A World in Flux

Many factors and dynamics to consider
- porosity of borders and mobility of people and things
- interdependence and globalization; fragmentation and tribalization
- power diffusion: erosion of sovereignty, rise of nonstate actors
- new identities, loyalties, and "virtual communities"
- information revolution and democracy revolution
- turbulence, chaos, and complexity

Our theoretical perspective—a two-part argument:
1. The network form is on the rise in a big way
2. Because of this, societies are entering a new epoch

Why is netwar likely? Looking for answers, we have examined diverse literatures on network theory, information theory, the evolution of societal complexity, and on trends in global political, security, and military affairs.

Numerous recent writings—pick your favorite social scientists, futurists, philosophers, and commentators—attest that the world is in flux, and that myriad factors and dynamics should be considered by anyone who would make sense of current trends, possibilities, and uncertainties. This chart indicates, in no particular order, some points that have received attention:

- The increasing porosity of borders and the mobility of people and things.
- The phenomena of interdependence and globalization, but also of fragmentation and tribalization.
The diffusion of power; related to that, the erosion of traditional concepts of sovereignty; and the rise of new state and nonstate actors.

• The rise of new identities, loyalties, and “virtual communities” that are not national in nature.

• The information revolution and the democracy revolution.

• The disturbing dynamics of turbulence, chaos, and complexity.

We are familiar with writings on these topics, and our views have benefited from them. Our perspective, fully elaborated, encompasses the points listed above.

Our perspective, a two-part theoretical argument, serves to explain the advent of netwar:

1. As indicated by our introductory points, the first part of our argument is that the network form of organization is on the rise, deeply affecting all realms of society. The next section elaborates on why and where the network form is on the rise and how it is likely to affect societies.

2. Because of the rise of the network form, societies are entering a new epoch of reorganization. According to our framework, four forms—the tribal, institutional, market, and network forms—underlie the organization and evolution of all societies. The network form is only the most recent to mature. Societies advance by learning to use and combine these four forms in a progression that gives rise to epochal shifts in the nature of both conflict and cooperation.

As we unfold these arguments, we identify implications for future conflict and prepare to discuss the various forms of netwar in a later chapter.
THE RISE OF NETWORK FORMS OF ORGANIZATION

Anthropologists and sociologists have studied social networks for many decades. According to the most established school of thinking, basically all social organizations—families, groups, elites, institutions, markets, etc.—are embedded in networks of social relations (Granovetter, 1985; Nohria and Eccles, 1992). For this school, the network is more the “mother of all forms” than a specific type of complex organization.

Prior to the 1990s, scholarly writings occasionally appeared that treated the network as a specific, deliberate, even formal organizational design (e.g., Hecksel, 1978; Perrow, 1979; Chisholm, 1989; also Gerlach and Hine, 1970; Gerlach, 1987). But such efforts were more the exception than the rule, and some occurred on the margins of the social sciences, including the illuminating work by Gerlach and Hine on SPINs that we quoted earlier.

Lately, and largely as a result of research by economic sociologists who study innovative corporate designs (notably Powell, 1990; and Powell and Smith-Doerr, 1994), a new school of thinking about networks is beginning to cohere. It looks beyond informal social networks to see that formal organizational networks are gaining strength as a distinct design—distinct in particular from the “hierarchies and markets” that organizational economists and economic sociologists normally emphasize:

[T]he familiar market-hierarchy continuum does not do justice to the notion of network forms of organization. . . . [S]uch an arrangement is neither a market transaction nor a hierarchical governance structure, but a separate, different mode of exchange, one with its own logic, a network (Powell, 1990, pp. 296, 301).
This new school of analysis and the numerous examples and case studies it affords serve to validate our point that network forms of organization are on the rise and becoming more viable than ever. But the new school is mostly about economic organization. And clear, precise definitions are still lacking as to what is and is not a network.

As discussed in some detail in a later chapter, distinctions may be made among what are termed “chain,” “star” or “hub,” and “all-channel” types of networks. In this chapter, we focus on the all-channel type, in which all members are connected to each other and do not have to go through other members (as in a chain or hub design) to communicate and coordinate with each other.
Why Network Forms of Organization Are on the Rise—and Where

- Networks were once deemed an inferior way to organize, partly because they require dense communications
- New technologies finally provide this
- Thus, rise of network form is tied to the worldwide information revolution
- Development is in early stages, gaining impetus, and affecting actors in all realms
  - state actors: e.g., rise of inter-agency mechanisms
  - market actors: e.g., rise of web-like global enterprises
  - civil-society actors: e.g., rise of issue-related networks

Despite the claims of some anthropologists and sociologists about the significance of the social networks they study for all manner of personal and institutional behaviors, the network as a formal organizational design has generally had poor standing among many economists and theorists (e.g., Williamson, 1975). Networks have long been deemed inefficient and inferior as a form of organization, especially compared with hierarchies and markets. Among other things, networks were said to require too much back-and-forth, to require "high bandwidth" communication among all members, to take too long to reach decisions, and to be too vulnerable to free riders.

Indeed, all-channel networks do require rapid, dense, multidirectional communications to function well and endure—more so than do other forms of organization. The past limitations of this form of organization are closely tied to information and communications factors.

The new technologies—e.g., advanced telephone, fax, e-mail, computer billboard, and conferencing systems, supported by fiber-optic cable and satellite systems—finally provide the level of connectivity and bandwidth that favors all-channel organizational designs. Today, diverse, dispersed, autonomous actors are able to consult, coordinate, and act jointly across great distances on the basis of more, better, and faster information than ever before. The rise of the network form thus reflects, and is tied to, the information revolution.

The rise of network forms of organization is at an early stage, still gaining impetus. It may be decades before this trend reaches maturity. But it is already affecting all major realms of society. In the realm of the state, it is facilitating the development of interagency mechanisms for addressing complex policy issues that cut across jurisdictional boundaries. In the realm of the market, it has been facilitating the growth of
keiretsus and other distributed, web-like global enterprises (and so-called “virtual corporations”). Indeed, volumes are being written about the benefits of network designs for business corporations and market operations—to the point that casual (and some not-so-casual) observers might presume that this is the realm most affected and benefited.

Yet, actors in the realm of civil society may be the main beneficiaries. The trend is increasingly prominent in this realm, where issue-oriented multiorganizational networks continue to multiply among activists and interest groups across the political spectrum. Over the long run (as discussed in the next section), civil society is likely to be strengthened more than the other realms, in both absolute and relative terms.
Civil and Uncivil Society Actors Are Major Beneficiaries

- Civil—and uncivil—society long characterized by small, scattered, isolated groups
- New designs and technologies now enable them to connect and coordinate as never before
- NGOs, TCOs, [T]ROs* are building transnational webs

* NGOs (nongovernmental organizations), TCOs (transnational criminal organizations), [T]ROs ([transnational] revolutionary organizations)

What is meant by “civil society”—never a clear term—continues to evolve. Classic views, starting centuries ago, have emphasized “associations” that mediate between state and society within a nation: e.g., churches, schools, labor unions, businesses, political parties, and other voluntary groups, interest groups, professional organizations, etc. Recent views, beginning a few decades ago, do not reject the classic views but emphasize “new social movements”—such as environmental, human-rights, peace, and other movements—that are increasingly transnational in scope. Two rising indicators—listings in the International Directory of Non-Governmental Organizations (published since the 1970s), and subscribers to the computer networks affiliated with the Association for Progressive Communications (APC, the favored network of networks for activists since its formation in 1989)—speak to the rising importance of nongovernmental organizations (NGOs) for policy issues around the world, and the relationship between the NGOs’ rise and the information revolution.

Even where civil society has been strong—as in the liberal democracies of Western Europe and North America—it has long been characterized by groups that often had to work in isolation or in fleeting coalitions and that, as a result, were weaker than state and market actors. Now, however, the new information technologies and related organizational innovations increasingly enable civil-society actors to reduce their isolation, build far-flung networks within and across national boundaries, and connect and coordinate for collective action as never before. As this trend deepens and spreads, it will strengthen the power of civil-society actors relative to state and market actors around the globe (Frederick, 1993; Ronfeldt, 1993).

For years, a cutting edge of this trend could be found among left-leaning activist NGOs concerned with human-rights, environmental, peace, and other social issues at local, national, and global levels. Many of these rely on APC affiliates for commu-
nizations and aim to construct a "global civil society" strong enough to counter the roles of state and market actors. In addition, the trend is spreading across the political spectrum. Activists on the right—from moderately conservative religious groups, to militant antiabortion groups—are also building national and transnational networks based in part on the use of new communications systems.

Not only civil society but also "uncivil society" is benefiting from the rise of network forms of organization. Uncivil actors—like criminal gangs and terrorist groups—once operated pretty much in isolation from each other. Now, transnational criminal organizations (TCOs) are taking shape (Williams, 1994, 1995). What might be termed transnational revolutionary organizations (TROs) are also emerging on the political left (e.g., Hamas) and the right (e.g., among white supremacy groups). All are building global networks as "force multipliers," and using all manner of new communications technologies to do so.

This trend—the rise of network forms of organization—is still at an early stage, but it is already a very important topic for theoretical research and policy analysis. New and interesting work can be done just by focusing on this trend. At the same time, the trend is so strong that, projected into the future, it augurs transformations in how societies are organized—if not societies as a whole, then at least key parts of their governments, economies, and especially their civil societies.

The trend thus raises questions not only about the significance of the network form itself, but also relative to other forms of organization. The rise of the network form should be analyzed partly in terms of how it is interwoven with, and related to, other basic forms of societal organization. But what are those other forms?
THE EVOLUTION OF SOCIETIES

The more we study the rise of network forms of organization, the more we think it means that societies are entering a new epoch of organization and transformation—and the more we wonder what other forms undergird the organization of societies and the nature of their actors. This takes us to the second part of our theoretical perspective.

What other forms account for the organization of societies? How have people organized their societies across the ages? The answer, in our view, may be reduced to four basic forms of organization:

- The kinship-based tribe, as denoted by the structure of extended families and clan and other lineage systems.
- The hierarchical institution, as exemplified by the army, the (Catholic) church, and ultimately the state.
- The competitive-exchange market, as exemplified by merchants and traders responding to forces of supply and demand.
- The collaborative network, as found today in the ties among some NGOs devoted to social advocacy.

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1Much of the text in this and the preceding section is also used in Ronfeldt (1996); earlier versions appear in Ronfeldt (1993) and Ronfeldt and Thorup (1996).
Each form, writ large, ultimately represents a distinctive system of beliefs, structures, and dynamics about how a society should be organized—about who can achieve what, why, and how.

Incipient versions of all four forms were present in ancient times. But as deliberate, formal organizational designs with philosophical portent, each has gained strength at a different rate and matured in a different historical epoch over the past 5000 years. Tribes were first, hierarchical institutions came second, and competitive markets later. Collaborative networks of the type discussed above appear to be next.²

The rise of each form is briefly discussed next, as prelude to assembling the four in a framework—currently called the "TIMN framework"—about the long-range evolution of societies.

²Class, which many social scientists regard as a basic form of organization, is, in this framework, not a basic form, but a result of interactions among and experiences with the four basic forms.
The Tribal Form

- Rise: neolithic era
- Structure: kinship—from blood to brotherhood
- Purposes: identity, belonging and survival
- Strength: basic culture
- Weaknesses: power and administration

Later manifestations: dynasties, old-boy networks, mafias, ethnonationalists, urban gangs, diaspora

The first major form to define the organization of societies is the tribe, which began to emerge in the Neolithic era some 5000 years ago. Its key organizing principle is kinship—initially of blood, and later also of brotherhood. Its key purpose (or function) is to render a sense of social identity and belonging, thereby strengthening a people’s ability to unite and survive. The maturation of this form serves to define a society’s basic culture, including its ethnic, linguistic, and civic traditions. Indeed, what happens at this level of organization has remained a basis of cultural traits well into modern periods; it also lays the basis for nationalism.

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 it is “acephalous” or headless—classic tribes do not have strong, central chiefs. (The “chiefdom” is a transitional phase between tribes and early states.)

A society cannot advance far (at least not in developmental terms) with a tribal organization. It is vulnerable to clan feuds and resource scarcities, and tends to alternate between “fusion” (where clans intermarry and absorb outsiders) and “fission” (where a part hives off and goes its own way). 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. And that takes us to the next form to evolve: the hierarchical institution.

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3Studies consulted include Evans-Pritchard (1940), Fried (1967), Johnson and Earle (1987), Sahlins (1968), and Service (1971).
But as we move to discuss that and later forms, the point should be kept in mind that tribe-like patterns, which once dominated the organization of societies, remain an essential basis of identity and solidarity as societies become more complex and add state, market, and other structures. This is true for societies as diverse as China, where extended family structures constantly affect all manner of political, economic, and other relations, and the United States, whose emphasis on the nuclear family and immigration from all areas of the world has resulted in an unusually loose social fabric, in which societal “kinship” often depends more on a sense of brotherhood than blood, as seen in fraternal associations.

People in many parts of the world remain—even prefer to remain—at this “stage” of development and have not effectively adopted the institutional or other forms of organization discussed below. Some of the worst ethnic conflicts today involve peoples who have lost their central institutions and reverted to ferocious neo-tribal behaviors (e.g., in the Balkans), or who fight to retain their traditional clan systems and resist the imposition of outside state and market structures (e.g., in Chechnya, Chiapas, and Somalia). Some dictatorships that seem to rest on a strong state are really grounded on a particular predominant clan (e.g., in Iraq). In the United States, urban gangs like the “Bloods” and the “Crips” in the Los Angeles area represent a recurrence to clannish brotherhoods by youths who lack strong nuclear family ties and do not see a future for themselves in the state, market, or other structures around them.

Yet, however much a set of people may enjoy the sense of solidarity and community that a tribal life-style can provide, no society or segment of society can make much progress in modern terms solely on the basis of this form.
The Institutional Form

- **Rise:** Roman Empire, Papacy, Absolutism
- **Structure:** hierarchy
- **Purposes:** power, administration, and conquest
- **Strength:** the state
- **Weakness:** economic transactions

Later manifestations: multidivisional corporations

The second form to develop is the hierarchical institution. Its early high points are the ancient empires—notably the Roman Empire—and later the absolutist states where all of society was supposed to assume its place under a top-down hierarchy. A major result of this form’s development is the state, which overwhelms the tribal design. The works of philosophers such as Thomas Aquinas and Jean Bodin and modern theorists such as Max Weber exemplify the concern with institutional order. Government and corporate organization charts depict what institutional systems look like.

As seen in traditional institutions such as the army, the monarchy, and the Catholic church, the essential principle behind this form is hierarchy. It enables a society, or a sector of it, to address problems of power, authority, and administration, and advance by having a center for decision, control, and coordination that is absent in the classic tribe. The hierarchical form excels at activities like building armies, organizing large economic tasks, dispensing titles and privileges, enforcing laws, ensuring successions, imposing religions, and running imperial enterprises—all activities at which the tribal form was lacking.

Hierarchical institutions are typically centralized and built around chains of command; bureaucratization occurs as they become more elaborate and technically oriented. Partly borrowing from the tribal culture, this form thrives on ritual, ceremony, honor, and duty, especially where aristocratic dynasties take hold. Yet, this form involves a new rationality. As Weber spelled out, the development of legitimate, authoritative institutions to rule a society involves, among other things, administrative

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4Studies consulted include Claessen and Skalnik (1978), Cohen and Service (1978), Poggi (1978), Service (1975), and Tainter (1988).
specialization and differentiation, professionalization of office cadres, the replacement of ascriptive by achievement criteria, and the development of sanctioned instruments of coercion that spell an end to the egalitarianism of the tribal form. Rulers claim sovereign rights to build empires and nation-states.

War and religion proved great rationalizers of hierarchy. For example, in Europe, following the collapse of the Roman Empire, the Catholic Church became the most powerful hierarchy, while under various monarchies the army (or armies) developed as the core agency of the future nation-state. As the two hierarchies—church and state—vied to dominate all manner of political, economic, social, and other affairs, they came into conflict. By the seventeenth century, the state had pushed the church aside, and the nation-state became the dominant actor in Europe—a trend that culminated in the Treaty of Westphalia ending the Thirty Years’ War.

Eventually, new concepts of citizenship and individual rights emerged to challenge the regimes of feudalism and absolutism. Additional concepts also arose about the separation and balancing of powers, federation and confederation, elections, and the rule of law, all leading to a loosening of hierarchical designs and the emergence of liberal democratic institutions. Nonetheless, the basic patterns of hierarchy persist into the modern era, whether a society and its institutions come to be called democratic or autocratic, individualist or collectivist, or by other names.

Two points bear emphasis to conclude this sketch. First, history speaks to the impossibility for a single hierarchy to rule an increasingly complex society and all its political, economic, and other affairs indefinitely. But rival hierarchies—for example, church and state—may coexist, if they define bounded realms and stay out of each other’s terrain.

Second, the hierarchical design proves to have a key limitation—it cannot process complex exchanges and information flows very well. This shows up most in the area of economic transactions, which become too complex for monarchical and their bureaucracies to control in detail. They have ever greater difficulty dictating terms and prices in a productive and acceptable manner. This proves particularly the case with long-distance trade; as it grows, traders and merchants who had operated at the behest of the state work to break free of autocratic controls and go independent. Thus, the institutional paradigm of governance begins to fail in the economic realm, and gives way to the rise of the next form: the market.
### The Market Form

- **Rise:** 17th–18th century Europe  
- **Structure:** competition  
- **Purposes:** commerce and investment  
- **Strengths:** industrial economy and global trade  
- **Weakness:** social equity

Later manifestations: political democracy as a result of feedback into government and politics

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That takes us to the third major form to mature: the competitive market.\(^5\) There were marketplaces in ancient times (e.g., the Greek *agora*), but “the market” as a philosophical and organizational concept does not arise until the eighteenth century and the eve of the industrial revolution, when the writings of Scotland’s Adam Smith and the French *Physiocrats* explain that a market economy will function as a self-regulating system if left alone by the state (as well as by big business monopolies). Then we see a transition in Europe from mercantilism, where the state tries to dominate 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.

Compared with the tribal and institutional designs, the market engages a very different, even contradictory set of principles. Its essential principle is open competition among private interests that are supposed to behave freely and fairly. Its strength is that it can enable diverse actors to process diverse exchanges and other complex transactions better than can the tribal and hierarchical systems. This happens to be appropriate for trade, commerce, and investment; and the result is the 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 quite 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 rates rather than the dictates of distant rulers. It meant

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\(^5\)Studies consulted include Braudel (1982), Heilbroner (1967), Hirschman (1977), North (1981), and Polanyi (1944).
that people were entitled to act in terms of personal interests, profit motives, and individual rights that ran contrary to traditional notions of hierarchy. Thus, the market concept entailed new ideas about how a society should be organized.

Market principles were not meant to replace institutional ones. Indeed, the market system absorbed from the state some institutions that had been engaging in commerce and finance at the state’s behest, like banks and trading companies. The market also rests on contractual and other laws set by the 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—e.g., a society should not have more than one army or finance ministry. But in a market system, multiple competing actors may be the norm—there can be many banks and trading companies.

While the market was not supposed to supplant the institutional system, it does displace it from its dominant position. It limits that system’s scope of activity and confines it to a particular realm: the state. Yet the point to emphasize is not that of competition and conflict, but of combination. A society’s ability to combine these distinctive forms of governance, many of whose principles contradict each other, renders an evolution to a higher level of complexity. It also expands a society’s capabilities; for the growth of the market system strengthens the power of the states that adopt that system, even as it ensures that the state alone cannot dictate the course of economic development. Indeed, the advent of the market system, and the feedback of market principles into the realm of the state, allows for the development of political democracy, our most valued governance system today. As Charles Lindblom once wrote (1977, p. 116),

However poorly the market is harnessed to democratic purposes, only within market-oriented systems does political democracy arise. Not all market-oriented systems are democratic, but every democratic system is also a market-oriented system.

Despite all its strengths and contributions to the advance of society, the market system has a key limitation of its own: It contributes to creating social inequities and does not prove adept at addressing them. As was the case with the earlier forms, the sharpening and the recognition of this limitation takes us to the next form to arise.
The Network Form

- Rise: late 20th century Europe and North America
- Structure: heterarchic collaboration
- Purposes: social equity and accountability
- Strength: civil-society activism—"cybernets"
- Weaknesses: identity and loyalty crises

Future manifestations: new global, virtual clans?

The tribal, institutional, and market forms—and their combinations—have long ruled the organization and advance of society. Some analysts have thought that this spells the end of the story. But as discussed earlier, yet another form is arising around the world: the information-age network.6

Its key principle is heterarchic collaboration among members who may be dispersed among multiple, often small organizations. Network designs have existed throughout history, but multiorganizational designs are now able to gain strength and mature because the new communications technologies allow small, autonomous, dispersed groups to coordinate and act jointly across great distances as never before.

While the network form is affecting all realms, civil society appears to be its home realm, the one that will be strengthened more than any other—either that, or a new, yet-to-be-named realm may emerge from it. The network form seems particularly well suited to strengthening civil-society actors whose purpose is to address social issues. At its best, this form may thus result in vast networks of NGOs geared to addressing and resolving social equity and accountability issues that actors identified with the other forms tend to ignore or are unsuited to addressing well.

The case for this view is deepening. Studies by various scholars show that an "associational revolution" is well under way, creating a nonprofit, service-oriented "third global sector"—a "social sector"—alongside the established public and private

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sectors. Around the world, a “global civil society” is taking shape, giving rise to “citizen diplomacy” and “world civil politics.” As for the United States, according to Peter Drucker (1993),

the post-capitalist polity needs a “third sector,” in addition to the two generally recognized ones, the “private sector” of business and the “public sector” of government. It needs an autonomous social sector.

While classic definitions of civil society often include political parties and private businesses, this is less the case for new definitions. The separation of “civil society” from “state” and “market” realms may be deepening.

As these trends grow, civil-society (or the new realm’s) actors should gain power relative to state and market actors at local through global levels in the coming decades. While some writers claim that this will diminish the power of nation-states, the TIMN framework implies that the state, as the home of the hierarchical form, is an enduring, essential entity for a society. The state may grow even stronger in some respects (Arquilla and Ronfeldt, 1996; Skolnikoff, 1993). The key is for governmental and non-governmental actors to learn to cooperate better. This will help strengthen the state; but it may also mean that “nations” become as well represented as “states” in policymaking processes (Thorup, 1995).

In other words, the TIMN framework recognizes a dynamic in which the rise of a new form (and its realm) reduces the scope of an existing form (and realm), yet strengthens the latter’s power within that reduced scope. This was the case with the rise of the market system—it constrained the state, yet enhanced the state’s power. The presumption here is that this pattern will recur with the rise of the network form.

A big question is, What will the new realm consist of? We have focused on activist NGOs devoted to social issues, but there may be additional actors. Since a new realm absorbs some actors from existing realms, is it possible that the new networks may take health, education, and welfare actors away from the state and market realms?

While this may prove all to the good, the “cybernets” of the future may, like prior forms, have inherent limitations. Indeed, their global agendas could undermine peoples’ traditional loyalties, inducing a return to the problem of how people conceive of their tribal identities.
The chart above offers a comparative summary of many points that have been made (plus some not made) about the four forms of organization. In highlighting the distinctive attributes of each form, the table helps to show that what one is good at, another may not be. The table indicates both the strengths and weaknesses, the contradictions and potential compatibilities among the forms.

It should be evident from the chart and the preceding discussion that each form, once it is writ large and subscribed to by many actors, is more than a mere form: It becomes a system. Each form embodies a distinct cluster of values and norms; and these must be learned and must spread if a form is to take root and a realm to grow around it. Each spells an ideational and structural revolution. Each involves a set of interactions or transactions powerful enough to define a distinct realm of activity, or at least its core. Each lays the basis for a governance system that is self-regulating, and self-limiting. What is “rational”—how a “rational actor” should behave—is different in each system; no single “utility function” suits all systems.

Albert Hirschman’s (1977) study about a motivational shift in Europe from political and religious “passions” to capitalist “interests” centuries ago attests to this, as does Jane Jacobs’ (1992) study about the “guardian” and the “commercial” syndromes as moral “systems of survival.” Moreover, E. E. Evans-Pritchard’s (1940) classic on the Nuer tribe illuminates how distinctive values and norms shape social, economic, and political life in a segmentary lineage system.

Each form is thus associated with high ideals as well as new capabilities. And as each develops, it enables people to do more than they previously could. The chart indicates this. But it should also be pointed out that the forms are ethically neutral—as neutral as technologies—in the sense that they have both bright and dark sides, and
can be used for good or ill. The tribal form may breed a narrow clannishness, persisting even in advanced societies, that can justify anything, from nepotism to murder, to protect and strengthen a clan and its leaders. The institutional form can lead to dictatorial, corrupt, arbitrary hierarchies. The market form can allow for unbridled, unproductive speculation, and the rigging of market sectors to protect powerful capitalists. The network form can strengthen “uncivil society” by enabling subversive groups to mount deception campaigns, or criminal syndicates to smuggle drugs, arms, or migrants. In other words, it is not just the bright sides of each form that foster new value systems and shape new actors; the dark sides may do so as well. As Jacobs (1992) observes, “monstrous moral hybrids” are possible.

Finally, we would call attention to the bottom two lines of the chart. The first proposes that each form corresponds to a biological metaphor: tribes to the skin or the look of a body; institutions to its skeletal and muscle system (as Hobbes implied); markets to its cardiopulmonary circulatory system (as Marx noted); and networks to the sensory system. Yes, there is an evolutionary, even Darwinian presumption here.

The final line indicates that the rise of each form may be associated with a different information revolution: the tribal form with early language and writing; the institutional form with penned script and the printing press; the market system with electrical technologies like the telephone and the telegraph; and the new network form with computerized technologies. We made a point earlier about how the rise of the network form is a result of today’s information revolution. Here, we clarify that the rise and the spread of each form has depended on an enabling information technology revolution that also becomes an organizational revolution (Ronfeldt, 1996).
The T, I, M, and N forms, then, appear to be the basic forms that underlie, indeed enable, the organization and governance of societies. Each form is good and useful for something; each does something better than any other form can do.

All four forms have existed since ancient times, but each has developed and matured at a different rate since then. There appears to be a natural progression to their emergence and combination. And this appears to owe mainly to the ability of each form to respond, in turn, to a key problem (or function) that societies must face and resolve as they advance. The tribal form serves to resolve primordial problems of belonging and identity; the institutional form, problems of power, authority, and administration; and the market form, problems of increasingly complex economic exchanges. What problems the network form may be best suited to resolve are not so clear; but the prior forms have generated and failed to resolve many social—especially social equity and welfare—problems, and that seems to be a major part of the answer.⁷

While this presentation has approached each form separately, the main point is that societies advance by combining them in sequence. In the end, what matters is how the forms get added and how well they function together. They are not substitutes for each other. Historically, a society’s advance—its evolutionary progress—depends on its ability to use the four forms and to combine them (and their resulting realms) into a functioning whole. Societies that achieve a new combination become more powerful and more capable of complex tasks than societies that do not. A society’s leaders may try to skip or deny a form (the case with Marxist-Leninist revolutionaries

⁷Chris Kedzie points out that the TIMN progression resembles Abraham Maslow’s “hierarchy of needs” (Maslow, 1987).
who opposed the market form), but any success ultimately proves futile and temporary.

In other words, a comprehensive framework about societal evolution can be discerned around these four forms. Scholars, using other terms, often study societal transitions from one form to the next, typically emphasizing the time- and place-bound features of the transition they study. Keen phrases—like “the Great Divide” (Service, 1975) between tribes and early states, and “the Great Transformation” (Polanyi, 1944) wrought by the advent of capitalist market systems—may encapsulate the significance of a particular transition, implying that a new system has replaced an old one. The specifics of each transition are important, and the TIMN framework accepts this. At the same time, the framework argues that all the forms and the transitions can be assembled into a single framework. Moreover, the TIMN framework views the evolution of “complexity” as largely an additive, cumulative, or combinatorial process in which a society is able to develop various subsystems (realms) that operate according to different principles. The framework is as much about old forms persisting as it is about new forms arising. Other writers are coming to similar conclusions (parallel thinking appears in Hannerz, 1992; Kumon, 1992; Toffler 1970).
Evolution of Societies—Four Major Types

- $S_1 = T$ — Most of the world, most of history; e.g., Indian villages, modern gangs
- $S_2 = T+I$ — Roman Empire and absolutist states; Soviet Union and Castro’s Cuba
- $S_3 = T+I+M$ — 18th century England, United States; recently, Chile, China
- $S_4 = T+I+M+N$ — Postindustrial democracies the likely candidates

Where $S =$ Society, $T =$ Tribe, $I =$ Institution, $M =$ Market, $N =$ Network
If feedback and generational effects are included: $S_4 = T+I+M+N_i$

The argument may be summarized as a few simple equations in which “$S_n$” refers to societies of the first, second, third, and fourth types, and $T$, $I$, $M$, and $N$ refer to tribes, institutions, markets, and networks respectively:

- $S_1 = T$ — as seen in most of the world and most of history (e.g., Indian villages and modern gangs).
- $S_2 = T+I$ — as epitomized by the Roman Empire at its height, by the absolutist states of the 16th century, and in this century by the Soviet Union and Castro’s Cuba.
- $S_3 = T+I+M$ — as exemplified by England and the United States since the 18th century, and recently by countries like Chile, China, and Mexico that have moved to develop market economies.
- $S_4 = T+I+M+N$ — with the postindustrial democracies in North America and Western Europe being the most likely candidates.

These are not formal equations; they should be read more as depictions than mathematics. In the future, an effort will be made to refine the formulas for, among other uses, the purpose of comparing societies and subsocietal actors that combine or blend aspects of these forms; but work remains to be done on how best to do so and on what attributes and indicators to specify for each form and its interactions with other forms. The framework must accommodate the fact that the nature and content of a form may vary from society to society; for example, the $T$ form is very different in Japan than in the United States. Moreover, as a note on the chart indicates, the equations should reflect the feedback effects that may occur with the addition of a new form.
Meanwhile, these depictive formulas speak to the following point: Over the ages, societies organized in tribal (T) terms are outperformed by societies that also develop institutional (I) systems to become T+I societies, often with strong states. In turn, these get superseded by societies that allow space for the market form (M) and become T+I+M societies. Now the network (N) form is on the rise, evidently with special relevance for civil society (or a new realm emerging from it). We are entering a phase of societal evolution in which T+I+M+N societies will emerge to take the lead. To do well in the 21st century, an information-age society must embrace all four forms—and these must function well together despite their contradictions.

This is not an easy progression for any society, since each step is bound to induce a vast rebalancing of societal forces. Every society has to move at its own pace and develop its own approach to each form and combination, in a process that requires modifying the older to adapt to the newer forms (and realms). Some societies have great difficulty proceeding through the progression; others prove more adaptable. Yet, despite the uniqueness of each case, in general it appears that the four forms lie behind the evolution of all societies—East, West, North, and South. All major political designs and ideologies—the “isms” and “ocracies” of world history—appear to fit the framework. Major “isms” (like feudalism and capitalism) and “ocracies” (like theocracy and democracy) generally reduce to particular combinations of, and variations on, these four generic forms.

The emergence of +N societies, and the effects of +N forces on all societies, mean that new political systems and ideologies will come to the fore in the decades ahead. Better democracies are a likelihood among the advanced nations, but new kinds of authoritarian and totalitarian regimes are also possible in retrograde situations (Ronfeldt, 1992).

These are sweeping generalizations. A full layout of the TIMN framework would have to clarify them. It would also posit a set of propositions about the dynamics embedded in the framework, as presently understood—e.g., that a form’s rise is likely to have subversive effects before it has additive ones, or that a balance among the forms is best for a society’s evolution. Indeed, while each transition from T through N is special, the framework implies that every form’s rise sets in motion systemic dynamics that are similar for all transitions—that is, some dynamics repeat each time a new form rises. This is being worked on (Ronfeldt, 1996). Our limited objective here is to outline the TIMN framework to raise some implications for understanding the advent of netwar. We move to those implications in the next few charts.
Propositions about the future may be discerned by finding patterns that reappear with each progression from T, to T+I, to T+I+M societies. It is presumed that such patterns will recur in the progression to T+I+M+N societies. Here we briefly mention a set of patterns that concern conflict.

It is often difficult—it takes decades or longer—for a society to incorporate a new form of organization. The values, norms, and "spaces" favored by one form tend to contradict those favored by another; these contradictions must be worked out for successful combination to occur. In the meantime, the rise of a form generates new kinds of actors, interests, issues, and ideas in a society. As all sectors try to adjust to the new forces and new realities, the transition from one combination to the next induces systemwide transformations and epochal philosophical, ideological, and other conflicts for some time, even though new patterns of cooperation ultimately ensue.

A society may become distorted or be torn apart as it adapts to a new form. For example, many T+I societies resist the transition to T+I+M. The great revolutions of the 20th century—the Mexican, Russian, Chinese, and Cuban—occurred in T+I societies where clannish and hierarchic structures were under stress from the infusion of capitalist practices that did more to reinforce the old structures than pave the way for a market system. Failing to make the transition to T+I+M societies, they reverted violently to T+I regimes that, in all but Mexico's case, converted absolutism into totalitarianism. Today, to varying degrees, these four nations are trying anew to make the same +M transition—testimony to the proposition that the progression is natural and cannot be avoided if a society is to advance.

Liberal democracies emerge only from the T+I+M combination. Today, some advanced democracies, notably Canada and the United States, have begun a transition
to the +N combination, at a time when their T, I, and M elements are under stress for many reasons (family breakups, religious divisions, ethnic and racial tensions, perceived failures of government institutions and political parties, and persistent economic inequities). This explains some of the social turbulence in the United States, where many interneted single-issue groups are pitted against each other, notably over abortion. This also helps explain the volatility of conditions in nations, like Mexico, that are moving to develop T+I+M system in parts of the world that are rife with +N forces and their spillover effects.

Whoever succeeds at making a new combination first and best stands to gain advantages over competitors. Major epochs of peace—and war—appear to be associated with the rise and stabilization of a new form in what becomes the hegemonic society of the time. Thus, the institutional revolution wrought by the T+I combination led to the preeminence of the Roman Empire—and the Pax Romana. The seminal exemplar of the +M combination, Great Britain, imposed the Pax Britannica, which transmuted into the Pax Americana as Britain declined and the second great exemplar of the +M combination, the United States, gained superpower status.

Who will create the next great Pax? Will it be whichever nation-state (or other entity?) reconfigures itself to achieve the T+I+M+N combination in time to become a hegemonic power? Or will peace in a heavily networked world not depend on there being a hegemonic actor? The answer may turn largely on which government (or other entity) works most effectively with interneted nonstate actors to project power and presence abroad. Since the world may still consist largely of contentious T, T+I, and T+I+M actors, power and presence abroad, in new as well as traditional ways, will surely remain an abiding concern of +N actors.

In any case, the advent of T+I+M+N societies and the general effects of +N forces on all societies means that a new generation of societal conflicts is in the making and will expand for decades. It will not only pit states against states, but also increase conflict between state and nonstate actors (Greenpeace-led resistance to French nuclear testing in the Pacific is a sign of this). More to the point, it will increase conflict between nonstate and other nonstate actors. In some instances, a nation-state may be more a playing field or a battleground than a central participant in such a conflict (e.g., Colombia vis-à-vis the drug cartels; Zambia as an arena of conflict between transnational poachers and the Wildlife Fund). Furthermore, the framework implies considerable conflict between societies (and parts of societies) at different stages in the TIMN progression—a point similarly made by Alvin and Heidi Toffler (1993) in their ideas about conflicts between actors who represent different “waves” of development.
Netwar: A Natural Next Mode of Conflict

- Network form is becoming a major new source of power—as hierarchy has been for ages
- Power is migrating to actors skilled at developing networks, and at operating in world of networks
- Nonstate low-intensity adversaries are ahead of governments at using the new designs

Information revolution is “force multiplier” and “force modifier” for networks

In short, netwar is a natural next mode of conflict and crime. According to what we have argued so far, the advent of netwar is a result of the rise of network forms of organization, which in turn is a result of the information revolution. Not all conflicts will involve netwar—many traditional modes of conflict and crime will persist. But netwar is already ascendant.

A few propositions we pose to wrap up this section are as follows:

- Organization, and knowing how to organize, have always been a source of power, independently of the resources and skills available in an organization. Today, the network form is fast becoming a major new source of power—as hierarchy has been for ages. It is especially a source of power for actors who have previously had to operate in isolation from each other, and who could or would not opt to coalesce into a hierarchical design.

- Power is migrating to actors who are skilled at developing networks, and at operating in a world of networks. Actors positioned to take advantage of networking are being strengthened faster than actors embedded in old hierarchical structures that constrain networking. This does not necessarily favor actors on any particular part of the political spectrum—it favors whoever can master network design elements.

- Nonstate adversaries—from warriors to criminals, especially those that are transnational—are currently ahead of government actors at using, and at being able to use, this mode of organization and related doctrines and strategies. It takes skill to use this mode well, but the ease of entry and the anonymity afforded by network designs also imply that we should expect an increasing “amateurization” of terrorism and crime. It is increasingly easy for protagonists to
construct sprawling networks that have a high capacity for stealthy operations by lone individuals or small groups, as well as for rapid swarming en masse.

Information is considered a "force multiplier" (notably during the Persian Gulf War, to the benefit of U.S. forces). Yet, it is important to realize that it is also a "force modifier." That is, taking full advantage of the information age—the technological and organizational innovations signified by the information revolution—is bound to require major modifications in how forces are organized and deployed for offensive and defensive operations. More to the point, as elaborated later, the use of force is likely to be focused on disruption rather than destruction.

Analysis of the network form provides a useful way to understand the advent of net-war—why and how the world is giving rise to a new mode of conflict. A lot can be done just by improving our ability to study this form, its levels of analysis (i.e., the organizational, doctrinal, technological, and social levels, as discussed below), and the implications for society and security. Better theories and methodologies are needed regarding how networks operate, and how they should be analyzed.
Much of the World Is Ripe for Netwar

- World is in an epochal transition affecting all societies
  - Much good may come of it: more and better democracies and NGOs as foreign policy assets
  - End of empires and transformation of states
  - But new threats, instabilities, vulnerabilities, and risks for many societies

- Conflicts are easy to start and wage—netwar protagonists have an opportune environment
  - To move openly and covertly across porous borders
  - To build and maintain interconnectivity from afar
  - To play on shifting identities and loyalties

Our theoretical perspective shows that network forms of organization are on the rise—and thus that netwar is a natural next mode of conflict. It also shows that societies around the world are entering a new epoch of evolutionary change—and thus that much of the world is ripe for netwar. This may be particularly the case for advanced societies like the United States.

The TIMN framework implies that much good will come from the growth of +N forces and +N societies. More and better democracies are a distinct possibility around the world. Transnational NGOs, and the ability of such NGOs and governments to work with each other, should become a major foreign policy asset for democratic societies. Indeed, as noted earlier, "states" and "nation-states" may continue to do quite well in the new epoch. What may be coming to an end, if anything, is not the state or the state system, but rather the empire and imperialism in their classic forms. At the same time, a new model of the state may emerge, probably one that is leaner, yet draws new strength from enhanced abilities to act in concert with nonstate actors. In this vein, Drucker (1993) argues that the classic nation-state metamorphosed into the unwieldy "megastate" of the 20th century by taking on excessive social, economic, and military duties, and concludes that success in the post-capitalist age will require a different model. Other thinkers are also proposing that what lies ahead is not the demise but the transformation of the state (Arquilla and Ronfeldt, 1996).

Despite the positive side of this restructuring, new threats, instabilities, risks, and vulnerabilities lie ahead for many, if not most, societies around the world. Closed societies will continue having difficulty dealing with the information revolution and its subversive impetus for openness; the price of repression should rise as intercon-
nectivity increases. Open societies may also be increasingly at risk. Their very openness, their exposure and connectivity to the world at large, creates vulnerabilities to netwar.

The nature of the global transitions now under way means that conflicts will be relatively easy to start—and wage. Netwar protagonists face an opportune environment in many parts of the world. Among other things, they can move openly and covertly across increasingly porous borders. They can easily build and maintain the interconnectivity of their networks from afar. And they have many opportunities to play on shifting identities and loyalties, especially national ones. Finally, the very backwardness of some states, measured in terms of their low connectivity to their own societies as well as to others, may make them less vulnerable to counternetwar, perhaps increasing their incentives for starting netwars in the first place.