capacity to restrict other people's possible actions to those that one desires it is much more easily exorcised in a world where the are limited possible connections, where one can directly control those channels. However, as the number of degrees of freedom for the individual in terms of connectivity increases the centralization of power becomes diffused out into the network.
Moisés Naím, the author of The End of Power notes this when he writes. "The once uncontested leaders of every arena — from religion to government and from military to finance — are increasingly aware that they face unprecedented constraints in what they can do with the power they have. Power has become easier to get, harder to use and far easier to lose. Big powers everywhere face a reckoning. As insurgents, fringe political parties, upstart citizen media outlets, leaderless young people in city squares, and charismatic individuals who seem to have “come from nowhere” shake up the old order, they are undermining and thwarting the once unquestioned mega players at every turn. Naim concludes "That power — as we knew it — is over."

In the book, he writes about the extent to which recent developments have made traditional sources of centralized power – whether political, corporate, or cultural – newly vulnerable to challenges from smaller, nimbler entities. However, he warns that the decline of the superpower as an authority providing global structure is producing less stability than ever before. He believes that a situation where smaller actors have the power to veto but not dictate, essentially to destroy but not create, is a recipe for gridlock, anarchy, or both.

Closed & Open Organizations

In a world of connectivity, closed organizations are rendered less effective in the face of networks that can aggregate resources on demand. In adapting to this new context, traditional organizations are required to go through a process of unbundling. We go from a world where everything is held within a predefined hierarchical structure and managed by a formal organization, to dynamic networks that work to aggregate the distributed resources within very large groups of people - in the way that Facebook or Wechat do. These networks create value by connecting people who have powerful tools of computation in their hands and a desire to create content.

As resources become more widely distributed within the society, it becomes about creating networks for accessing and using those resources outside of formal organizations. Organizations that try to go on doing everything within formal structures of ownership and management start to appear cumbersome in the face of agile and dynamic networks that are better able to respond to the context.

Probably the most important structural transformation that takes place in this process of increasing connectivity is as Castells writes in his book, “the logic of the network is more powerful than the powers of the network.” When connectivity increases it is possible to access resources external to the organization more easily, thus sharing resources across the network becomes greatly more viable. The result of this is that the amount of resources that can be easily and quickly accessed on the network becomes greatly larger than what may exist within any one organization. The network as a whole becomes greater than any of its parts and those who can orchestrate networks become more powerful than those who can control any of the individual formal organizations within it. Traditional organizations come to find themselves embedded within, and increasingly constrained, by these global networks.
The Internet is a classical example of this, more information can be now accessed on the Internet than any organization could possibly have. This has shifted the balance of power away from those organizations that once had the information - like universities, governments, intelligence agencies etc - toward anyone who can access the network. But equally, it has shifted it to those who can orchestrate the network; organizations like Google or Wechat that orchestra people's access to that network are greatly more powerful in shaping people's perception than any formal closed organization. None can own or control the network but those who can orchestrate it become the superpowers. Network orchestrators are platforms and another term for a network society is a platform society. In a network society, the design of the platform organization is better able to harness the underlying structure and resources, they become the dominant form of organizational mode; enveloping the traditional industrial age organization. Today in business and economics we now understand the mechanics of why platforms become the dominant organizational modality within a network society and there are even mathematical models for understanding this in economics. Sangeet Paul Choudary one of the preeminent theorists on platform organizations contrast them with the Industrial Age model - which he calls the pipeline business model - and notes that "when a platform enters a pipeline firm's market, the platform almost always wins." Which is very similar to the previous dynamic during the development of the Industrial Age where whenever a bureaucratic model of organization entered a new sphere of life it came to dominate.

**Formal and Informal Structures**

Societies and organizations are made up of both nonlinear distributed networks of informal organization and formal institutions. The formal structures emerge out of, and are determinant of, the informal structures. Although we may often only see the formal structures they are contingent upon the much more complex network of informal structures within the organization.

Formal political institutions are defined by a set of formal relations of power - in the way that a hierarchy defines a chain of command - a set of relations involving superior and inferior actors, and thus a formal institutionalized structure through which power is channeled. Informal sociopolitical organizations though, often have no formal power structure; the resource that flows through the informal networks of civil society, is instead what we call social capital.

Social capital can be understood as the networks of relationships among people within a given community, through which they share common norms, values, and understanding that facilitates cooperation and thus enables that society to function effectively. Social capital is a measure of the degree of potential for cooperation within a community given such a network. Social network analysis helps us to model and identify these informal networks and how they influence political processes.

Political systems represent the process through which people make collective decisions and implement them. The more the trust, consensus, and cooperation within the community network, the less the need for common decisions to be imposed through formal power structures. To achieve effective political organization requires both connectivity between members but also institutions built on that connectivity that enables prosocial behavior. Prosocial behavior is acting to the benefit of society in general. The Handbook of Social
Psychology explains that prosocial behaviors refer to "a broad range of actions intended to benefit one or more people other than oneself." Prosocial behavior plays a vital role in maintaining social bonds and in making social transactions possible.

Out of the combination of connectivity between members and prosocial behavior combined, one gets something that is very valuable to a community, the infrastructure for consensus and cooperation in making collective decisions and taking collective action. We can call this social capital, the value that is inherent in the overall sociopolitical network of the community and which can be deployed towards enabling collective action. Political capital refers to the trust, consensus, and cooperation amongst members that enable them to achieve collective political decisions without their imposition through forceful political structures.

Thus in looking at the political system of any people we need to both identify the formal and informal structures. The formal structures will be made manifest but they will only give us a limited degree of insight into the systems overall workings, and often the manifest institutions of a society are simply those institutions that the society wants you to see and can thus often be misleading. To gain a full understanding it is required that one look at the informal networks of connections.

**Network Integrity**

The central factor here being the degree of integrity to the network and the degree of prosocial behavior, thus the overall amount of social capital that is flowing through the system. For example, the single best predictor of crime within a neighborhood in the US is how many of the people in the community know each other. In the absence of people knowing each other and looking out for each other, we will likely have to impose formal authoritative structures to police the community. We may well then praise ourselves for how well the police force does, but we would, of course, be doing better if they were not needed there in the first place.

When the network has integrity and there are resources flowing through it, that incentivizes people to form part of it and contribute to it. Likewise, having a functioning network makes it then possible for people to build solutions on top of the network by tapping into its resources; instead of everyone having to reinvent the wheel each time they want to create a social organization. Just as with the rise of the Internet we can now build organizations based on that network, that harness the common resources available, the same is true for social, political and economic organizations. Now that we have built these global supply chains, cities and countries like Singapore and China can build solutions on top of them by tapping into the flow of the resources and performing a required process, whether that is manufacturing or financial services. The same is true for functioning social networks, once people within a community are connected via information technology and there is a limited degree of social capital one can build solutions on top of this; Apps for people to report graffiti, potholes, to make local decisions that they care about etc. In such a case the emphasis shifts from formal political structures of control and management and the provisioning of discrete public services to the integrity of the social network and fostering the flow of social capital that is available on that network so that people can build their own solutions out of it.
Political Network Structure

Political network structure refers to the overall structure of connections within a sociopolitical organization and how the topology of that network effects individual members or organizations operating within it. Network theory can be seen to be particularly relevant to the analysis of political systems and power in that power is typically understood as a relational phenomena, but likewise it is a structural phenomenon, actors have power based not only on their inherent qualities but more often based upon their location within a network and their degree of connectivity. By analyzing political networks we can gain a deeper understanding of their true workings in terms of how the connections around actors shape and influence their actions and opportunities.

The Network Paradigm

Traditionally we think of political organizations in terms of boundaries; we are very accustomed to looking at maps of the world in terms of fixed geography and national boundaries. However such boundaries only illustrate how people are disconnected from each other, while networks offer an alternative way of looking at the world in terms of connectivity, which renders a very different view of things. When we start to look at the world in terms of networks we start to see connections, boundaries become recontextualized as disconnections, and organizations become defined in terms of their connections. Wherever the connections end that is the end of the organization, wherever they are most dense that is where the organization is most well defined and such networks of connection create the political spaces that people inhabit.

People are not all knowing creatures that have some objective view of the world, in living their everyday lives they interact with certain things and in so doing they become aware of those things and they become central to their interpretation of the world. Those things that they do not interact with become peripheral, they become less "real" to the individual. Political organizations are then formed out of these networks of interactions between people. For example, in a study of the geography of marriage ties of the English town of Kent during the Middle Ages, it found that 75 percent of people married people from within 5 miles and 95% of people married people from under 15 miles from where they were born. The political organization of such a society where connections are almost exclusively local would have naturally been the localized feudal system of the Middle Ages.

In this sense, connections create the space of the sociopolitical system and that space is altered whenever the connections are altered. Today, of course, these connections are more dynamic than ever as we are in the process of building a global infrastructure of technology networks - air transportation networks, telecommunications networks, financial networks, logistics networks, urban networks - through which people interact and create new kinds of
sociopolitical organizations. Increasingly what governs our lives is not how we are divided from each other but in fact, how we are connected through these networks. This is not necessarily a good or bad thing, but it is a paradigm shift, in that it changes the rules of the game; this world only makes sense in terms of connectivity, if one goes on thinking in terms of independence and borders things stop adding up.

Whereas a traditional conception of organizations in terms of their boundary condition creates a form of space that is defined by the objective metrics of geometry and geography. Connectivity creates its own kind of space, that space is called its topology. The topology is the overall shape of the network. What defines networks is the structure of the network. In every network, something flows and it flows wherever it is easiest for it to flow, when one reconfigures the network then one changes what people are connected to and likewise change the organization and thus the primary focus is on the structure of the network.

**Network Analysis**

A sociopolitical network is a set of people or organizations and a set of relations between them through which they achieve common decisions and actions. Such relations can be cooperative or conflictual. In the case of cooperative relations, we are dealing with the exchange of social capital where people share common vision and interests in an environment of trust. In the case of conflict, the relations can be of power, where people's interests for the whole are divergent and one tries to exert some forceful influence over another for them to conform to their desired interests.

A network can be an exceedingly complex structure, as the connections among the nodes can exhibit a multiplicity of patterns. One challenge in studying complex networks is to develop simplified measures that capture some elements of the structure in an understandable way. In analyzing such a network there will be a few central questions of interest, for example how influential is any given member or organization within the network? What is the disparity in influence between members? How centralized or distributed is the network? What is the degree of local clustering within the network? All of these structural characteristics to a network will affect how the resources are distributed out and how they flow through the system; which is in many ways the central question of interest.

Answering such questions will likely tell us little about the formal structure of the organization, that is to say, the typical hierarchical organizational structure that the institution will present to the public. People can have a given role in a hierarchy without that meaning anything, likewise, an organization can espouse certain ideals without that affecting how it actually operates. An organization can tell the public it is doing one thing when in fact it is really doing something very different. Because connectivity typically defines functional exchanges, the system typically can not have a pattern of connections and be doing something other than what those connections exhibit. That is to say, in network analysis, we collect real data about the exchanges between people – how many emails they sent to each other, what television channel or website they connected to for news, how many times they visited a certain person that month etc. These connections enable people and organizations to operate in the way that they operate. Such functional networks describe how the system works, not how it tells us it works, which in political analysis often turns out to be two
different pictures. We can spend a lot of time talking about what the organization says it does, should do, or is supposed to do, however, it is necessary to understand the network to understand how the system really operates and that means dealing with the complexity of the real patterns.

Transparency

Within a traditional model, people's trustworthiness and reputation are largely given by their place within some formal organization - it is not actually tied to the thing that really matters, which is their actions. This creates a disjunction between the formal structures and the informal structures. For example, politicians say many things to get elected every four years, but in the meantime, their actions are influenced by all sorts of other forces that create a disjunction between the two. Feedback systems defined people by the connections they make and how they act in those exchanges. In such peer systems, people gain their status and reputation by the feedback from others in the network on an ongoing basis, continuously updated according to their interaction with others, instead of it being determined by appointment once every few years and this creates a much closer match between formal and informal structures.

As interconnectivity has increased so has transparency and the public's capacity to see what is actually going on inside of these previously closed organizations. The result has been an endless stream of scandals revealed to people - from sexual abuses being covered up inside the Catholic church, to systemic corporate bribery, to marital abuses, to the spying of intelligence services - the institutions that societies once held in highest regard and trust are becoming ever more distrusted in the eyes of the public. As hyperconnectivity brings down walls and reveals what was contained inside, trust in such institutions has declined significantly.

Nowhere is this more acute than in politics, with the rise of mass media politics, it has turned into what Manuel Castells calls "scandal politics". The public's trust in the formal institutions of society in developed nations has dropped to very low levels, particularly for traditional political parties and politicians in general. Whereas an older generation may still be inclined to trust closed institutions, a younger generation that has grown up with the Internet is more likely to trust feedback systems; they trust the network of their peers more than they are inclined to trust formal closed institutions.

Network Centrality

The primary question people are typically interested in when first looking at a network is the question of how influential is any given node in the network. The simplest answer to this is in looking at how connected that node is; that is to say, its degree, which is simply how many links it has to other nodes in the network. This gives us an indicator of how likely anything that is spreading on the network will pass through the node's sphere of influence. The more connections the more likely the actor is to receive it and thus the greater its potential to influence things that are happening on the whole network - simply put if a node is not connected then that node can not influence anything. London and New York are central nodes within the global financial system because many financial transactions are processed
through these nodes and that gives them the capacity to influence the system. For example, if you use a credit card to make a purchase in the city of Tehran in Iran that transaction may well be processed via New York, however, the opposite is not true, virtually no financial transactions made in New York will be processed in Tehran. This gives central hubs like London and Hong Kong a certain kind of influence within the system that Tehran or Santiago, for example, do not have.

Degree Distribution is the simplest metric for measuring power and influence within a sociopolitical network, but there are many other metrics that also contribute to one's influence. Including closeness centrality, which is measuring how far away any given node is from any other within the network. The general idea is that if you can reach any other area of the network in just a few hops then you must be in a more central location than another actor when they are far away from others. Again being central in this sense means you can easily reach others and affect them. Betweenness centrality is another important metric determining one's influence, it measures how many times an actor functions as a connector or bridge in connecting another set of nodes on the network. This metric captures the actor's importance as an intermediary or gatekeeper within the system.

For example, some political analysts see Turkey and Poland as strategically important political locations going forward, because they are bridges between Europe and the Middle East or Eastern Europe in terms of their location within a multiplicity of networks. Physically, as Istanbul is the only physical bridge between Europe and the Middle East and Warsaw is a transport hub; Economically through outsourcing to Poland; culturally as Turkey is a combination of European and Islamic cultural traditions, while Poland is both a part of the Slavic socio-cultural community while strongly connected to Western European socio-cultural and political networks. This gives these social communities a kind of bridging power and influence as seen with the role Turkey is playing with the current immigration flow into Europe.

Likewise, a node may have an influence upon the network based upon the influence of the actors that it is connected to. Which is a measure of centrality that takes into account the centrality of other nodes to which a node is connected. That is to say, being connected to someone that is highly connected makes you more connected; like being the secretary of a CEO. Some people are influential because they know a lot of other very influential people.

**Degree Distribution**

Not only may we want to look at who is most influential within an organization, but just as importantly we may want to look at how power is distributed out across the whole system. This is understood in reference to what is called degree distribution. Degree distribution tells us how the connections are distributed out among the nodes, it can answer the question, do some members have lots of connections while other have few, or do all have relatively similar amounts of connections that make it relatively egalitarian in this respect? By counting how many nodes have each degree, we form the degree distribution.

For example, in the simplest types of networks, one would find that most nodes in the network had similar degrees, this would be characteristic of a network that was formed at random, the distribution will be a normal Gaussian distribution with most people having around the same amount of connections. However, most real-world networks are not formed at random, they are formed by people making specific choices about who to connect with
and the result is often not a normal distribution. Much research has been done on the subject in the past few decades and it has been found that in many real world networks we get something that approximates a power law distribution, where most nodes have a relatively small degree, but a few nodes will have a very large degree, being connected to many other nodes.

The degree distribution then forms a parameter that defines how centralized or distributed the network is. The highest degree distribution corresponds to the most centralized network, which is a star network structure where one node is connected to all others and thus has as many connections as it could possibly have, while all others have just one link to them. Such centralized networks whose degree distribution follows a power law are called scale-free networks. When we turn down the disparity between the degree of the nodes, the connections within the network become more distributed - we go from a centralized network with just one dominant node to a decentralized network with a few dominant nodes, to distributed networks where the connections are evenly spread out across all nodes.

Power is always a function of a potential difference between entities; power is relational and it is only realized given a difference between entities. In the same way that a ball will only roll downhill because there is a gravitational gradient between the top and the bottom of the hill - it will not spontaneously role horizontally between two points of the same elevation - if two things are the same then neither has power over the other. Thus we can say that the higher the degree distribution within the network the greater the potential power within the network. In a fully distributed network, there is no potential for power.

In the same way that a system at maximum entropy has no capacity to do work, a network at minimum degree distribution has no potential to exercise power. And intuitively this makes sense, we know how easy it is to control and exercise power through a centralized communications network like a country with a single source of mass media, where all channels lead to that same hub, if we affect that hub we can influence all. In contrast, we know how difficult it would be to fully control the Internet which has millions of distributed peer-to-peer interactions.

Centralization

We can ask then why centralized networks are so prevalent within real-world social, economic, technological and political networks. The answer to this is typically found in two different models what are called the fitness model and preferential attachment; both of these can result in power law distributions and centralized networks.

In the fitness model how the links between nodes change over time depends on the fitness of nodes; where fitness means the inherent competitive factor that nodes may have. Fitter nodes attract more links at the expense of less fit nodes. Thus a node can become prominent within a network purely through its own merit; some people have more interesting things to say than others and people will want to connect to them; some people are just better football players than others and people will want to watch them play. In this way, a network can come to have nodes that have more connections and those that have less, making it centralized.
In contrast, a node may accumulate many links due to preferential attachment, what is also called the "cumulative advantage" or "the rich get richer." A preferential attachment process on a network is a process whereby the new connections that are made are distributed out among the nodes proportional to the number of connections they already have, so that those who already have a high degree receive more than those who are not so well connected. Such a process can also produce power law degree distributions.

This typically happens when it becomes easier to choose something the more people that choose it and when people make their choice of connections based on ease of access rather than on quality. For example, we might think about some man choosing to wear pink trousers with flowery patterns on them, when no one else it doing this it would not be an easy option for clothing, as people might laugh at him. But if pink trouser suddenly became a fashion and lots of people were wearing them then it would be easier and people would wear them just to be fashionable and like others. Thus we get the bandwagon effect where people are simply adopting something because everyone else is irrespective of any innate quality of that thing.

If the process of network formation is conducted in this way we can see how major nodes may form irrespective of their quality. Likewise, preferential attachment processes can lead to lock-in. Because people are connecting to others based simply upon the number of connections that they already have it becomes difficult for smaller nodes of merit to compete; larger nodes get larger without any inherent value.

A corollary to preferential attachment is network clustering. That is to say, the degree to which the network forms tightly interconnected subsystems within the overall network. Intuitively, a cluster is a collection of individuals with dense friendship patterns internally and sparse friendships externally. Most social networks show high levels of clustering, due again to the fact that people do not connect to others at random, but connect with those they find it easiest to connect to and this typically means connecting to those who share things in common with them; a similar culture and language, a similar geographic locality. Much political network analysis over the past few decades has looked at the clustering of communities around certain political parties on social networks.

**Multiplex Networks**

Political networks and power are very complex phenomena. They are multidimensional in nature, power within a large modern society is best thought of as a network of overlapping networks. Each operating and exerting influence along a certain dimension. Each form of power is constrained not by how much people have, but by the inherent limitation of any form of power, by the basic logic of the source of influence. The military has a form of power in their capacity to project physical force against people. But the use of physical force has a particular context and set of rules to it and those rules define what is possible with the power and what is not. The media, corporations, the financial institutions, schools, the scientific community and computer hackers all have different forms of power but each is inherently constrained by the rules of the game they are playing, as we would say in game theory. Truly understanding such complex political structures in an analytical fashion requires a detailed analysis of the many overlapping networks and how they interact, such network models are call multilayer networks.
A multilayer network is a network made up of multiple network types, each of which represents a given operation mode, such as an economic network, layered on top of a financial network, layered on top of social networks etc. Increasingly sophisticated attempts to model real-world systems as multidimensional networks have yielded valuable insight in the fields of social network analysis. Such models reveal the true complexity of socio-political systems but are required to gain a full comprehension of how different factors interact to create emergent outcomes. This new paradigm in network science is believed to be the next step towards a better and more comprehensive understanding of social networks and political systems.
Political Network Dynamics

Network dynamics is the study of how networks change over time, as new connections and structures are formed or removed. With the study of political network dynamics, we are asking the question of how do sociopolitical networks form, mature and eventually disintegrate. In this analysis, we are interested in such questions as, how things spread across networks as a function of the structure of the network, and questions of network resilience and robustness to outside influence. The study of network dynamics is used as a tool to understand the formation of many different kinds of sociopolitical networks, such as criminal and terrorist networks, political movements, innovation networks, changes in culture etc. Such an approach is particularly relevant when dealing with informal political processes and organizations, where the organization may have no formal structure but consist of purely functional connections; as would be the case in the early formation of a political protest, new belief systems or the workings of various clandestine organizations.

Network Dynamics

A primary factor to note is that networks are a very organic form of organization, they typically emerge or grow out of the local interactions made by actors without global structures being imposed. Connections are typically made by individuals on a functional basis according to some cost-benefit analysis. People exist within some environment and they wish to do certain things such as, move around, communicate, form acquaintances, exchange goods etc. all of these activities create connections. But what connections are made and which are not made are a function of both the individual's propensity to make them and the limiting constraints within their environment. Most connections both have some advantage for the individual but also cost something to make. Thus there is both an outward force to create connections, from the individual's motive to access whatever it is that is on the network, and there is also some limiting factor requiring them to expend some resources to make the connection.

For example, we can think of a criminal network, what is also called a dark network. Dark networks are illegal and covert networks such as drug cartels, hacker networks, illegal flows of arms and money, terrorist groups etc. Dark networks are particularly interesting to study with respect to sociopolitical networks because their central characteristic is that they are trying to achieve something without being detected and this makes them different from most formal organizations in society, which have both a manifest formal structure and an informal network structure. Dark networks, in contrast, are purely functional networks. For example, if you want someone to traffic drugs across a border for you, you can not just call up some formal business to do it, you have to reach out to your network and find someone there. Individuals in such networks often do not trust each other and thus each link in the network can be seen to cost the individual and the more links an individual has the more exposed to detection they are. Thus we can see here the two forces that are relevant in most social
networks, the outward incentives driving the individuals to make connections but also the counter forces that place a cost on every connection they make, working to reduce the number of connections made.

**Communications**

For a network to form then, the benefits to the individual must in some fashion outway the cost being imposed on them for forming part of that network. As another example, we can think of a sociopolitical network forming a movement to try and change an oppressive political regime. Individuals are motivated to form the connections out of a desire to change the political order and the need to band with others to do so, but also they face a potential cost that the regime imposes on the network by threatening them with arrest and persecution.

In such a situation we can identify a number of key parameters to the development of the network. Firstly the individual's internal desire for change, such motivation is driven by emotions of anger and hope, which are emotions that drive people into action. But also we can identify the level of oppression that the individual's experience as another important factor. Oppressive regimes are maintained through fear which is an oppressor of behavior, most social structures that regulate political systems are based on fear which works to dampen down change and maintains the system within its existing configuration. In order to overcome fear people's anger has to be strong enough and/or their vision of an alternative has to be strong enough, but added to this they typically have to be connected to others. Revolutions happen when people are no longer able to control their oppression and outrage any longer. One example of this being the self-immolation of Tarek el-Tayeb Mohamed Bouazizi, a street vendor in Tunisia who set himself on fire on the street in response to the confiscation of his wares and the harassment and humiliation that he said was inflicted on him by a municipal official and her aides; an event that is seen to be a catalyst that ultimately led to the Arab Spring.

Most control is maintained by controlling the means of communication within a society so that those who are resistant to existing structures can not connect and communicate with each other at large. Throughout history, the control over information and communications have been the key elements in regulation because they are the means through which people connect and can form counter movements. Ultimately humans are governed by the neural networks in their brains and the sociopolitical structure of a society and its operations are determined by the neural networks of the individuals and how those individuals are interconnected within the overall system.

If the neural networks of the individuals conform to that of the authority and if they do not have the means to connect with each other through unregulated channels, then change will not happen. Change happens when people's neural networks diverge from those of the authority, creating a potential desire for change from within the individual and when they can connect through unregulated peer-to-peer networks. This is why the Internet is potentially such a powerful political force in the world. Not only does it provide alternative narratives that can diverge from the dominant ideology, but also it gives people the potential to connect within unregulated environments. Historically, in virtually all processes of political change
people come together and collect in public spaces and if they can do that then they may experience a sense of solidarity that strengthens their resolve to overcome their fear of the regime. With the rise of information technology increasingly this public space where people can connect is on the Internet. What we see with many movements today is that they are born on the Internet and then move into public spaces.

Nonlinear Dynamics

Networks are nonlinear systems, that means they have nonlinear dynamics and typically grow or decay at an exponential fashion with tipping points. Social networks like Facebook and Wechat have grown at such a rapid pace because of the network effect.

Like dark networks, protest movements are also informal functional networks occurring spontaneously without formal organization which can grow or decay quickly. Many revolutions of the modern era have happened rapidly and unexpectedly including the French Revolution, the Russian Revolution of February 1917, and the Iranian Revolution of 1978-79; these revolutions all took the people by surprise.

In the example of the Iranian Revolution. None of the major intelligence organizations like the CIA or the KGB expected the regime to collapse. Right up to the revolution, they expected the incumbent leaders to weather out the movement. The Shah's fall came as a surprise even to the Ayatollah Ruhollah Khomeini, the cleric who, from abroad in exile, coordinated the revolutionary process that was to install him as the future leader of Iran.

In a recent paper on the subject, the authors illustrate the nonlinear dynamics behind such process of change. Their model hinges on the observation that people who come to dislike their government are apt to hide their desire for change as long as the opposition seems weak. Because of this preference falsification, a government that appears unshakeable might see its support crumble following a slight surge in the opposition's apparent size, caused by events insignificant in and of themselves. Unlikely though the revolution may have appeared in foresight, it will in hindsight appear inevitable because its occurrence exposes a panoply of previously hidden conflicts.

Networks have thresholds, tipping points and feedback dynamics that make them subject to rapid and unpredictable change. However all political movements are temporary in nature, they only last a relatively brief period of time, either they die out or they become incorporated into the formal structure of the political system. In which case they will become more structured as nonlinear dynamics gives way to linear change.

Resilience

A network's resilience and functionality are closely related to the flow on that network. Without any flow, we do not have a network and no capacity for the system to operate as a whole and achieve certain ends. Our bodies function because there is a flow of blood and other resources around the whole system, likewise a community can form a functional unit when there is a flow of social capital through the interconnections within the group. As we integrate the system - creating more connections and pathways for resources to circulate and potential for the system to operate as a whole - its capacity to realize work and resist
change may go up. The inverse is also true, removing links reduces the flow and the robustness.

Connectivity is a key metric in determining the network's resilience. Connectivity is one of the basic concepts of graph theory: it asks for the minimum number of elements - nodes or edges - that need to be removed to disconnect the remaining nodes from each other. It is closely related to the theory of network flow problems. The connectivity of a graph is an important measure of its resilience as a network. A graph is connected when there is a path between every pair of vertices. In a connected graph, there are no unreachable vertices. Connectivity reduces the average path length on the network and makes people feel closer to each other and thus perceive that they form part of some common organization.

Resilience is one of the characteristics that is often associated with networks. We see time and again how small terrorist networks can persist, adapt and innovate in the face of an opposing security force that may be thousands of times their size. For example, the Provisional IRA, a small terrorist network in Ireland managed to survive for 25 years while under continued pressure from the British security services. There was a continuous interplay as the dark network would conduct an attack, the British security services would reverse engineer them and the network would adapt. (9) There would be many attacks conducted using a particular set of methods and technology before the security services figured it out and the British adapted to resist them before the Provisional IRA would adapt new strategies, again attacking with a new set of methods.

Not all networks are resilient though, particularly centralized networks suffer the same vulnerabilities that hierarchies do - if the central hub is removed them this can drastically reduce the overall level of connectivity in the system. Centralized hubs are effective at rapidly connecting systems but the opposite is also true, they are single points of failure for rapidly disconnecting the system. When we talk about a brittle dictatorship, like that of pre-war Iraq, we can understand this as a network with a dominant centralized hub holding it all together, with limited distributed networks connecting the whole of civil society. When the centralized hub is removed the system can fall into the kind of chaos we saw in Iraq.

This relates to how the network was formed and the distinction between connections made under rules of preferential attachment or the fitness model. With preferential attachment, people connect to those who are already well connected, thus irrespective of merit those who are central will become more central, making them "too big to fail" while at the same time those major nodes can be inefficient, leading to a critical state. A fitness model would, though, leave room for others of merit to rise, where the system may be still centralized and vulnerable, but instead is dependent upon hubs that are more efficient with a rule structure that is better able to select for efficient nodes to rise.

**Network Integration and Disintegration**

A key question for many is in how one intervenes to foster the development or disintegration of the social network. Policy-makers may want to foster the development of innovation clusters by looking at the network structure or security forces may want to disintegrate a criminal network. How one intervenes and tries to affect the development of the system
changes in fundamental ways as organizations go from linear and well-bound to a nonlinear networked organization.

Whereas with traditional centralized hierarchical organization we have one or a few large nodes in the center at the top who push out instructions to the rest of the organization and it is seen that we just have to affect that central location to effect the mass of the organization; in the way that we see the potential for change as lying with the president of a country. Or equally the way that mass marketing has tried to influence the mainstream of members within society by affecting the middle of the distribution; they do not look at how things are connected they simply look at the characteristics of the individuals and aim for those characteristics that are most prevalent in the population thus trying to speak to the masses of people and in so doing hoping to affect the entire system.

Whereas when dealing with linear systems of organization you can only really affect the whole by affecting those large components near the center or the mass. However, when dealing with networks one can have much higher leverage by being strategic; by analyzing the network according to different metrics. To look at not only what elements are most connected, but also all the other metrics, such as betweenness centrality and how irreplaceable any given node is to the network and then affecting it at a specific place.

For example, in attempting to break up a cannabis network, the law enforcement agency in Holland used data mining and network analysis to map out the dark network of the cannabis growers and traders consisting of data on 30,000 members - even though the real network was much larger than this. Traditionally the police had an approach of focusing on the kingpins in the network, but they were finding that this approach did not break the network; in fact, it appeared to make it stronger.

They combine hard data from criminal reports with soft data to mapped out the different functional roles within the cannabis network and various other attributes of the members and how they were connected.

It became apparent from this network model why the networks did not fall apart even given the arrest of so many key actors each year. Police had thought that these networks were organized in a top-down fashion like the Mafia, but that turned out not to be the case - if it had been, then the best way to destroy it would have been through removing these centralized nodes. However, when the data was combined it was shown that the interactions were not top-down but had a different structure that was more functional and dynamic. The primary network had, over time, spawned other criminal and social networks, when a node was removed it was able to adapt and find replacements within those tangent organizations.

The police decided to adopt a different approach looking at the specific roles that people played within the network to try and find those with functional roles that might be most difficult to replace. Over time they came to identify those doing the electrical work on the cannabis grow rooms to be scarce and difficult to replace. Their model showed that every time an electrical worker was taken out the network's efficiency drop significantly. The bosses were only coordinators and managers they were not so difficult to replace. The key was in looking at the specific roles and identifying those that were hard to replace; those who could insulate rooms or install irrigation systems along with the electrical workers were the hardest roles to replace. When one of these were removed they were replaced by
another freelancer, but if the police stayed targeting these specialists the supply of such skills would run out and the network would fall apart.

This is a good example of how in nonlinear systems and complex systems the details matter if you remove them through statistical aggregations then you remove precisely what it is that you need to succeed in your modeling or interventions. And likewise, this is why you need to use computational methods on real data.

But we are of course not always trying to destroy sociopolitical networks, just as often people wish to find methods to foster their development. Distributed networks can not be controlled in a traditional sense through centralized control systems, but they can be developed and modulated by altering the cost of making connections in order to influence it to develop in a particular direction.
This is the essence of managing complex systems, you can not control all the parts, but you can influence it based upon its evolutionary potential. Because power becomes distributed out within networks, the whole becomes greater than any of the parts; no one is in control or can have the capacity to affect all the parts directly. The only option for effecting the whole system is to understand the current potential of the system and then create platforms or connections that facilitate the system to evolve in particular direction that is possible given its past evolutionary history.
Complex systems are path-dependent, meaning, the set of possibilities available to the system now are contingent on the historical trajectory that brought it to this point and conditions the current set of possibilities. If you want to affect the system in the most efficient manner you have to understand its history which tells you its current potential and then develop connections that facilitate it to evolve within one of the current possibilities.
Sociopolitical Dynamics

Sociopolitical dynamics refers to the major components, relations and patterns within a political system that defines its overall workings and process of development. A political system is the set of institutional structures through which members make collective decisions; political dynamics refers to the pattern of interrelationships between those elements that define how the system evolves over time. In the ongoing evolution of political institutions into larger systems, sub-political organizations come into contact and must define some overall system of coordination between them. How the different parts then interrelate - whether through conflict or consensus - becomes a critical factor in determining the future dynamics within the system and how it evolves.

Institutional Development

A central question in the study of the evolution of political systems is, how to we go from small political systems based on personal ties to a modern political system built on a set of institutions that are impersonal? As the political scientist Francis Fukuyama states it, "one of the things that we have to figure out is how is it that you get from a form of social organization that is basically based on friends and family, to one that is impersonal, that treats people not because I know you and we have exchanged favours, or you are my cousin or my nephew or something, but get to a state where people are simply treated as citizens who have equal rights and equal access to the state"

A key factor here is that of scale, while political organizations remain small there is limited need for impersonal systems of organization; when they become large there becomes a greater need. The history of the evolution of our sociopolitical organizations has been one involving the development of ever larger and more complex systems of organizations as we have gone from small tribes to large empires and nations states to today's global institutions. In this way, we go from the many thousands of small local cultures and political units to some form of single global sociopolitical organization. In that process, differences between groups are required to be combined into larger political organizations, such as the nation state or multinational institutions. The key question though is how does the combined organization work and represent its constituent member organizations.

For much of human history, people avoided developing into large organizations by splitting into new subgroups. The privilege of having a big world with few people on it was in our capacity to simply subdivide and separate into new fractions so as to avoid the complexities of large systems of political organization. In this regard Anthropologist, Napoleon Chagnon has observed that population growth among the Yanomamo Indians of the Amazon Basin led to villages splitting and spreading deeper into the tropical forest surrounding them. Due to such splitting, the average village size of around 100 members remained fairly stable through time. At any given time, though, the more centrally located villages were the largest.
Chagnon suggested this was because, being surrounded by other villages - that were often hostile - central villages were less able than peripheral ones to resolve internal conflicts by splitting off. For much of history, formal political structures like the nation state were somewhat impractical, as people could simply walk away when they did not like the rules, or has some other objection, and start another community.

In small communities, of less than a hundred people, kinship ties were sufficed for maintaining political organization. In such early communities, the political system is based on the specificities of the group or one subset of the group. For example, the males of a certain ancestry have traditionally been the sources of political authority within many small societies. However, kinship-based ties for political organization only work on a local level within relatively small groups, because they are subjective in nature; they are dependent upon the specificities of a certain group and thus do not generalize into objective rules that can be applied to large impersonal organizations.

Once one tribe encounters another the specificities that were used as the basis of order and organization within that society - whether it was their specific religion, there specific family ties or specific geographic context - become no longer a universal principle of organization in the face of another sociopolitical system, with another system of beliefs, social and political structures. Such subjective rule sets for political organization are only relevant within the specific context within which they were formulated; specificities can not be generalized without creating contradictions.

When different groups with subjective specific rules of political organization come into contact and are required to form some combined organization, either they have to synthesize their specific rules into a more general rule set that applies to all, or each side can try to retain their subjective pattern of organization and impose it on the other, thus trying to make their specific rule set a general principle governing the combined organisation.

Once a society contains many subcultures and groups either one section comes to rule above others, or it is required to develop more abstract rules and principles for its governance that incorporate the various subcultures.

**Conflict**

When two groups with subjective rules sets interact wishing to impose their pattern of organization on the other, then the result is conflict of various kind. Throughout history, the evolution of larger systems of political organization has been associated with conquest. The classical example being the development of large empires like that of the Incas, the Roman Empire or the Qin dynasty in China. In such a process of pattern formation, political organizations come into contact, exert a force against the other and that which exerts greater force comes to rule over the other.

This process is elaborated upon in Friedrich Hegel's most influential book *The Phenomenology of Spirit*. When to agents encounter each other and believe themselves to be free and unconstrained there forms a struggle for recognition as both actors can not be unrestrained in this newly combined organization. This struggle develops into what Hegel
calls the master-slave dialectic, both struggle for power over the other as they both try to maintain their status as free and unconstrained agents by projecting their subjective rules on to the objective rule set of the combined organization, thus limiting the participation of the other’s influence in the formation of those rules through some form of force or manipulation within a struggle. This struggle could go on forever but at some point, one side comes to fear its annihilation by the other and submits to their will. The political system enters into a more stable state with a master-slave dynamic forming between the two different subsystems. However, this is not the end of the story of sociopolitical evolution for Hegel. Because this system has inherent contradictions, it is inherently unstable and will develop further.

The dominant group within society becomes dependent upon the subordinate group to maintain their status. The macho group in society is dependent on maintaining a subordinate female group, the elite Western colonialists are dependent upon the indigenous people for their privileges, the economic elite are dependent upon the economically deprived etc. The ruling elite is free in their capacity to extract resources from the ruled but they are enslaved by being dependent upon them. While the slaves are prisoners by being ruled by the elite but in their work they are not dependent upon them in the same way as the rulers are. This original theory of Hegel's got extended by Karl Marx and eventually evolved into the conflict theory of social systems; a theory that sociopolitical systems are inherently driven and even defined by this dynamic between the rulers and the ruled, whose contradictions eventually lead to revolutionary change.

Such systems of organization are always centralized and hierarchical as they are designed to control the transfer of some resource from the larger social system to some subset of the members. The development of ever larger political systems of organization can thus lead to greater centralization around a single group. Typically to maintain order the ruling elite are required to present an image to the people that they represent them and are acting purely in the interest of the society at large, when in fact they are acting to achieve certain ends pertaining to their subgroup.

In Hegel's and Marx's theory of conflict, the contradictions in the system eventually lead to its downfall through revolution. Marx's theory of this process was utopian in that it posited that the slaves would then rule themselves. In reality, though, the opposite it more often the case. The previous elite is overthrown but the lure of the centralized political structures is too seductive for the revolutionary avant-garde. The leaders of the revolution over time become the new elite, defining their own set of rules as the new set of objective rules; a dynamic that George Orwell expounded upon in his book Animal Farm.

This has been the dynamic surrounding the formation of many nations around the world, from Lenin's revolution in Russia to general Gaddafi's revolution in Libya, to the history of Robert Mugabe and Zimbabwe, to China's State communism. Likewise, it is largely the dynamic defining the process of decolonization, from Myanmar to the Middle East to Africa and Latin America. As the colonial powers withdrew, the underlying traditional divides remained and without the social institutions to form consensus, specific groups came to constitute the new ruling elite.
The conflict theory of political dynamics sees the evolution of political systems as one of polarization due to inherent contradictions; the ruling classes become more centralized and the oppressed parties become more excluded. Likewise, those of merit can not rise from the excluded party to the dominant party which works to reduce the ruling class's merit over time while retaining such members within the subordinate group. Such dynamics of conflict reduce the system's development in that the ruling regime is typically extractive in some fashion; significant amounts of resources are consumed in maintaining the structures of control required for its maintenance, while the excluded party is prevented from forming political, and often social, organizations. The classical example of this dynamic being Western colonialism, such as the British in India or Africa. The political system was based on race, excluding those of a non-caucasian background; the regime was explicitly extractive and by 1803 at the height of its rule in India, the British East India company had to maintain a private army of about 260,000 people. Likewise the British left most of their colonies politically fragile and unstable when they eventually withdrew.

In this whole process of interaction between different subgroups even though the contradictions may remain a new level of organization has formed and often people see that it is no longer possible to go back to the old separate communities. Internal contradictions are what render all systems unsustainable over time. The contradictions of projecting subjective rules as patterns for an objective political organization are what render sociopolitical systems unsustainable; as long as they remain the system remains unstable with the potential for sudden regime shift. The system stays going round in a cyclical process until objective rules can be developed that are inclusive for the different members of the combined organization, thus rendering it more stable.

Political Evolution

Of course the interaction between different systems of political organization in the evolution of new levels of coordination does not necessarily need to be conflictual in nature. When different sociocultural organizations encounter each other and are required to form overarching coordination structures this can also be based upon a deliberative process; the application of reason to understanding the different patterns, identifying the abstract rules and principles that are common to each independent of their specificities and the formation of governing rules based on those general principles that include the essential characteristics of the different members.

Instead of forming political structures out of a hierarchy of domination with one subjective organization prevailing over another, the central principle of deliberative governance is that of searching for commonalities, through reason, in order to overcome the subjective perspectives of each group and thus find something that is objective to all as the basis for governance. This process involves the use of conceptual abstraction. Abstraction is the process of removing successive layers of detail from some set of entities to identify those factors that are common to all. In the way that an artist paints an abstract painting not to capture the details of the subject matter but to express something more fundamental and general. In a sociopolitical context abstraction means searching for those factors that are common to all the people and cultures involved and basing the legal system on those. Of course there will
be disagreement in what these rules should be and that is why it requires some impersonal process to achieve it. Members use reason to search for what may be universal principles of social organization and from that have some objective basis for the presentation of their opinions. Objective reasons are given in a process of discovery to identify which factors are most relevant to all and which factors are subjective, and thus only relevant within specific personal contexts. Thus we can see how successfully evolving new levels of abstraction in political organization, in turn, requires new levels of depth in our understanding of social systems, in order to distinguish between what is objective and subjective and the development of institutions based on what is determined objective for all the members of the community.

One of the foremost thinkers in political multiculturalism is Bhikhu Parekh who elaborates a theory of this kind in this book Rethinking Multiculturalism: Cultural Diversity and Political Theory. The core of the book addresses the important theoretical questions raised by contemporary multicultural society, positing that as societies come into contact in the process of political evolution the crucial factor is whether they are open to change. If a culture and society posit that it already has the correct answer, that things do not change, that there is nothing new for the culture to learn through cultural interaction then this is clearly a recipe for conflictual relations.

Parekh identifies a number of standard approaches to this interaction but comes to the conclusion that they typically function to leave the dominant culture unaltered. He argues what is required to achieve a successful multicultural model is the openness of the majority culture to transformation. In such an eventuality he sees the state as becoming a community of communities with overlapping spheres that constitute the public and civic, where members have to adapt and find common ground.

Citizenship is understood as “differentiated,” meaning that different groups can have different ties to the state. Parekh calls for continual intercultural dialogue and negotiation.

A Parekh writes social integration is to be “grounded in a multicultural constitutated public realm which both sustains, and is in turn sustained by, a multiculturally constituted private realm.” The subjective realm of each community is required for them to continue to develop their specific cultural and historical narrative and formulate their identity within the broader community.

As such subjective beliefs may prevail within private domains, but in order to implement a rule as being objective it must derive from reasons given that in turn relate to something fundamental about the human condition. In such a way the formation of ever larger successful sociopolitical organizations requires an ever deeper understanding of the human condition to decipher what is truly objective about the condition, versus what may be specific to individual instances of it.

**Context**

Many political systems around the world call themselves democracies and have all the formal political institutions of such an organization, but many of them remain deeply concentrated around specific subclasses based on, ethnicity, wealth or family. In this respect the measurement of a political system is its degree of abstraction in its rules and the
resulting capacity to integrate different members of society. In an age of globalization the
difference between an unstable and a stable political system is its capacity to integrate the
different groups so that they all have representation and feel included in the system.

This is of course not just a discourse on historical events or an academic debate but clearly
of central importance in an age of globalization. Just as the technology of agriculture
enabled us to build the first states and empires and industrial technology enabled us to form
the modern nation state, today with information technology we are forming some kind of
global sociopolitical organization and this same dynamic will play out again in the formation
of that organization. The global sphere will not remain in the unregulated semi-chaotic state
that it is today for long. As power moves to the global level and people increasingly
recognize this, they will desire that it become regulated in some way - all though that
regulation can take many different forms.

Global interconnectivity and interdependence are clearly where our economic, social and
political systems of organization are developing. Information technology is clearly the tool for
the formation of these global institutions. This technology of information is exceedingly
powerful, both in its capacity for mass control and for mass collaboration.

Political conflict in the formation of this global organization is already shifting to information
technology. Increasingly nations and people that wish to project their influence over others in
this interconnected world do it through online propaganda, hacking, information wars and
cyber wars. The question remains open will the Internet be an open platform for discourse in
finding common ground and implementing that through a new set of institutions based on
information technology, or will it be a system of mass surveillance and control? One thing is
for sure - just as with the development of the institutional structures of the nation state during
the Industrial Age - in building out this institution's infrastructure of the network society there
will be many surprises and lessons to be learned along the way.
Political Resilience

The term social resilience refers to “the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change.” Political resilience then refers to the capacity of political organizations to adapt to, and evolve responses to, internal and external events, such as large inflows of migration, war, financial crisis, rapid changes in demographics, environmental change etc.

A central aspect of resilience is the distinction between resistance and adaptation; where a resilient system is seen to be one that has the capacity to transform itself in response to changes within its environment. Such a macro-level process of adaptation within a sociopolitical system requires an effective process through which the system can sense changes in its environment; come to consensus surrounding the relevance of various risks and opportunities; develop a diversity of responses within the system and select those that are most appropriate given the context and then scaling these so as to deliver an appropriate response.

Robustness & Resilience

All systems operate within an environment and they are dependent upon some set of input values from that environment in order to operate successfully. Whether this is the human body requiring an input of oxygen or a technology requiring the input of fuel or a government requiring the cooperation of its people.

When the system goes outside of this range of required inputs its functionality and structure become degraded. In the way that a human without food will cease to operate effectively or a government without financial revenue will be rendered dysfunctional over time. Thus in order for the system to maintain functionality it has to maintain itself within a given set of input parameters. There are essentially just two different ways of achieving this, the system can work to control the input values so that they do not change - thus working to resist change - this approach is associated with the idea of robustness, which refers to a system’s ability to resist change. Or it can work to enable its capacity to adapt to a wide variety of input values in which case again it would be able to stay within the required input range. This second approach -where the system works to improve its capacity to adapt - we call adaptive capacity. Such an approach is associated with the idea of resilience, which allows for change but looks at the system’s ability to endure despite this change. Whereas resistance and robustness are about achieving "success" - i.e. successfully resisting change is what is valued - with resilience failure becomes more valuable than success as it is only through failing that we build up resilience; resilience is something that is learnt through failure. Resilience is always about being aware and ready
for unexpected risk. For a resilient community, a change is a learning opportunity, for a fragile community change is a crisis to be avoided.

Both robustness and resilience are trying to achieve the same end, of maintaining functionality, but the first does it through resistance while the second does it through adaptation. As always the success of a strategy is contingent upon the environment within which it is being enacted. At low levels of change within relatively stable environments, the robustness strategy works well, but as the change becomes faster and systemic the advantage shifts to the adaptive strategy. We can see this within the business community, as over the past decades with globalization and information technology creating major changes in the business landscape, the terms agility and adaptation have moved to the forefront of management terminology.

Resilience is likewise moving to the forefront of terminology in governance, particularly with respect to climate change and environmental degradation. But on a more fundamental level, the term can be connected to processes of change driven by globalization. As societies open up to global processes - as connectivity proliferates and people recognize their interdependence with processes and systems outside of their borders - a traditional form of security based on borders and resistance to change inevitably become replaced by a recognition of the need to be able to adapt in the face of larger processes of change. In a globalized world, no nation is able to control the flows of financial capital that affect their economy, no nation is fully able to control the flow of people and goods. In a world where powerful processes that shape people’s lives transcends the national level, the strategy of resistance becomes less successful. Resilience in navigating such larger processes of change - as globalization and environmental change - become of a more identifiable importance to nations and people.

**Distributed Intelligence**

The capacity of the political organization to deal with change is a function of both the degree of change within the environment and also the level of awareness of the system to that change. Coupled to this are considerations relating to the internal structure of the system that enable or prohibit it from responding effectively to that information. On one level, governance is a process of steering or guiding an organization forwards in its development. Like all forms of management, it requires strategic leadership. In that process, the political unit has to amass information about the system and its environment and develop the appropriate models for interpreting it. In complex environments no one can predict the future, but the better we understand the environment and the better we understand the structures within the socio-economic organization the better we are able to understand the vulnerabilities and the degree of sociopolitical criticality.

A surprise shock that leads to disaster is only a shock because of lack of correct models. An earthquake only comes as a surprise if we can not see the critical pressures building up over time. The earthquake comes as a surprise because we were not measuring the tremors; we did not understand what they meant; we did not identify the structural vulnerabilities within the infrastructure when building many high rise buildings in a centralized location etc. In a resilience paradigm, there are no such things as accidents. When one accepts that changes
happen, even major changes, then all there is, is our degree of awareness and capacity to adapt to those eventualities. The burden of crises shifts from nature and acts of God to the internal organization of our societies and the capacities and awareness levels of our governance structures; both individual and collective. The civil war in Syria and the European immigration crisis are not just accidents that suddenly happened, they were there before their initiation in the inertia of those systems, inherent in the evolved political structures of the Syrian regime and society at large; in the racial division within urban European societies.

When we invest in the development of the appropriate models given the context, then "accidents" do not come as a surprise. From an assessment of how the organization governs itself - its internal structures and level of awareness to its environment - a conclusion to the degree of vulnerability of the organization can be drawn and from that change will not come as a surprise when it happens. If stable periods are used to make a reflection of the state of the system and the environment and how to build adaptive capacity then the system will be in a more resilient position. The resilience of a large social system like a modern nation state and its technological infrastructure is complex and systemic, it is not contained within some subsystem but in fact, is distributed out across many different networks. But this assessment of the internal resilience of the organization is not something that can be concentrated at the top of a hierarchy, it requires distributed intelligence and awareness from the entire organization.

The political system thus has to be able to harness and take in the distributed intelligence and information of its members. For example, in Syria, a devastating drought beginning in 2006 forced many farmers to abandon their fields and move into cities creating a context that was conducive to the revolution. If such information about the changing climate and local conditions had been effectively harnessed at the time and combine with the other factors determining the critical state of the political system the revolution, would not have appeared such a surprise.

This illustrates a key aspect in resilience surrounding the relationship between the local events and the overall systems of governance, the process through which the political system aggregates the local intelligence about events and imports that into the decision-making institutions. Such a process can not be effectively conducted through purely top-down structures but requires the implementation of effective mechanisms for harnessing the distributed capabilities of the community. Resilience is a distributed phenomenon and thus requires distributed organizations to maintain and develop. A centralized structure where information is fed into the center to be processed and then redistributed reduces the system's capacity to respond in real time; likewise, the centralization of intelligence and information processing creates its own vulnerabilities.

**Systems Integration**

Political resilience is a function of both the environment, the system's information processing capabilities, but just as importantly the makeup of its internal structures and processes through which it attempts to adapt and respond to the information received. In making an assessment of resilience it is critical to look at the internal structures that enable or constrain
the political system's capacity to process information and use that to adapt to the changes. The resilience of a political community is a function of its capacity for adaptation, but such a process of adaptation is prevented by inertia; the resistance to change. If the system can adapt to the changes then there is no problem, but inertia is what renders systems dependent upon a certain limited set of input values and thus exposed to the variabilities of change.

Social inertia is a function of the divisions within society and the desires of those for whom those divisive structures benefit to maintain them without change. All societies create divisions, excluding certain members and promoting others. Privileged members become dependent upon the prevailing structures within society to support their existing way of life and resistant to change that may alter those structures. This is the same in the relationships of inequality between members of a community as between different communities and as between a society and its natural environment. For example, the limitation of our capacity to respond to changes within our natural environment is a function of our dependency upon the input of certain natural resources. Those who are less dependent upon these inputs have a greater capacity to adapt and respond to the changes, while the likes of an oil company will likely represent the most inert structures given their dependency on the status quo. As with all applied political science, such stakeholder analysis and vested interest analysis is a prerequisite to understanding the adaptive capacity of a system and its resilience.

If we can learn one lesson from political history it is that people will create boundaries somewhere so as to have some control over their environment and such boundaries are resistant to processes of change. Taking down walls may sometimes be an appropriate thing in evolving new levels of political organization, but sometimes those walls are holding the ceiling up. Borders can be effective in as much as they work to support the development of structures that will overcome them. Effective institutional structures can enable people to draw those boundaries larger; to expand them instead of contracting them, to make them prepared for when those borders are challenged. In an age of proliferating interconnectivity making a sociopolitical system resilient means reducing dependencies upon such borders to hold the ceiling up and being prepared for when the walls come down. For example, we can identify this dynamic in the current immigration crisis in Europe. We see the dependencies of many nations upon a relatively homogenous population in order to maintain national identity and institutions. As those borders are challenged the system quickly comes under stress, which becomes expressed through racism and nationalism.

Building resilience means continuously exposing those divisions between communities and recognizing the vulnerabilities that they present. If divisions within society are not considered beforehand when crisis strikes those divisions are quickly revealed and work to exacerbate the situation. Again this can be seen in Europe's current vulnerability to terrorism, which is as much to do with what is happening external to its borders as a function of the divisions within European societies; the immigrants that live in the marginalized and disconnected suburbs of Paris and Berlin are what threaten Europe's security. Thus a discourse on political resilience without identifying the divisions within society based upon power, wealth, race etc. is very much limited in scope.
Adaptive Cycle

Resilience is about transformation. The capacity of a system to take in some new phenomenon and go through a process wherein it develops the appropriate response. The process through which a system does this is called the adaptive cycle. Like evolution, the adaptive cycle is, in its essence, a process of creative destruction.

In adapting the system experiences some external influence and has to change its state so as to respond to that. Those elements, structures, and behaviors that are rendered inappropriate given the new context are required to be removed, while the system has to select from and develop a new set of solutions so as to over time exhibit more of the characteristics that are functional within the new context. In this sense, adaptation and evolution are essentially the same, except that they play out on different scales and over different time frames. In both instances - both over the long term on the macro level or in the short term on the micro level - the political organization finds itself within a new context that it has to respond to and it must select from a variety of solutions that it has available to it and develop them.

An adaptive system is, therefore, an open system that is able to fit its behavior according to changes in its environment. It is one that recognizes the importance of diversity, which is quite a modern idea, for the ancients and medievalists, diversity simply signifies merely that all but one are wrong. Having a whole pile of ideas that were wrong was clearly of little value to anyone. The idea of the individual undergoing a unique process of development, in some way separate from the whole of society or the state - in so doing developing diversity that is valuable to the whole organization - is in many ways a very modern idea. In relatively simple, stable and predictable environments there can be one correct answer and limited need for a diversity of opinion.

But as the level of complexity and scale of the change increases so does the scope of diversity need to be increased to match that. In complex environments, there is no correct answer, no one can know the whole environment, the most valuable insight is not the one that is correct - because no one has such an answer - it is the one that is best able to synthesize many different perspectives on a situation. Thus the emphasis shifts from homogeneity to diversity as a critical component in enabling adaptive capacity and resilience.

In the context of the adaptive cycle a resilient political system is one that is able to successfully navigate the various stages of the adaptive cycle, so as to evolve, respond to change and continuously renew itself. This requires open systems of governance, which means they are able to sense the environment and develop inclusive platforms for people to self-organize in response to the information; institutional structures that can maintain diversity and perform processes of selection to find and foster the most suited, scaling them up to meet the changing demands as needed.
Sociopolitical Complexity

The term sociopolitical complexity refers to the underlying structural complexity of a sociopolitical system. Complexity is a general feature of systems that have many autonomous parts that are interconnected and interdependent. Such systems have novel and qualitatively different behavior from systems that are considered simple; such as the capacity for self-organization, emergent properties, distributed control, nonlinear dynamics etc.

The complexity of a system can be defined along a number of parameters, including the number of parts in the system; the degree of autonomy and adaptive capacity of those parts; how interconnected they are and how interdependent they are. A simple system - what may also be called a linear system - is one that has a limited number of parts that themselves have a limited number of degrees of freedom; a low level of connectivity between them and limited interdependence. Such systems have specific behavior that can be described through linear systems theory. A complex system, in contrast, is one that has many autonomous parts that are highly interconnected and interdependent. A more compact and abstract way of stating this is that complex systems have both a high degree of differentiation and integration. All systems that are complex have a high degree of differentiation to their parts and also a high degree of integration between them. This feature to complex systems is a product of a sustained process of evolution.

Evolution

Due to the most basic laws of science - that nothing can come from nothing - all systems start simple and if sustained can evolve to become more complex. Complex systems do not just pop into existence, evolution is the only way they come into being. This evolutionary process is driven by a constant interplay between the parts of the system on the micro-level and the whole system on the macro-level. The micro-level parts generate a diversity of possible new solutions while the macro-level of the whole organization has to perform a downward selection on them based upon their contribution to the whole system's operation within its environment. It is the interplay between bottom-up differentiation and top-down integration that drives the process of evolution and systems that can successfully navigate this process evolve over time to have many autonomous and differentiated parts that are also integrated and interdependent within the whole system.

This evolution of complexity is the story of the development of matter from the origins of the universe composed of simple elementary particles to the formation of atoms, to molecules and polymers. This is the story of the evolution of biological creatures as we have gone from unicellular organisms to the complex systems of today's mammals; it is the story of technology as we have gone from simple hand tools to the vast interconnected technology infrastructure that supports our modern economies, and it is the story of social and cultural institutions as we have gone from small hunter-gatherer tribes to today's burgeoning global
society. Likewise, this ongoing evolution in complexity is certainly the case for political systems.

Systems that are complex exist at a dynamic interplay between integration and differentiation - what we call the edge of chaos - and it is out of that interplay between the two that they evolve through adapting to and navigating change. For a system to be what is called viable or sustainable, its internal complexity has to match that of the environment within which it operates, thus as systems evolve to become more complex this evolution enables them to operate viably within broader, more complex environments.

Complexity is a structural feature of systems, it is systemic. It does not tell us much about the parts in the system, it simply tells us about the overall nature of the structure of the system and from that the way it behaves. Systems that are complex are in no sense better than those that are simple. However, because of the requirement of complexity in order to operate viably within a given environment, all systems are limited by what they can potentially do by their level of complexity. Only complex systems have the potential to perform the sophisticated functions required to operate in broader environments. A large global corporation requires a certain degree of complexity to operate successfully in that environment which a small organization would not have.

As systems evolve to become complex they exhibit new behavior of a qualitatively different nature to those that are more basic. Systems that are simple are mono-dimensional while complex systems exhibit the emergence of new patterns of organization on different levels making them multi-dimensional. Simpler systems exhibit linear proportionality between cause and effect while complex systems display the butterfly effect; meaning small effects can create large outcomes. Simpler systems are governed more by the properties of their parts while complex systems are governed by the structure of the network wherein those parts are embedded. Complex systems are dynamic in nature often existing at a far-from-equilibrium state while linear systems tend towards a static equilibrium over time.

Categorization

In attempting to trace the evolution of political complexity over the course of the past millennia one could potentially use many different schema or models given the expansive and general nature of such a phenomenon. This change in political complexity is approached from many different domains with anthropologist, sociologist and political scientists all using different categorizations and terms. A classification system for such a subtle and often gradual transformation will inevitably be somewhat arbitrary and limited in its attempt to convert a continuous ongoing massively distributed process into a series of discrete stages.

However, here we will look at one such recent classification system developed by David Ronfeldt call TIMN. We will do this for illustration purposes only, using the model as a schema to support our reasoning and not presume that it actually captures the underlying subtleties of past and present socio-political evolution.
The acronym TIMN describes four stages in the evolution of sociopolitical complexity from tribes, to hierarchical institutions, to markets to networked organizations. Given that the potential level of political complexity to a society is dependent upon its technological and economic base these different systems of political organization correspond loosely to the various changes in the overall technological and economic paradigm of advanced civilization; namely that of the Neolithic Revolution, the Agrarian Age, Industrial Age and the ongoing transformation into a post-industrial society. Although the sociopolitical complexity of a society is not determined by its economic substructure, it is though dependent upon it. Greater social complexity requires greater energy or at least energy of a higher quality. It also requires a greater capacity for communications and information processing. Thus Mr. Ronfeldt's schema also equates the various changes in social structural complexity to the various underlying changes in information and communications technology. From the development of early language to writing and printing to the advent of the telegram and telephone to today's internet. And of course, we should note that such an evolution is never a linear process, it is cyclical and oscillatory in nature; one that is often messy without clear distinctions.

**Tribes**

In the TIMN model, the first major form to define the organization of society and its political structure is what we call the tribe. A tribe is a relatively small group of distinct people, dependent on their land for their livelihood and who are to a large extent self-sufficient. In anthropology, a tribe is a form of human sociopolitical organization based on a set of smaller groups, known as bands. A band is usually a very small, group that is connected by families and is politically independent. Bands are oftentimes nomadic, moving from place to place, usually, in search of food. Such bands are most often made up of hunter-gatherers. Due to their small size and their tendency to move around, bands usually have little to no formal leadership and exhibit a very low level of formal sociopolitical structure. Important collective decisions such as when to move and when to stay are usually based on group consensus rather than one governing official. As a cause bands are usually referred to as being egalitarian societies, societies in which all persons of the same age and gender are seen as equals; though inequalities between different genders and age groups are often present.

Tribes have temporary or permanent political integration and are defined by traditions of common descent, language, culture, and ideology.(2) Such social organization emerged in the Neolithic era some 5000 years ago. In such a context, members of a tribe typically share a territory, working collectively in such joint activities as trade, agriculture, house construction, warfare, and ceremonial activities; and they composed of a number of smaller local communities such as bands or villages. In keeping with the primacy of kinship and the codes of conduct that stem from it, the classic tribe is egalitarian—its members share communally. It is segmentary—every part looks like every other part, and there is little or no specialization and classic tribes do not have strong, central leaders.

As a social organization, its key principle is kinship, it renders a sense of social identity and belonging, thereby strengthening a people’s ability to band together and survive. The maturation of this form defines a society's basic culture, including its ethnic, linguistic, and
civic traditions. Indeed, we can recognize that the tribal institution has remained a basis of cultural traits well into the modern period; it can also be seen as the basis of nationalism.

Tribes should not just be seen as a thing of the past, the are pervasive within virtually all forms of sociopolitical systems. People in many parts of the world remain often identify firstly with their local group, and only partially with larger systems of organization. Some dictatorships that seem to rest on a strong state are really grounded on a particular predominant clan, such as in Iraq or in Afghanistan, where we can see currently that the centralized government is struggling to implement a national system in the face of enduring tribal loyalties and institutions. In many developed economies urban gangs like those of El Salvador or the Los Angeles area represent in part a recurrence to clannish, combative brotherhoods by youths who lack strong nuclear family ties and do not see a future for themselves in the state, market, or in the other more complex sociopolitical structures around them.

The level of social complexity to tribal organization limits its development. It is vulnerable to clan feuds and resource scarcities. The tribal form is particularly limited and inefficient for dealing with problems of rule and administration, as in attempting to run a large agricultural activity or govern a conquered tribe.

Chiefdoms as a form of social organization are seen to be more complex than a tribe or a band society, but less so than a state and are thus often identified as a transitional phase between tribes and early states. A chiefdom is a political unit headed by a chief, who holds power over more than one community group. With more than one community involved, chiefdoms are usually more densely populated. Also, as the name chief implies, chiefdoms are not egalitarian but instead have social ranking, with the chief and his family holding power. Chiefdoms have the beginnings of hierarchical political organization usually based on kinship, and in which formal leadership is monopolized by the legitimate senior members of select families or 'houses'. These elites form a political-cultural aristocracy relative to the general group and thus forms a significant degree of differentiation within the political system.

Hierarchical States

With the agrarian revolution, sedentary agriculture led to the development of property rights, domestication of plants and animals, and larger family sizes. It also provided the basis for the centralized state form by producing a large surplus of food, which created a more complex division of labor by enabling people to specialize in tasks other than food production. Early states were characterized by a significantly stratified social structure, with a wealthy and elite ruling class that was subordinate to an emperor or monarch. The ruling classes began to differentiate themselves through forms of dress, architecture and other cultural practices that were specifically different from those of the subordinate laboring classes and used as symbols of class identification.

Mesopotamia is generally considered to be the location of the earliest civilization or complex society, meaning that it contained cities, full-time division of labor, social concentration of wealth into capital, unequal distribution of wealth, ruling classes, community ties based on residency rather than kinship, long distance trade, monumental architecture, standardized
forms of art and culture, writing, and mathematics and science. It was the world's first literate civilization, and formed the first sets of written laws.

High points of this form of hierarchical organization are the ancient empires—especially the Roman Empire—and later the absolutist states of the sixteenth century, where all of society was supposed to assume its place under a top-down ruling hierarchy. The major result of this form's development is the state, which came to supplant the tribal pattern. Today, government and corporate organization charts depict what an institutional system looks like. As seen in traditional institutions like the army, the monarchy, and the Catholic Church, the essential principle behind this form is hierarchy. It enables a society to address problems of power, authority, and administration, and to advance by having a center for decision, control, and coordination that is absent in the classic tribe.

The hierarchical form excels at activities that are stable, predictable and routine like building standing armies for defence and conquest, imposing religions, organizing large economic enterprises such as irrigation schemes, enforcing law and order over a large territory, ensuring successions, and running imperial enterprises—all activities which the tribal form could not undertake. As Weber has noted, the development of authoritative institutions to govern a society involves, among other things, administrative specialization and differentiation, professionalization of office roles, replacement of ascriptive by achievement criteria, and the development of sanctioned instruments of coercion that spell an end to the egalitarianism of earlier political systems.

Like all political systems, the hierarchical structure has limitations to the complexity that it can deal with effectively. The hierarchical design is limited in its capacity to deal with nonlinear distributed exchanges and information flows. This is illustrated in the realm of economic transactions, which become too complicated for monarchies and their bureaucracies to control in detail. These centralized organizations come to have increasing difficulty dictating terms and prices in an efficient fashion. Thus, this institutional paradigm of governance begins to fail in the economic realm and gives way to the rise of the next great form: the market system.

**Market System**

The birth of the modern era is marked by the rise of merchants, the professional and middle class engaged in commerce, who combine with the monarchs to displace the power of the feudal aristocratic system in Europe. The modern nation-state system formed with an eye to doing business over a large geographic area. As people moved into cities and the traditional self-sufficient ways of rural peasant life based on agriculture were displaced people came to depend on the market system for their daily subsistence. At this time we see a transition in Europe from mercantilism, where the state dominates the market, to capitalism, where market actors may try to dominate state actors—and in the process, mercantilism is outperformed. We also see a separation of the state and market realms, and of the public and the private sectors. Just as the state began to solidify into the modern day absolute sovereign form a new modality for the organization of social and economic life was emerging, that of the market.
Its essential principle is open competition among private interests that are supposed to behave freely and rationally. Its strength is that it enables different actors to process diverse exchanges and other complex transactions better than they could in tribal and hierarchical systems. This happens to be appropriate for trade, commerce, and investment; and the result is the formation of the market economy as a centerpiece of modern societies.

Large industrial societies formed with common markets, regulatory policy, culture and political unity formed around the nation state. As the modern nation-state became internally interconnected with the process of economic industrialization and the development of the market system, nation building became intertwined with the development of an industrial technology infrastructure and a market economy. At its best, this form leads to a productive, diversified, innovative economy, overcoming the preferences of the prior forms for collectivism and statism. Whereas the ideal institutional system was hierarchical, the ideal market system is competitive and atomized. The new concept meant that property, products, services, and knowledge could be traded across great distances at terms and prices that reflected local exchange conditions rather than the dictates of rulers.

It meant that people were entitled to act in terms of personal interests, profit motives, and individual rights that ran contrary to traditional notions of duty and responsibilities within a hierarchy. Thus, the market concept entailed new ideas about how a society should be organized.

As with all evolutionary processes, the previous structures remain to support the new structures. Basic sociopolitical structure, like law, is still provided by the bureaucratic state. However, the market system involves new principles for relating specific institutions to each other. In a hierarchical system, there should normally be only one of each specific institution, that is to say, a society should not have more than one health care system or one army. But in a market system, multiple competing actors may be the norm - there can be many companies trading a given product or service and competition between them is seen as a good thing, from a societal perspective. Whereas hierarchies involve linear chains of command to reduce conflict through conformity and homogeneity, markets promote more nonlinear interactions between a diversity of actors. While the market was not supposed to supplant the institutional system, it does displace it from dominating the economic realm. It limits the institutional system’s scope of activity and increasingly confines it to the realm of the state.

The market system brought with it a new level of sociopolitical complexity as people came to occupy ever more specialized roles within an ever larger society, where people were ever more interdependent with each other. This new organizing principle within modern societies was most clearly seen in Emile Durkheim's illustration of organic solidarity, which likens individual workers to specific bodily organs and a group of people to a body. Different bodily organs serve different functions; without these organs, the body would die, and so would the individual organs. Similarly, in a society characterized by organic solidarity, individual workers perform different kinds of labor, without which society could not function, nor could individual workers thrive. This increase of differentiation and coordination represented by the market system profoundly altered the social and cultural fabric of societies.
The idea of the market as an organizational structure within society was most clearly expressed in the work of Adam Smith. In his famous conception of the invisible hand, we get a glimpse of a very modern idea that order could, in fact, be created through the distributed interaction of many different actors without need for centralized control. Part of Smith’s insight surrounded the differentiation of labor within industrial economies. How through coordination within the market - and with limited need for specific order to be defined by the state - this could benefit all with increase efficiencies and the resulting wealth of nations that he was interested in. We can see how far removed this idea of spontaneous order and self-organization are from a traditional conception of the divine creation of order with the social hierarchy reflecting that order and being endorsed by it.

Not all market-oriented systems are democratic, but every democratic system is also a market-oriented system. Apparently, political democracy has been unable to exist except when coupled with the market and today the two are seen to go hand in hand. With the rise of the market system a new powerful and dynamic force had been unleashed and as communism fell under its own weight a new hegemonic global order rapidly came to coalesce around the free market ideology and the ideals of liberal republicanism.

Networks

In the market system, we can see key characteristics of social complexity; a massively parallel, distributed, self-organizing system without centralized control. Of course, this is an idealized version of the market, what is called a pure market, when in reality most markets are far from pure. The Industrial Age market system is still dominated by centralized hierarchical organizations. It would take another revolution in technology and economy before truly complex systems of sociopolitical organization would become prevalent.

Today we live again in an age of profound political change, as a new organizational paradigm that has been latent for thousands of years, becomes explicit and moves to center stage, that of the network. Informal networks as a means to achieving social organization have long been seen as inefficient and inferior compared to centralized hierarchies. Peer-to-peer

Networks historically involve high transaction costs, require dense communications, need high levels of mutual trust and reciprocity, are vulnerable to free riders, and often result in slow, complicated decision-making processes as all members try to have an input.

Networked social systems have existed throughout history, but they are now able to gain strength and mature because of new information technologies that let small, distributed, autonomous groups interact, coordinate, and act jointly across greater distances and across more issue areas than ever before. Information technology has drastically reduced the cost of interaction and collaboration while putting powerful tools for the production and dissemination of knowledge and ideas in the hands of many around the world. Combined with this is the proliferation of open online software platforms that greatly facilitate the formation of new social and political organizations whose maintenance is largely automated by the software. Through such innovations, the capabilities of networked organizations have grown massively and can increasingly compete with, and even displace mainstream,
hierarchical organizations as effective means of social and economic organization; as illustrated by such project as Wikipedia and the Linux Foundation or Facebook.

This new form of hyperconnectivity that information technology is ushering in is working to erode hierarchical structures, diffuse power, transcend boundaries, and generally compel closed systems to open up. This does not mean that the hierarchical institutional form is in demise; hierarchical institutions of all types - including especially the state - remain essential to the organization of society, but faith and trust in such institutions become reduced, likewise, their capabilities become relatively diminished as networks become more capable actors. The effective, responsive ones will adapt their structures and processes to the information age. For example, many multinational corporations have in significant ways already evolved internally from strictly hierarchical toward new, flexible models that mix hierarchies and networks.

Networked organizations are proliferating on all levels, from small local social networks to global political networks and this is resulting in a profound shift in political power. As we have all seen from the Arab Spring to Wikileaks new technologies are enabling more people everywhere to discover and share information and opinions. It is becoming exponentially easier to make more information more transparent and to subvert traditional forms of political control and organization, as larger and larger unregulated spaces open up, both within societies and on the global level.

As the British politician, Paddy Ashdown noted: "What's happening today is that the power that was encased, held to accountability, held to the rule of law, within the institutions of the nation-state has now migrated in very large measure onto the global stage. The globalization of power - we talk about the globalization of markets, but actually, it's the globalization of real power. And where, at the nation-state level that power is held to accountability subject to the rule of law, on the international stage it is not. The international stage and the global stage where power now resides: the power of the Internet, the power of the satellite broadcasters, the power of the money changers...the power of the multinational corporations now developing budgets often bigger than medium-sized countries. These live in a global space which is largely unregulated, not subject to the rule of law, and in which people may act free of constraint."

A new form of society is developing on a new level of complexity, what the sociologist Manuel Castells defines as the network society "a society whose social structure is made up of networks powered by microelectronics based information and communications technologies." Such socio-political organizations have the key characteristics of complex systems. They are often globally distributed with limited centralized top-down coordination. They are built out of and around the interdependencies between members who share common interests instead of being based on a shared homogenous cultural or territory. The are systems in the sense that the whole is greater than any of its parts as Manuel Castells puts it “The logic of the network is more powerful than the powers of the network”