■ *Research Paper*

Rethinking Democracy: A Systems Perspective on the Global Unrest[1]

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The paper seeks to make a contribution towards a better understanding of the current global political unrest. It argues that this unrest reflects ongoing tensions between hierarchical and non-hierarchical interactions. It also argues that the opposition between hierarchical and non-hierarchical interactions is not ontological but rather is rooted in the way we approach reality and is, therefore, subject to our control. The tendency to exclude the process of construction from our frame of vision is characteristic for the view of reality that is dominant in our civilization. Contemporary theoretical perspectives that include, but are not limited to, systems theory, complexity theory, theory of self-organization, emergence theory and autopoiesis have much to offer in addressing and resolving this problem. The paper outlines some general organizing principles that should be part of this solution. Copyright © 2015 John Wiley & Sons, Ltd.

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Over two decades ago, communism collapsed and the Cold War ended. Francis Fukuyama hailed this development in his book *The End of History and the Last Man* as the beginning of a new era in which liberal democracy and capitalism would reign supreme. All that would be left for humanity to do was to enjoy the fruits of this remarkable victory that would bring peace, freedom and prosperity to the entire world.

Long gone are the days of triumphalism. Today, the prophecy that Fukuyama made in the wake of the demise of the Soviet bloc 'that liberal democracy, combined with market economics, represented the direction in which the world would inevitably evolve' (Fukuyama, 1989) rings hollow; today, we hear a very different tune. It warns us about the retreat of democracy, the rise of authoritarian regimes, economic uncertainty and prospects of growing violence and hostility in the world (Kurlantzick, 2013).

At the time of its publication, many welcomed Fukuyama's book as a prophecy and a revelation of the world to come. Now, more than two decades later, few ever mention or quote this book and even fewer hold the predictive powers of its author in high regard. The world has turned out to be very different from what Fukuyama divined. It is turbulent, dangerous and extremely uncertain. Many

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commentators dismiss the notion that the current conditions are merely a passing storm that will eventually go away; they refer to the contemporary developments in the world as a crisis of civilization. An article in *The Guardian* by Nafeez Ahmed, executive director of the Institute for Policy Research & Development and author of *A User's Guide to the Crisis of Civilisation*: *And How to Save It*, is a typical example (Ahmed, 2014). Ahmed provides a very alarming description of the current state of our civilization. Rather than presiding over a renewed and rejuvenated world, liberal democracy appears to be in retreat. Its economic development has significantly slowed down, its financial system is in disrepair and disrepute, its social fabric ruptured by the growing gap between the rich and the poor and the erosion of the middle class and its international position and prestige are challenged and even threatened by the rise of new authoritarianism.

So how have we come to this? Why have the encouraging prospects of the late 1980s turned into bitter disappointments of the present time? Answers to these questions remain elusive, and not for lack of trying to answer them.

This article will address only one, arguably the most important aspect of this general turmoil in which we find ourselves today: the global political unrest. It seeks to contribute towards a better understanding of this phenomenon. The general approach used in this article owes much to such relatively new theoretical perspectives as systems theory, theory of emergence, construction theory, theory of complexity and theory of self-organization, among others. While successfully applied in many disciplinary fields ranging from biology to cybernetics, to psychology, economics, geology, climate studies and others, these perspectives have received still inadequate attention in studying social and political developments where they can offer some very illuminating insights. The article also seeks to fill in this gap.

THE ANTI-HIERARCHICAL NATURE OF THE PROTEST MOVEMENTS

Although the global political unrest started decades ago, it shows no signs of abatement today. The Tiananmen Square protests, the Arab Spring, the colour revolutions, Occupy Wall Street and Islamic jihad are all part of this unrest that has toppled governments, changed regimes and shook the political order in the world to its foundation. It engulfed countries as diverse as Thailand and Greece, USA and Syria, Argentina and Afghanistan, Great Britain and now Ukraine. No country seems to be immune to the awesome power of this unrest.

Understanding this phenomenon and finding a solution have been a major preoccupation of many researchers, journalists, pundits and politicians. Although much has been written on this subject, the topic remains controversial with no consensus emerging. For one thing, there is a fundamental difference in the attitudes towards this unrest. Some hail it as a harbinger of a better and more democratic world order (Mason, 2012; Scott, 2012; Sitrin, 2012b; Graeber, 2013; Mason, 2013a; Sitrin, 2014). Others see it as dangerously utopian and destructive development (Roelofs, 2009; Chollett, 2011).

Explanations of the origin of this unrest also differ. Some emphasize poverty, unemployment and disempowerment as the principal motivating factors. They see the poor who are most affected by these adverse conditions as constituting the backbone of these protests. Others point to the critical role played by the middle classes (Mason, 2012; Kurlantzick, 2013; Mason, 2013a). Paul Mason's book *Why It's Kicking Off Everywhere*: *The New Global Revolutions* is a good example of the second trend. Although written in a journalistic vein, the book contains some very interesting insights as to the nature of the unrest and is certainly worth paying attention. Mason sees several factors as influencing the middle class rebellion. One of these factors is the collapse of the neo-liberal economic model. Nothing exemplifies this collapse better than the financial crisis of 2008, the continued sluggishness of the economy and persistently high unemployment figures. The failure of economic recovery has eroded the position of the middle class and caused discontent among its members. The second factor is the revolution in information technology, particularly the expansion of the Internet and other information and communication technologies that have created possibilities for mobilization of middle class users. Technological

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proficiency enables them to create networks that helped to inspire, articulate, coordinate and guide their protest. Finally, Mason attributes considerable significance to what he, among others, sees as a new consciousness that has emerged as a result of engaging with new technology. For Mason and others, the so-called 'networked individual' embodies this new consciousness (Craven and Wellman, 1973; Castells, 1996; Dijk, 2012; Mason, 2013b). Shaped by non-hierarchical network interactions, the new consciousness is inimical to the hierarchies that dominate our world, and the two inevitably come into conflict with each other.

While both interpretations of the causes for the current protest movements offer valuable insights and bring much interesting empirical material into the study of the current global unrest, they overlook some important aspects. In their theoretical perspectives, they attribute much significance to what we often call objective factors; that is, factors that exist independently and largely outside of these movements: social conditions, economic developments, technological changes and so on. While these factors are certainly important, the picture that the current interpretations create misses one very important dimension: subjectivity. It excludes subjective attitudes of the participants. This is not to say that they do not discuss what people say or how they act; of course they do. However, they do not attempt to explain why people think the way they do, why they interpret external facts in the way that they do and why they see reality in the way that they see it. On the empirical side, the current interpretations pay insufficient attention, if they pay any attention at all, to one most central attitude that characterizes these protests: the pervasive distrust and hostility towards hierarchies—not just the hierarchies that presently dominate the world, but the very principle of hierarchical organization. There is something very visceral in the way that the protesters often relate to hierarchies. This deeply emotional and personal dimension begs explanation.

Whether peaceful and reformist or violent and destructive, all protesters see hierarchies as a threat to what they consider to be true democracy, freedom and equality. They are in principle opposed to all hierarchies and seek to replace them completely or severely limit their power with a broad non-hierarchical approach to organization of public space, hence the name 'horizontalists' that has often been used to identify these movements and their ideologies (Bookchin, 1991; Sitrin, 2011; Davies, 2012; Sitrin, 2012a; Benski, Langman, Perugorría and Tejerina, 2013;).

One should note that those who constitute hierarchies respond in kind to this attitude of the horizontalists. They also harbour a profound distrust and suspicion towards the horizontalists whom they regard as enemies of order and stability. The attitude on the part of the state towards such horizontalist movements as Occupy Wall Street and Maidan in Ukraine ranges from relatively benign but hostile tolerance and suspiciousness to outright enmity and aggression (Bandow, 2014).

The distrust and suspiciousness between hierarchies and networks are not unique to our time. In fact, the entire evolution of human civilization provides many examples of this adversity that nurtured numerous revolutions and uprisings throughout history.[2] Niall Ferguson aptly observes: 'Clashes between hierarchies and networks are not new in history; on the contrary, there is a sense in which they are history' (Ferguson, 2014). This deep-seated enmity towards hierarchies led at least some researchers to conclude that it reflects something very fundamental in the nature of hierarchical and non-hierarchical interactions. For Max Weber, authority and status were two very distinct features of bureaucratic hierarchies (Weber, 1978). These features appear to be totally absent in the more flexible, pliant and largely egalitarian structure of networks. Lawrence Tshuma observes in his study of the relationship between government hierarchies and networks: '…bureaucracies and networks stand in stark contrast as polar opposites' (Tshuma, 2000, p. 131). More often than not, this opposition translates into tensions and conflicts. Why is this the case? Why in our civilization, in which, many agree, hierarchies emerged out of network connections,[3] are they often at odds with each other?

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[2] On the origins of hierarchies, see Dubreuil (2010).
[3] On the emergence of hierarchies from networks, see Trigger, 2003; Bowles, 2009; and Agre, 2003.

NETWORKS AND HIERARCHIES: THE PHENOMENOLOGY OF CONFLICT

The perception that networks and hierarchies are polar opposites contradicts what we know about the relationship between these two types of interactions in systems that exist in nature. Why then is this perception so persistent with regard to human systems, as evidenced in the previous text by Tshuma? Under what conditions do we get such perception?

Systems construct themselves. As has been argued elsewhere, conservation is at the heart of this process (Shkliarevsky, 2013). Systems conserve themselves by conserving the functional operations of their subsystems. The more often their functions are activated, the more stable they are and the better they and the entire system are conserved.

Functional subsystems in a system conserve themselves by establishing connections with each other, in other words, by creating networks. The more connections there are among functional operations, the more often they are activated and the better they are conserved. Stable systems are well-integrated systems. The process of constructing such networks is the object of investigation by theory of self-organization or, as I prefer to call it, theory of spontaneous organization (Prigogine and Stengers, 1984; Kauffman, 1993; Corning, 1995; Luhmann, 1995; Buck and Endenburg, 2010).

Each functional subsystem has its own regulatory operation that activates it. This regulatory operation plays an important role in integrating a subsystem with other subsystems. When subsystems combine, they create a common regulatory operation that regulates the entire network of interconnected subsystems. System is essentially a well-integrated network of such interconnected subsystems plus regulation.[4]

Regulation coordinates the functional operations of all the subsystems in a system. It is a product of their combination and as such it supervenes on them.[5] As the operation on operations of all the subsystems and the product of their combination, regulation represents a much more powerful level of organization than the rest of the system. It is precisely this power that allows the regulatory function to transcend the system and operate in, or interact with, a much more diverse, variegated and more complex environment outside the system.

As this description indicates, regulation has a dual orientation: endogenous and exogenous. On one hand, it supervenes on subsystems and regulates and coordinates their activities, and on the other hand, it connects the system with the environment via structural coupling and thus expands the degrees of freedom of the subsystems and the system as a whole (Maturana and Varela, 1998; Maturana, 2002).

As a functional operation, regulation also needs to be stabilized. Just like any other operation, regulation stabilizes itself through activation. The more it is activated, the more stable it is. Stabilization involves structural coupling with regulatory operations of other systems. The product of this coupling—a new systemic totality—also acquires its own regulation that is a combination of regulatory operations of the new system's components. This new and more comprehensive regulatory operation marks the emergence of a new and still more powerful level of organization.

Thus, one can see the vital connection between the dynamic nature of systems and their conservation. A system conserves itself by creating new and more powerful levels of organization. It is the main condition for the sustainability of any system. If a system does not evolve, its regulatory mechanism will be less stable than in an evolving system. Less stability in the regulatory mechanism will diminish its capacity to activate the internal components of the system, making the entire system less stable. And, with reduced stability, the system will be more vulnerable and its capacity to sustain itself will be lower. The weakness of the regulatory mechanism may adversely affect its capacity to coordinate the interactions among its subsystems, and the system may effectively start to disintegrate.[6]

However, this process of disintegration may not stop with the disintegration of the system.

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[4] A network has been defined as 'a set of interconnected nodes' (Castells, 1996, p. 470; Tshuma, 2000).
[5] On supervenience, see Collier, 1988.

[6] Nationalist separatism that plagues our world today may be a manifestation of precisely such mechanism of disintegration.

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Subsystems are also systems in their own right. As such, they have their own regulatory operations that need to be stabilized through interactions with each other and mutual activation. It is this stabilization that has originally led to the creation of the system. The undoing of the system may continue and lead to the undoing of its subsystems. The process may progressively end up in the disintegration of all underlying levels and forms of organization. A system cannot stay static; it either has to grow or disintegrate (Shkliarevsky, 2014).

As the preceding discussion demonstrates, the survival of any system is impossible without development. In other words, in order to sustain and conserve themselves, systems must evolve. There is no sustaining without evolution.

The fact that regulation represents a level of organization more powerful than any of the subsystems or their sum total indicates the presence of a hierarchy. In other words, the functioning of networks necessarily leads to the emergence of hierarchies (Collins, 1986; Copelli, Zorzenon Dos Santos and Sá Martins, 2002; Corominas-Murtra, Goñi, Solé and Rodríguez-Caso, 2013).[7] There is a great deal of evidence that hierarchies and networks are ubiquitous in nature and that, by and large, they are engaged in a cooperative and balanced relationship (Danchin, 1989). One can also occasionally observe such a relationship in human systems. In his insightful article 'Does Democracy Inevitably Imply Hierarchy?', William Collins shows that the functioning of democracy necessarily leads to the emergence of hierarchies. Collins concludes his analysis by the following observation:

> Does democracy now imply hierarchy? The answer to this question depends upon how the equilibrium conditions for the model describing a democratic polity are interpreted. If the absence of hierarchy is understood as the emergence of a persistent self-equilibrating harmony among interests, *then the constraints imposed by the sign matrix must be understood as an incipient form of hierarchy* (Collins, 1986, p. 415; emphasis added).

Functional and regulatory operations in a system form a hierarchical organization (Clauset, Moore and Newman, 2007). However, this hierarchical organization does not operate on the basis of command–control. Herbert Simon, for example, emphasized that the presence of hierarchy need not imply top-down relations of authority (Simon, 1962).

Regulatory operations are a product of the interaction of subsystems. Regulatory function relies, or supervenes, on operations of subsystems. It also regulates and coordinates their activity. Regulation relies on the functioning of the subsystems and, in turn, enhances the subsystems' degrees of freedom. The subsystems adapt to the more powerful regulatory operation, and this adaptation increases their power too. It is not appropriate to describe such mutual dependence of the two levels in this hierarchy as command–control. Rather, one should describe it as cooperative and symbiotic.

Our neural system, including our brain, for example, represents a much more powerful level of organization with a much greater number of degrees of freedom than, for example, that of the level of organization of other organs or cells in our body. However, we cannot characterize the relationship between neural functions and other functions in our organism as command–control. Neurons do not dictate the cells or organs in our body what to do. Rather each side acts in its own capacity, and their cooperative interaction results in the most appropriate selection from the available repertoire of possibilities (Danchin, 1989). Neural functions supervene on physiological functions of the organism and in turn regulate, sustain and thus conserve these functions. We can find many other examples of such symbiotic relationship between adjacent levels of organization in nature (Corning, 1995; Jablonka and Lamb, 2005; Bich and Damiano, 2012). In his epochal article 'The Architecture of Complexity', Herbert A. Simon emphasizes that hierarchy does not necessarily imply a command–control mode of operation (Simon, 1962). Olffen and Romme's article also points to the on-going re-conceptualization of hierarchies away from the conception of command–control structures and in the direction of a more balanced structural relationship (Van Olffen and Romme, 1995, p. 202).

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[7] Collins offers a very interesting mathematical examination of the relationship between hierarchies and democracy (Collins, 1986).

This symbiotic relationship between hierarchical and non-hierarchical interactions is obtained when we focus centrally *on the process of construction*. However, let us perform one Gedankenexperiment. Let's remove the process of construction from our frame of vision. Let us pretend that we are not conscious of this process, that for us (in the sense of the Kantian 'für sich'), this process does not even exist. How will then reality appear to us?

When we exclude the process of construction, we certainly would not be able to see how the non-hierarchical interactions among subsystems create new levels of organization and new properties and how these new levels conserve what these interactions have created. In other words, we will not be able to see the balanced relationship between hierarchical and non-hierarchical interactions in an evolving system. In fact, the two types of interactions will appear to be completely separate and even diametrically opposed to each other. We should not be surprised at this result: after all, we have removed the connection between the two. We have eliminated the frame that brings these two types of interactions together. With the process of construction out of our field of vision, the more powerful level of organization will appear by some kind of supreme design or miracle, as if from nowhere and from nothing, and take control of the system in accordance with this design. It would appear that the operations on this more powerful level of organization simply determine the operations on the less powerful one, that they in fact limit the degrees of freedom of the subsystems. Think for a moment about the symbolic representation of the object—mother or toy—in the mind of a child. This representation is capable of triggering both the visual and audio function. If we do not understand how the child combines the two completely incommensurable functions—audio and visual—into one symbolic representation, as Piaget has explained in his *The Origin of Intelligence in Children* (Piaget, 1998), the symbolic representation will appear to us as a miracle, from nowhere, and take command over our two reflex functions. We would not be able to understand how much such symbolic representation enhances the degrees of freedom of these two functions, how the audio function is activated by the

visual one and vice versa; moreover, both can be activated by this purely symbolic object even when the real object is not even present (Piaget, 1998). Yet, this is precisely how the major epistemological perspectives that dominate our civilization approach reality.

There are two such perspectives: atomistic and holistic. The atomistic approach is by far the more popular of the two. It seeks to explain the properties of the whole by the properties of its parts; that is, it seeks to explain the properties of a system by the properties of its subsystems. As has been explained elsewhere (Shkliarevsky, 2011; Shkliarevsky, 2014), such an approach is doomed to failure because it tries to explain a more powerful level of organization by a less powerful one, which is impossible. In other words, it does not take into consideration the powerful combinatorial effects of the process of construction. Without understanding this process, atomism simply cannot explain how new properties emerge. As a perspective that prides itself on being the major approach in modern science, atomism essentially explains emergence by modern science-like equivalents of a miracle; for example, chance, random mutations, contingent conditions and circumstances. The Big Bang, quantum mechanics in its present form, the emergence of life forms, the neo-Darwinist evolutionary theory and the non-explanation of the rise of human consciousness—all are products of this approach. Unsurprisingly, these theories ultimately do not explain what they try to explain—the emergence of new levels and forms of organization.

The holistic perspective—the less popular of the two—does not fare much better. It also does not explain the phenomenon of emergence. Like atomism, holism simply accepts newly emerging systems as a given and devotes attention primarily to the way that this whole guides the operation of its parts. The whole, however, represents a design of unknown provenance. All too often, the holistic approach implies the existence of some higher rationality whose origin remains unexplained and is in principle unexplainable within this perspective.

Despite being diametrically opposed, the two approaches share one important commonality: they both do not include the process of

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construction in their frame of vision. They represent essentially two sides of the same coin—a simple inversion of each other. As axiomatic principles that organize our knowledge, they represent the same level of organization. Neither holism nor atomism can refute each other because they have equal explanatory power that comes from the same level of organization. But, they both become particular cases in the more general perspective that is centrally focused on the process of construction.[8] If we use either the atomistic or holistic approach, we would not be able to trace the emergence of a more powerful level of organization of reality to the non-hierarchical interactions of its subsystems for a very obvious reason: we exclude the process that constructs this level.

The aforementioned arguments make one point: there is nothing ontological about tensions between networks and hierarchies. On the contrary, in nature, hierarchical and non-hierarchical interactions are generally in balance and complement each other in advancing systemic evolution. These arguments also show that the failure to include the process of construction into our frame of vision creates the perception that they are ontologically separate and opposed to each other. Finally, the previous text also demonstrates that our current perspectives indeed exclude the process of construction from their frame of vision. Now, what are then the effects of this exclusion and the resulting perception that networks and hierarchies 'stand in stark contrast as opposites'?

Consciousness plays a very important role in our civilization. The way we interpret reality, which in turn depends on the way we approach it, powerfully affects our decisions and shapes the way we act. Therefore, the perception that hierarchical and non-hierarchical interactions 'stand in stark contrast as polar opposites' (Tshuma, 2000, p. 131) also affects how we perceive reality and how we act in the social universe.

One general effect of the failure to include the process of construction into our frame of vision is that this exclusion shifts our focus away from the process and towards products of construction. The inevitable result of such shift is the tendency to absolutize and conserve the product—that is, a particular construction—rather than the process. Conservation of the product hinders and disrupts the workings of the process of construction and makes the evolution more difficult and less efficient.

Networks are the single most important source of creativity, but they need hierarchies to conserve their creations. If the two are in conflict and do not cooperate, then hierarchies are deprived of a very important source of creativity, and networks cannot conserve their creation. The result is a deficit of innovation in society and stagnation.

This consideration does not exhaust the range of negative effects that tensions between networks and hierarchies may have. Both hierarchies and networks obey what is, without exaggeration, the most fundamental law that operates in the universe: the law of conservation. If they do not cooperate in the general process of construction that conserves the entire system including networks and hierarchies, they focus exclusively on themselves as the object of conservation. As in any other structure, such conservation takes the form of conservation of functions, which means that they try to incorporate as much of their environment as possible, including other systems, into their functional operations. In other words, they use their environment to activate their functional operations and, thus, conserve them. Because networks and hierarchies constitute a part of each other's environment, they try to assimilate each other—in other words, they try to incorporate each other into their own functional operations.

The mode of operation of hierarchies is…hierarchical. Therefore, when hierarchies act to incorporate networks, they do so by trying to subordinate them to their own type of interactions. The effect of such assimilation is the atomization of network agents and destruction of networks. Thus, the assimilation of networks by hierarchies represents an imminent threat to the networks' existence, and it comes as no surprise that the latter resist such assimilation. The result is a widening gap and increased tensions between networks and hierarchies.

Network agents conserve themselves by interacting with each other, thus forming networks.

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[8] See a relevant discussion in Shkliarevsky, 2014, pp. 6–8.

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Interactions among network agents create new levels and forms of organization. In other words, the functioning of networks creates hierarchies. These newly created hierarchies obviously represent a threat to the hierarchies that are already established in a dominant position. The perception of networks as a direct threat increases the tendency on the part of hierarchies to destroy networks and assimilate their agents into hierarchies.

Thus, without understanding the process of construction, the complex mutual and balanced relationship between hierarchical and non-hierarchical interactions is beyond our grasp. Hierarchies and networks will appear to be ontologically separate and even opposed to each other. Failure to see the need for mutual and balanced relations between the two types of interactions and their perceived opposition to each other will make any cooperation between hierarchies and networks extremely unlikely and often highly improbable. As a consequence, they will not seek to construct mechanisms that will make such cooperation possible. Those who adhere to one type of interactions or the other will try to conserve the mode of interaction they favour—a situation that will create a fertile ground for conflicts. Hierarchies (that is, those who favour this type of interactions) will tend to universalize their prevalent mode of operation and extend it to networks. Efforts to assimilate networks to the hierarchical mode of operation and tie their agents directly to hierarchies will disrupt networks and atomize their agents. Jonathan Davies's empirical analysis suggests, for example, that even a benign intervention of authority 'to sustain network compliance with national political agendas… paradoxically, tends to undermine networking processes' (Davies, 2005, p. 331).

There is much empirical evidence that supports the aforementioned arguments. These tensions explain the overall stagnancy and lack of fundamental innovations in our society (see, for example, Ferguson, 2011). We seem to be incapable of resolving the major problems—economic, political, social, environmental and so on—that we as a civilization face today. By universal admission, there is a dire shortage of creative solutions in our society. Even major sciences display the corrosive effects of the disharmony that dominates our civilization. For example, there have been no major theoretical breakthroughs in physics since the creation of quantum mechanics in the 1930s (Shkliarevsky, 2013, p. 52). Also, we cannot produce a credible solution for our environmental or economic problems (Shkliarevsky, 2014).

The antagonistic relationship between networks and hierarchies laden with mutual suspicion and hostility is very visible in the politics of authoritarian states where efforts to suppress non-hierarchical civic networks are very common. However, even modern democracies are not immune to the deleterious effects of the separation of hierarchies from networks. They also have not solved this problem but merely ameliorated it. Although the relations between networks and hierarchies in democracies are certainly more flexible and tolerant than in authoritarian states, they are not balanced and are still fraught with conflict. Even in democracies, hierarchies view networks with apprehension, while networks view hierarchies with suspicion and distrust. A good illustration is the attitude towards politicians, political parties and the Washington establishment in general in the United States by broad segments of the American population and, conversely, a hostile attitude towards such broad horizontal movements as Occupy Wall Street by the authorities at various levels of government. Such adversarial, if not antagonistic, relationship is less evident when general conditions are favourable. However, when conditions deteriorate, the adversarial nature of the relations between networks and hierarchies come to the fore.

Tensions and conflicts between hierarchies and networks tend to erode democracy, as hierarchies try to suppress networks and networks try to displace hierarchies. The growing atmosphere of strife, hostility and distrust increases insecurity and the tendency towards the centralization of power. Hierarchies try to intensify their control over society, while networks try to disrupt this effort. The democratic form of government and freedoms begin to gradually lose ground to a more centralized and authoritarian forms of governance.

Indeed, one can observe this dynamics in the actual processes that have been taking place

around the world, including the democratic West, from the last decade of the 20th century and into this century. In his book *Democracy in Retreat*, Joshua Kurlantzick documents the worldwide erosion of the democratic form of government, and not just in the parts of the world that have had little experience with democracy, such as countries in Asia or East Central Europe, but also in countries like the United States or in Western Europe that have long been considered strongholds of democratic polity (Kurlantzick, 2013).

Finally, it is also worth noting that in this age of globalization, tensions between hierarchical and non-hierarchical interactions are not limited to individual countries. These tensions transcend national, territorial and even continental boundaries. They straddle many countries and continents. Conflicts between hierarchies and networks in one country or part of the world may effect the erosion of democracy a great distance away. For example, the rise of jihadist movements around the world has triggered the introduction of limitations on democratic freedoms and constraints on individual rights in the United States and other Western democracies.

RESTRUCTURING THE PUBLIC SPACE

There is a widely accepted view that in order to solve the problems faced by our civilization today, we need to do a fundamental restructuring of our public space, on both the national and the international scale. In fact, this view has been around for quite some time, at least since the 1970s. Following the oil crisis and the stagflation, there was a growing realization that the welfare state in the form that it existed was unsustainable and that the world order created at the end of WWII may have serious flaws. This realization created a momentum for restructuring our public space. In fact, neo-liberalism and neo-conservatism were the two broad political agendas in response to this realization.

The balancing of hierarchical and non-hierarchical interactions represents the general direction in the broad agenda for restructuring the public space. In fact, this idea lies at the heart of neo-liberalism as a political and economic programme.

Since Margaret Thatcher and Ronald Reagan launched and actively promoted the neo-liberal agenda, Western governments, and particularly the United States, as well as a host of major international organizations such as the World Trade Organization, the World Bank and the Organization for Economic Cooperation and Development have standardized and naturalized the neo-liberal repertoire of economic discourses and managerial practices (Davies, Gottsche and Bansel, 2006; Sheppard and Leitner, 2010).

Many critics have since disparaged neo-liberal economic policies, its social agenda and its environmental record. Many have also blamed it—as, for example, Kurlantzick has—for the retreat of democracy and the decline of freedom around the world. While one can agree with much in the critique of neo-liberalism, it is worth pointing out that this approach is actually quite ambiguous. It is frequently associated with the concentration of power in the hands of the elites, both economic and political. And, indeed, to a large extent, it is so. However, there is another dimension to neo-liberalism. In some very limited way, neo-liberalism reflects the awareness of the need to balance hierarchies and networks. It represents an attempt to combine the state, which is essentially a hierarchical structure, and the market—a non-hierarchical one. Unfortunately, the neo-liberal agenda does not go nearly far enough. It limits its scope of balancing only to top economic and managerial elites and excludes large segments of population involved in the process of production and exchange, including but not limited to workers, employees and even small and medium-size businesses. In the United States, the latter, for example, do not qualify for a generous support of the kind that has been received by economic giants, such as GM or Ford, as well as major mega-banks. Also, while the market certainly has a non-hierarchical structure, our managerial culture remains by and large hierarchical (Leavitt and Kaufman, 2003; Denning and Collins, 2011). The top economic and managerial elites essentially adhere to hierarchical principles, rather than to non-hierarchical ones associated with the market. For this reason, despite the intention of the framers of neo-liberalism, the merger of the state and 'the market' has not

resulted in the balancing of hierarchical and non-hierarchical interactions. Rather, it has strengthened the concentration of power and hierarchical principles in our society.

Besides neo-liberalism, there are several other comprehensive theoretical models for restructuring the public space. They all recognize the futility of changing one or several particular aspects of the public space but rather feel that the entire public space should be reorganized, including, but not limited to, our political system, economy, managerial practices, education, social and cultural life and so on. The views on the subject of restructuring the public space are very diverse and represent a broad range of opinions from those that envisage a total elimination of hierarchies (Bookchin, 1991; Rhodes and William, 1996; Denning, 2013) to ones that see hierarchies as essential in our society and well worth preserving (Joyner, 2012) to everything in between. Richard Mulgan, for example, advocates a pragmatic approach where he sees hierarchies essentially retaining their power but cooperating with networks when appropriate (Mulgan, 2003).

It is interesting that most of the models for restructuring emphasize non-hierarchical approaches. Of the several perspectives discussed in the article authored by Myra Ferree, William, Gamson, Jürgen Gerhards and Dieter Rucht, for example, only one—what the authors define as the representative liberal model—puts the emphasis on a hierarchical solution. The three other models that the article examines—the participatory liberal, the discursive and the constructivist model—are decidedly non-hierarchical (Ferree, Gamson, Gerhards and Rucht, 2002).

It is beyond the scope of this article to go into a discussion of these models in any great detail. The article by Ferree and her colleagues does this very well. However, one important observation is in order. Despite their very significant, sometimes even diametrical differences, these models have one common feature. They all regard hierarchical and non-hierarchical interactions as ontologically separate and even opposed to each other. Consequently, their proposed solutions are decidedly one-sided: they merely give preference to one type of interactions over another and subordinate one to the other. Also, an impartial observer cannot help noticing that even though each of these models tries to justify its own choices, these justifications, even when they are made, strike one as rather subjective in that they reflect preferences their proponents hold on largely partisan grounds that remain critically unexamined.

A growing number of scholars recognize that a genuine combination of hierarchical and non-hierarchical interactions should be the basis for the reconstruction of the public space. One popular trend is the so-called hybrid solutions, that is, solutions that still see hierarchical and non-hierarchical interactions as ontologically separate but seek some format in which cooperation can be possible. These solutions are largely eclectic and do not achieve a real integration (Fawcett, Manwaring and Marsh, 2011; Kotter, 2011; Ebers and Oerlemans, 2013; Uhl-Bien et al, 2007).

John Kotter, the chief innovation officer at Kotter International and a professor emeritus of the Harvard Business School, typifies this approach. In his view, hierarchies and networks are two separate structures that excel at what they do best. Hierarchies are very good at optimizing the work of enterprises. Kotter recognizes that hierarchies are capable of effecting small and medium-sized changes but not large-scale transformations. He opines:

> But I am referring to something far bigger: large-scale organizational change, such as a company redesigning its entire business model, or accomplishing its most important strategic objectives of the decade, or changing its portfolio of product offerings. *And there is no evidence to suggest that the Hierarchy allows for such changes, let alone that it effectively facilitates them* (Kotter, 2011; emphasis added).

In Kotter's view, the future lies in the coexistence of the two structures in one business organization. In his own words:

> *All of this has led me to believe that the successful organization of the future will have two organizational structures: a Hierarchy, and a more teaming, egalitarian, and adaptive Network. Both are designed and purposive.* While the Hierarchy is as important as it has always been for optimizing work, the Network is where big change

happens. It allows a company to more easily spot big opportunities and then change itself to grab them (Kotter, 2011; emphasis added).

Hybrid solutions provide a rich plethora of interesting ideas regarding possible mechanisms of interactions between hierarchies and networks. However, as all eclectic solutions, they are not theoretically grounded and tend to have internal contradictions. Nothing illustrates this shortcoming better than the discussion of such a critical subject as the relationship between leaders/managers and networks/employees. Opinions on this point vary widely, from a more activist role of leaders/ managers as enablers (Plowman, Solansky, Beck, Baker, Kulkarni and Villarreal, 2007) to a weaker role as that of regulators and filterers of external information (Van Olffen and Romme, 1995), to an even a weaker role as facilitators of critical discourse and enhancers of local activity among network agents (Raelin, 2011; Roelofs, 2009). Some even believe that the desired goal can be achieved without structural changes by merely modifying the rationale for the role of hierarchies and by educating managers in the values and merits of organizational democracy. Martin Clarke and David Butcher, for example, see education and the principle of voluntarism they borrow from political philosophy as vehicles for reconciling hierarchies and networks in organizational structures (Clarke and Butcher, 2006).

There is no doubt that the literature on hybrids certainly deserves serious attention. It addresses many aspects of what is obviously a very complex and comprehensive problem. Many of its ideas are undoubtedly very useful. But even all together, they hardly measure up to the magnitude of the task, which leaves quite a few researchers dissatisfied and vying for a comprehensive solution. In their essay *Simplistic vs. Complex Organization*: *Markets, Hierarchies, and Networks in an Organizational Triangle*, Wolfram Elsner, Gero Hocker and Henning Schwardt make an argument for just such a comprehensive solution. In their view, '… pure market and hierarchy, including their potential formal hybrids, are an empirically void set'. Rather, real world 'coordination forms', they argue, 'have to be conceptualized in a fundamentally different way. A relevant organizational space must reflect the dimensions of a complex world' (Elsner, Hocker and Schwardt, 2009).

In making their appeal to complexity of the real world, Elsner, Hocker and Schwardt (2009) suggest that the division between hierarchical and non-hierarchical interactions is not real, it is merely conceptual; that in reality, the two types of interactions are closely entangled with each other, even though they fail to explain the nature of this entanglement. Numerous other researchers support the approach that centres on the entanglement of hierarchical and non-hierarchical interactions and the complexity of their relationship. Antoine Danchin points to the ubiquity of networks and hierarchies in nature and their complementary relationship (Danchin, 1989). Joan Roelofs challenges the simplistic view of networks as spontaneously resistant to hierarchies and naturally prone to democracy. As she maintains,

> …some participants in network governance are vastly more powerful than others. As for 'civil society' organizations, support from corporate or private foundations is essential to almost all civil rights, social justice or environmental organizations that wish to be viable and visible; the funders exert control in many ways (Roelofs, 2009, p. 990).

Donna Chollett challenges the view of many horizontalists who assert the intrinsic virtuousness of grassroots social movements and their natural inclination towards democracy. She shows that networks develop their own hierarchies and forms of inequality (Chollett, 2011). Woody van Olffen and George Romme discuss the role of hierarchies in networks and point towards their complementary relations (Van Olffen and Romme, 1995). Stanley Salthe stresses the spontaneous capacity of networks to generate hierarchies (Salthe, 2004). Alice Marwick reveals how media networks have forfeited their early promise of equality and have served as a breeding ground for new elites and dominant media personalities (Marwick, 2014).

In his insightful article on theoretical approaches to global economic regulation, Lawrence Tshuma makes an astute observation about the network properties of economic hierarchical bureaucracies that is worth quoting at length:

Rethinking Democracy

The economic bureaucracies are effective because their autonomy is embedded in business networks that provide institutionalized channels for continual negotiation and renegotiation of economic goals and policies (Castells, 1996, p. 173; Evans, 1995, p. 12). The important point is that the relative autonomy of the economic bureaucracy from the sectors it regulates gives it scope to set and implement economic goals. The economic bureaucracy and the individuals within it are, however, *nodes within business networks* [emphasis added]. The possession and exercise of sovereign power gives the economic bureaucracy power to co-ordinate and regulate activities requiring collective action, which are beneficial to capital as a whole but would not be within the profit interest of individual corporations. *It can be argued, therefore, that the networks linking economic bureaucracies and the business sectors they regulate provide a network mode of regulation* [emphasis added] (Tshuma, 2000, p. 131).

Tshuma cautions against 'applying bipolar concepts to the analysis of social relations', thus taking 'a risk of imposing conceptual abstractions on dynamic and complex social relations and historical realities'. He points to the experience in, among others, Asian developmental states that shows that 'bureaucracies and networks are not mutually exclusive'. Comparative research on the Asian development, he adds, 'has identified the existence of a meritocratic and efficient economic bureaucracy along Weberian lines as critical to the unprecedented industrial transformation and economic development in Japan, Taiwan and Korea. Contrary to Weber's arguments, their effectiveness does not depend on their insulation from business' (Tshuma, 2000, p. 131).

The suggestion made by Philip Agre summarizes well the spirit, if not in all details the letter, of the inputs by the aforementioned scholars. In his insightful essay on Herbert Simon's contribution to systems theory, Agre writes:

My suggestion, then, is *that phenomena of hierarchy and self-organization are not mutually exclusive, and that neither one is necessarily destined to win a world-historical battle against the other*. Although they are analytically distinct and should not be conflated, they nonetheless coexist, in both ideology and in reality, and they are likely to continue coexisting in the future. From this perspective, the models of *Simon and the general systems theorists—all hierarchy or all self-organization—are models of simplicity, not of complexity. Real complexity begins with the shifting relations between the two sides* (Agre, 2003; emphasis added).

This article makes a very similar, albeit in a much stronger form, argument derived primarily from the general model of systemic evolution. It also advocates a balance between hierarchical and non-hierarchical interactions as a solution to many developmental problems in our society, including the current global political unrest. As it has stressed, the balance between hierarchical and non-hierarchical interactions is a very common characteristic of systems in nature. Human society is a product of the general process of the evolution of reality. Given the ubiquity of the balance between hierarchical and non-hierarchical interactions in other systems in nature, there is no reason to believe that this balance cannot be attained in human systems and our civilization as a whole. On the contrary, we have every reason to believe that this problem is in principle resolvable.

As has been also argued earlier, the two types of interactions appear separate and in opposition to each other only if the process of construction is not included into one's frame of vision. It follows from this argument that the first important condition for reconciling the two types of interactions is to recognize the process of construction and to include it into our frame of vision. The recognition of the centrality of the process of construction in our description of reality will help us grasp the importance of the balance between the hierarchical and non-hierarchical interactions and start developing specific mechanisms that will realize and help maintain this balance.

The second important condition is that the process of construction should become the main focus of our activity. As things stand now, when we exclude the process of construction from our frame of vision, we focus entirely on the product

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of this process, which makes the process of evolution and the generation of new ideas more difficult, less efficient and often wasteful. By focusing on the process of construction, this major obstacle to its evolution will be removed. We will no longer absolutize the specific products of this process. Indeed, the process of construction and its uninterrupted evolution will become our main product by which we will judge our productivity.

As has been argued earlier, the hierarchical and non-hierarchical interactions must be in balance in human systems, as they are in other systems in nature. However, this theoretical argument raises an important issue that has been raised earlier in this article: What will be the actual relationship between hierarchies and networks—the real, not abstract networks and hierarchies? What should be the role of leaders/mangers? How will they relate to networks and their agents? What will, for example, managers/leaders do?

This article has cited several recommended approaches ranging from retaining the current role of hierarchies, merely ameliorated via educational enlightenment and modified moral values, to several weak versions of indirect guidance, to a complete elimination of hierarchies and a total reliance on network self-governance. While many of these recommendations may serve as a source of valuable ideas, their main problem, as this article has argued, is that they continue to view hierarchies and networks as ontologically separate and in stark contrast to each other. As has been argued earlier, both hierarchical and non-hierarchical interactions are integral to the process of construction. Their separation is purely analytical and has no basis in nature.

In defining the role of leaders/managers vis-à-vis networks, we should keep this understanding in mind as our guidance. Leaders and managers are not fortuitous and arbitrary phenomena in our civilization. They are not product of some tragic aberration in human evolution, as many horizontalists argue. They are a product of this evolution and its capacity for constructing increasingly more powerful levels of organization. The position of leaders and mangers is equivalent to the more powerful levels of organization of reality that systems construct in the course of their evolution. Hence, their

role should conform to the functions of regulatory operations in natural systems.

As has been indicated earlier, the principal function of regulation is reflective. In other words, it is capable of detaching from and reflecting on the entire system and all the interactions among its subsystems. Because of their location in the liminal space between the system and its environment, leaders and managers are in the position to reflect critically (that is, observing also oneself as a part of the system)[9] on all interactions among all the network agents and subsystems that can, by virtue of their position, reflect only on local interactions. As such, general reflective agents, leaders and managers are in the position to perceive new and more powerful levels of organization created by network interactions, as well as recognize, promote and facilitate the consolidation of these new levels of organization. Their role in this capacity has nothing to do with command and control, that is, transmitting decisions from above to those below and overseeing their implementation. On the contrary, their role is very creative. They should possess sufficient acumen to be able to perceive novelties emerging as a result of interactions among network agents. As Piaget has argued, in order to perceive something, one should already have this something already constructed in one's mind. In order to perceive the emerging novelty in the interactions among agents, leaders/managers should be intimately familiar with these interactions. They should also use their ingenuity for conserving these new levels and forms of organization. They should be able to appreciate the enormous creative power of these interactions and be closely attuned their variations. Because they rely, or supervene, so much in what they do on these interactions, they should promote, regulate and facilitate them, not obstruct and disrupt them by trying to assimilate agents to the exclusively hierarchical mode of operation, as is currently often the case. It is a sensitive, delicate and highly creative role. One can hardly characterize this function as command–control or the imposition of one's own or somebody else's will and orders. Rather, it requires a capacity for close and sensitive cooperation and adaptation.

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[9] More on this in Shkliarevsky, 2007.

Leaders/managers should not see their role as that of ultimate arbiters whose word comes last and is decisive—far from it. The notion of leader as the ultimate arbiter without whom there will be chaos and instability is due to a fundamental flaw in the current view of reality that excludes the process of construction from its frame of vision. In this perspective, there are no clear and rational validity criteria that can help make an informed and objective selection of the best choice possible. As has been argued elsewhere, this approach largely relies on subjective choices of those at the top of the hierarchy.[10] Without objective and rational criteria of validation, all decisions are subjective and all of them are equal. However, recognizing all decisions as equal is likely to lead to chaos and instability, and nobody wants to argue for disorder. As a result, the common default is to defer to the decision of those who are the highest in the hierarchy of power because even a bad decision that preserves order is deemed better than chaos and instability. How many times have people ultimately paid the price for limitations of their leaders?

Decision-making is an essential part in the functioning of any human system—be it enterprise, organization, political party or entire civilization. The successful evolution of human systems vitally depends on mechanisms and procedures of rational decision-making based on the most powerful levels of knowledge available. The perspective that incorporates the process of construction can make such a system a reality. It offers an approach towards validating knowledge and making decisions that is non-exclusive and, at the same time, non-relativistic.

The systems community has done a great deal of work in developing comprehensive approaches towards validating knowledge. Much of this work relies on theoretical contributions of C. West Churchman. In his seminal work *The Design of Inquiring* (1971), Churchman describes the evolution of knowledge production in terms of progressively more powerful inquiring systems where each system at the next level of complexity integrates the systems that precede it. He provides an example of five inquiring systems identified by a particular type of inquirer—Leibnizian, Lockean, Kantian, Hegelian and Singerian—that are most emblematic of the system. Together, they represent a series of progressively more powerful systemic organizations where each subsequent system incorporates the most essential features of the preceding systems. Thus, the Kantian inquiring system incorporates the formal and logical internally orientated approach of the Leibnizian inquirer with the openness and empirical orientations towards external inputs of the Lockean inquirer. The Hegelian system adds dialectics to the Kantian approach with the Singerian system following in its steps but adding specific methodologies of overcoming disagreements and inconsistencies, such as measurements, sweep-in and challenging knowledge (Churchman, 1971, pp. 79–209, *passim*). The graphic representation in the preceding text illustrates the relationship between Churchman's cascading inquiring systems.

Since Churchman, assessment and validation of knowledge has been an essential part of the research agenda pursued by the systems community. Numerous remarkable contributions to this area of study are a source of insightful theoretical perspectives and practical approaches (see, for example, Williams and Imam, 2006). Even a cursory examination and assessment of what has been done in this area will require a separate study dedicated to this important topic. Despite differences and even disagreements, these contributions provide the general contours of what one might define as the systems perspective on knowledge validation. They advocate an open, inclusive and value-oriented approach (Midgley 2006). They pay a great deal of attention to dialogue as the principle venue for knowledge creation. The theory of Structured Dialogue Design Process advocated by Alexander Christakis, Ken Bausch, Thomas Flanagan, Vigdor Schreibman and others offers many theoretical insights and practical methodologies aimed at facilitating knowledge production by primary agents (Christakis and Bausch, 2006; Bausch, n.d.; Schreibman and Christakis, n.d.; Flanagan, 2008; Cisneros and Hisijara, 2011; Bausch et al., 2012; Christakis and Laoris, 2014;).

As has been indicated earlier, the combinatorial power is what distinguishes one level of

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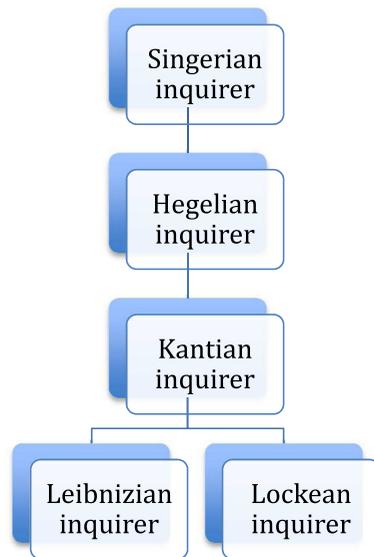[10] More on this in Shkliarevsky, 2013.

Figure 1 Churchman's nested inquiring systems (adapted from Parrish and Courtney, 2009)

organization of reality from another. Therefore, we can use combinatorial power—or in other words, inclusiveness—as one important criterion for validating knowledge. The more inclusive a decision, an approach or a theory is, the greater is its combinatorial capacity, and therefore, the greater is its validity.

As one can see from Figure 1, Churchman regards knowledge production as ultimately inclusive. Weaker levels of organization are not discarded as new and more powerful levels emerge. On the contrary, they are conserved and become particular cases of the more powerful, more comprehensive and more inclusive levels of organization.

Legitimate disagreements should not trigger power struggle where one perspective seeks to de-legitimate and obliterate another. Rather, they should motivate a search for another, more inclusive and even orthogonal perspective that would dissolve dissonances into a new harmony. Such approach stands in stark contrast to the dominant current practice of knowledge production and decision-making that tends to be exclusive. Hierarchies seek control over knowledge production and decision-making and silence alternatives. Control over funding, exposure, publishing, appointments and simply brute force provides

ample opportunities to enforce orthodoxy. More often than not, knowledge production turns into an exercise of power.

We can no longer afford a system of validation that depends on conformity and access to power. An efficient, democratic and open system of knowledge production and decision-making should be based on a better understanding of what constitutes knowledge and how it is produced. Such system requires the institutionalization of more open, inclusive, democratic and, ultimately, more rational practices in validating knowledge and allocating resources. As has been stated earlier, the more inclusive a knowledge system is and the more extensive is its combinatorial capacity, the more powerful it is. Inclusiveness and power (in the Gödelean sense), not conformity to dominant trends, should be the most important criteria in assessing knowledge.

Critical awareness and introspection should be another important criterion. We often pay lip service to critical judgement and just as often forget that critical judgement concerns, first and foremost, our capacity to examine critically our own premises, organizing principles and self-evident truths. We should exercise a conscious and deliberate control over our own 'truths' and unconscious biases rather than allow old and tired ideas that hinder knowledge production to dominate. Critical awareness is essential for the efficiency of knowledge production.[11]

Decisions we make—be they about running our enterprises, organizations or governments—should always be guided by one and only one consideration: the construction of new and more powerful levels and forms of organization of reality. Our decisions cannot be based on power derived from the authority of a hierarchy. Such an approach is hardly rational. There is only one source of power for us humans and that is the new and more powerful ways in which we organize reality. The organization of human systems, including our civilization, the structuring of our public space should reflect this understanding.

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[11] A fuller discussion of knowledge production is in 'Science and its Discontents' (Shkliarevsky, 2013).

CONCLUSION

As this paper has argued, the hostility towards the dominant hierarchies is what to a very significant degree drives the current political unrest. It has also argued that the root cause of the antagonism between the hierarchies and the protest movements lies primarily in the way we perceive reality, rather than the way this reality actually is. More specifically, the perspectives that dominate our civilization do not incorporate the process of construction into their frame of vision. Because the process of construction is excluded, reality appears to us in the form of binaries divided by an unbridgeable gap and in a stark and irreconcilable opposition to each other. The perception of the relationship between hierarchical and non-hierarchical interactions conforms to this pattern. They appear to our consciousness as ontologically divided and radically opposed to each other.

Our perceptions powerfully affect the way we act and live our lives. They shape our interpretations of reality that in turn affect our behavior. As a result, the construction of our public space, our political systems, our economic organizations and social institutions embodies this division and thus creates tensions. These tensions adversely affect our civilization and its institutions, making them less efficient in constructing new and more powerful levels of organization. This condition of division hinders the continued evolution of our civilization and creates significant problems in sustaining it.

The contemporary state of our civilization is not rooted in some alleged fallibility of human nature or in endemic conditions of our existence. They are entirely man-made and, as such, are subject to our control and correction. For the sake of the future of our civilization, we must address the problems, discussed in this article, that shape the global unrest, causing much damage and human suffering. We must restructure our public space and reshape our economic, political and social institutions so as to remove those detrimental factors that hamper our continued evolution. There is an enormous and largely untapped potential in enhancing representation, accountability and sustainability by re-framing our current approaches to democracy and public space.[12] The sustainability of our civilization is beyond the capacity of even the most powerful nation states. It requires a restructuring and democratization of our international relations (Archibugi and Held, 2011; Archibugi, 2012). As Ann Florini argues, we should construct transnational democracy on the principles of transparency, accountability and free flow of information (Florini, 1998, 2002, 2008). Systems approach will play a crucial role in this regard (see, for example, Sheffield, 2009). Only critical and systemic policy-making can accomplish this task.

The current global unrest shows no signs of abatement. On the contrary, it continues to grow and threatens to engulf the entire world. And it is only one problem in the complex puzzle of problems that we as a civilization face. Old and tired verities do not help us in finding solutions; on the contrary, they make our current problems only worse. The problems we face will require new and creative approaches. If there is a lesson to be learned from our current crisis situation, it is that we can only sustain our civilization by embracing more fully the source of our power—our infinite creative capacity for constructing new and ever more powerful levels and forms organization of reality.

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[12] This point is a free paraphrase from the report by one of the anonymous readers of this article.

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