Leading into the Future XIa: Can the Center Hold Given the Challenge of Size and Complexity?

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This is the first essay in a series of sets (each with multiple essays). Each of these set of essays focuses on a major 21st Century challenge facing those who will leading into the future. This first set is concerned with the way in which leaders address the issue of organizational size and complexity. While there is gradual, organic growth and minimal complexity in most premodern organizations, the postmodern organizations to be found in most contemporary societies are subject to rapid change and rapid growth; furthermore, they have become complex as a result of attempts to accommodate this change and growth.

We find that many premodern organizations (that are still predominate in most societies) are family owned and operated. The corner grocery story, prestigious restaurant, summer camp, independent insurance company, successful real estate development company or sports team—these are often owned by a family (be they small or large). Typically, this organization has grown slowly and organically, with it being no larger than the size of the family. Until the daughter or son is ready to take over the business, it will only grow so large. The structure of this organization is quite simple: it operates more like a family than a corporation. Nepotism runs supreme and lines of authority are clearly and consistently drawn.

We can similarly compare the postmodern organization of the 21st Century with the modern organizations that dominated the late 19th Century and most of the 20th Century. Driven by the Industrial revolution and the evolution of mass marketing, the modern organization—usually formed as a legal corporation—was engaged fundamentally in the process of growth. The success of a modern corporation was determined by its size (usually as measured by total capital, size of work force and number of production facilities)—along with its market share.

Ultimately, size and market share translated into profitability and return on investment for the corporate stockholders. The “bottom line” was readily determined based on these readily measured parameters. These modern organizational dynamics contrast with the gradual and often reticent growth of premodern, family-owned businesses. As I will consider in much greater depth, when addressing a second major challenge, the criteria of success in the premodern organization and among the leaders of these organizations is often much more nuanced than are the criteria used by corporate leaders and stockholders. How do you measure the quality of food being served, the quality of a child's experience at camp, or the beauty inherent in the new building just constructed in your downtown (or the impact of this building on the pride taken by those living in your community). And what about the impact of your family-owned baseball team.

There is an important distinction to be made regarding complexity in the modern and postmodern organization. While modern organizations may become very large and might require multiple operations far-flung around the world, they remained remarkably simply in their structure and operations. Most of these organizations followed the standard formulation of hierarchy and standardization. There would be an operation manual, legally required job descriptions, and standard performance review procedures.

While these orderly policies and procedures might have been violated on occasion (or frequently in those corporations where worker/management tensions existed), there was at least the goal of standardization: everyone was to obey the rules no matter how high up they were in the organization. The nepotism of family-run businesses was discouraged (even outlawed) and the mythic "democratization of the workplace" was in place: "no one is about the law or free from the company rule book". Along with this democratization comes an ironic juxtaposition: "I am treated as an equal with every other member of the organization, but in becoming just like everyone else I seem to be losing my own distinctive identity." Modern leaders were faced with the problem of avoiding the personal alienation of those employed in their organization while insuring uniformity and equity of treatment.

Then . . . . along came the late 20th Century and early 21st Century, complete with the computer, Internet and the flattened, boundary-violating world described by Thomas Friedman (2005). Size and complexity suddenly became major challenges for leaders of the postmodern organization. How exactly do we manage the growth of our organizations and how are we to plot and navigate the best course through a complex organization and world? It is to the nature of these challenges that I turn in this essay and the additional essays in this set. I set the stage for this analysis, as I will do in each set of essays, by considering some of the wise observations made major theorists and researchers in the fields of psychology and management as they viewed organizational life from several different vantage points.

The major question to be faced by those who are leaders of the future—and the fundamental question to be asked in this first essay (and in the remaining essays in this set) is simple and fundamental: how does the center of the organization hold given the variable size and high levels of complexity to be found in the organization? How does a leader successfully retain the founding purposes and values of their organization midst uncertainty, turbulence and ambiguity?

The Nature of Organizational Size and Complexity

While social philosophers, historians and organizational consultants might not be able to agree upon much, they inevitably acknowledged two trends: growth and complexity. I will briefly explore each of these trends and then begin to consider the implications for leaders of these trends.

Growth

First, they acknowledged that organizations over the years have tended to become larger. One of the obvious reasons for this growth is the massive increase in the size of the human population on this planet, which, in turn, leads to increasingly dense human populations in all areas of the world. However, the increasing density of human population is not simply a matter of population growth. It also has to do with a remarkable dynamic that is to be found in most complex systems—what many theorists now label “the strange attractor” phenomenon.

This dynamic concerns the tendency for all elements in a complex system to cluster around some central point. There are forces, entities and events in many systems that attract other forces, entities or events. One of the primary contributors to contemporary complexity theory, Ilya Prigogine (1984) observed that larvae in a specific insect population will tend to distribute widely when there is low density (small number of larvae in a specifically defined space), but will tend to cluster as the density increases and to form multi-clusters with very high density. There is a similar tendency for people to cluster as they increase in number. The *attractor* principle is apparently not unique to the human race or even to sentient beings. Potholes, for instance, tend to attract particles from the roadway as well as water and residue from de-icing materials (sand, salt and so forth). Avalanches similarly attract snow from neighboring snow-packs and one species of fish attracts other fish species that, in turn, attract yet other species.

The noted sociologist and social theorist, Emile Durkheim (1893/1933) was one of the first to observe the *strange attractor* phenomenon as it operates in human societies. He noted that as the number of people inhabiting a particular area of land tends to increase, there is a tendency for these people not to spread out evenly (which would provide each person with the maximum amount of space that is available), but rather for these people to cluster together (to form villages and, at a later point, cities). Why did this clustering occur? Several good reasons have been offered.

Teilhard de Chardin (1953) suggested that as people slowly populated the earth and began to bump up against others of the same species, they had two options. They could continue moving about in a nomadic lifestyle and face ongoing conflict with other isolated, nomads. Alternatively, they could settle down and establish a cooperative relationship with a small group of other nomads and settle down in one spot. Riane Eisler (1987) suggested that this choice between invasion, domination, and ongoing conflict, on the one hand, and respect for boundaries, cooperation and stability, on the other hand, has been central in defining the character of all societies. This critical choice between domination and partnership is still being made every day in our corporations and governments.

Complexity

A second point on which virtually all social theorists and observers would agree is that organizations have tended to become more complex over the years. According to Durkheim, there is a tendency for societies to become more complex as they become larger, primarily because there is an increasing possibility of struggle and violence in a densely populated world, as compared to the more dispersed populated world of prehistoric times.

Durkheim believed that this increasing struggle and conflict creates the need for specialization of functions. If people can do different jobs, they will be less likely to compete with one another. We honor differences rather than defeating and banishing people who are different from us. We cooperate with others rather than compete with them when space and resources are limited on a densely populated planet. We provide specialized jobs and become dependent upon one another. This effort to reduce social tension, according to Durkheim, is the primary reason for division of labor and the development of complex organizations. He didn't believe that organizations need to become more complex simply because they have grown larger.

The Paradox: Growth and Complexity

While Durkheim might be right about the independence of size and complexity, it seems that they do, in fact, often co-exist – especially in contemporary 21st Century organizations. While the modern organization could often remain simple in structure and operations, while growing very large, the postmodern organization of the 21st Century often cannot afford this luxury. It is to this challenge that I am about to turn. Before doing so, it is important to note that growth and complexity at a very deep level, are often related to one another in a paradoxical manner (which we will discover is the case with many other dimensions and dynamics of postmodern life in the 21st Century that I will be considering in the other sets of essays concerning Leading Into the Future).

The paradox resides in the tendency of entities to cluster together – the strange attractor phenomenon which I have already identified. This would seem to provide a unifying core for the newly clustered entity being formed as a strange attractor. Yet, it is precisely where we find that growth has occurred when there is conflict, competing interest and the inevitable movement toward specialization of functions. The center is threatened by this loss of coherence—and leadership must emerge to ensure that the center will hold. Thus, the very forces that pull entities together as a new whole will later create the conditions of growth in size that often pull these entities apart. I now specifically shift our attention to this paradoxical dynamic.

Differentiation and Integration

As they grow larger and older, organizations have required an increasing proportion of resources devoted to integrative services that are needed to keep the organization from falling apart as a result of increasing specialization and differentiation of functions (Lawrence and Lorsch, 1967). A smaller proportion of resources is available for the direct services that are to be provided by modern organizations, thereby reducing their efficiency and ultimately their effectiveness. As we enter the postmodern era, it appears that the integrative services being offered—even if they are very extensive—often are insufficient to hold the organization together. Even with more attention being given to organizational culture and to creating a strong feeling of solidarity, organizations increasingly are experienced as fragmented, chaotic and inconsistent. A central question in most contemporary organizations is thus posed. Can the center hold? An administrator with whom I have worked offers the following observation:

> [My organization's] strategy over the last four years seems to resemble a living organism more that it does a corporate entity. There seems to be very little planning or forethought for the organization structure. The structure that exists today at [my company] seems to be more the result of reacting against unforeseen circumstances like an animal out in the wild.

We find a sense of fragmentation (and associated *edginess*) in most contemporary organizations. This fragmentation, for instance, is evident in the type of bolts being used in contemporary American automobiles. The engine block of many American cars in the 1990s, Peter Senge noted, required three different types of bolts, which in turn required three different types of wrenches and three different inventories of bolts. These three different types of bolts (which increase costs and decrease speed of assemble) were required because the design organizations in many large American automobile companies had three or more groups of engineers, each responsible for one specific component of the engine block. Complexity and specialization led to excessive isolation and inefficiency in these companies as well as in many other large American corporations. Have things changed much over the past three decades? While there is some movement toward generalization-- as a result of increased use of robotics and other computer-mediated operations and decreases in workforces (pushed by economic declines), there is still extensive differentiation and specialization in the work being done in most nations.

We even find differentiation in fast growing computer companies—though these companies are providing products that potentially reduce the need for specialization. According to one engineer/manager these organizations tend to have "stretch marks" associated with their fast growth. These stretch marks are often manifest in frequent and counterproductive reorganizations. Our engineer/manager describes her own organization as a "hodge-podge of differing structures that always seem to have some fringe hanging out." Many divisions in her company fail to coordinate their efforts with other divisions. Her rapidly growing organization like many others establish departmental "silos" that operate independently and in isolation from other departments in large part so that the inter-departmental chaos and confusion (the stretch marks) can be minimized. The isolation is further compounded by the lack of clearly established organization-wide priorities. A general sense of foreboding or panic (postmodern edginess) tends to pervade these fragmented *stretch-mark organizations*.

The differentiation of many contemporary organizations is not confined to the private sector, let alone to fast-growing, high tech organizations. We also find ample evidence of stretch marks in contemporary public institutions. In describing his own governmental organization, one administrator with whom I am acquainted has observed that:

> . . . it is as if this organization is a modern day chameleon. It is changing its colors in reaction to a hostile environment that seemingly is threatening its survival. The heart of the creature attempts to be modern with uniform, systematic and planned movements within its environment. However, its postmodern personality is jagged, fragmented and stems from its

> self-imposed reactions to the environment. This postmodern behavior doesn't really endanger its life but does impact self pride and its ability to properly direct itself in serving its fellow chameleons.
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> . . . The problem facing the organization is mending the fragmentation with each other, between departments and across manager's so-called "turfs." They are learning how to be conscious and responsive of each other's diverse needs. As one manager stated in a recent local managerial retreat, "We need to get a sense of what the rules are that we should be playing by. We need to develop a better appreciation of where we are." That seems to be a statement of survival. . . . [T]his organization is confused and frightened. The state of fear generates reactiveness that creates additional internal chaos.

Small organizations and small towns are not immune if they have experienced rapid and unmanageable growth. A small-town hospital leader observes that her organization has grown dramatically during the last ten years and can no longer expand at its present location to meet growing, local health needs. This hospital has had to offer services through fourteen off-site centers. These widely distributed centers are difficult to administer, and coordination has become a nightmare. The same story is heard in many other organizations that have experienced rapid growth or are of large size.

Many utility companies have decentralized over the past several decades as a way of coping with massive size and complexity. Vice Presidents at these often massive utilities are asked to manage semi-autonomous organizations that are not easily coordinated from the top. Leadership in this highly decentralized structure requires the acquisition of new skills and new attitudes regarding accountability and freedom of choice. The same can be said for many large public corporations and government agencies. It is hard to hold the center in these massive "elephants" that don't easily dance (Kanter, 1989).

We can move to an international level and find similar issues regarding size, growth, differentiation and integration. During the late 1980s and early 1990s, considerable attention was directed toward the dissolution of the Soviet Union and the emerging autonomy of the Eastern European republics. In the late 1990s we witnessed a similar dissolution of national boundaries and movement toward splintering nationalism throughout the world (most notably in the Balkans). The center clearly did not hold in many of these nation-states—nor will the center hold in many contemporary organizations. The myth of bigness has been destroyed and growth is no longer considered to be the only or even primary pathway to efficiency and organizational prosperity. As Peter Drucker (1989, pp. 260-261) prophetically observed more than three decades ago:

> In the seventies the tide turned. No longer is it the mark of good government to be bigger. In health care we now assert that whatever can be done outside the hospital better be done elsewhere. Before the seventies, even mildly sick mental patients in the United States were considered to be best off in a mental hospital. Since then, mental patients who are no threat to others have been pushed out of the hospital (not always with good results). We have moved away from the worship of size that characterized the first three quarters of the century and especially the immediate post-World War II period. We are rapidly restructuring and "divesting" big business. We are, especially in the United States, pushing governmental tasks away from the center and toward local government in the country. We are "privatizing" and farming out governmental tasks, especially in the local community, to small outside contractors. Increasingly, therefore, the question of the right size for a task will become a central one. Is this task best done by a bee, a hummingbird, a mouse, a deer, or an elephant? All of them are needed, but each for a different task and in a different ecology. The right size will increasingly be whatever handles most effectively the information needed for task and function.

Limits to Growth

We have learned in our postmodern world that we can't solve the problem of integration that is inherent in growth simply by devoting more resources to integration as we grow larger. The integration of functions in large-scale organizations may no longer be possible or if it is possible, it requires much too large a proportion of the total resources of the organization for this organization to survive. A new emphasis has thus emerged in postmodern organizations on the value of being small or at least being flexible in one's attitude about appropriate size.

Small Is Beautiful

This began with the small-is-beautiful theme of the early 1970s. One of the widely read proponents of this perspective, E. F. Schumacher (1973, pp. 64-65) observed that:

> Even today, we are generally told that gigantic organizations are inescapably necessary; but when we look closely we can notice that as soon as great size has been created there is often a strenuous attempt to attain smallness within bigness. The great achievement of Mr. Sloan of General Motors was to structure this gigantic firm is such a manner that it became, in fact, a

> federation of fairly reasonably sized firms. . . . While many theoreticians -- who may not be too closely in touch with real life -- are still engaging in the idolatry of large size, with practical people in the actual world there is a tremendous longing and striving to profit, if at all possible, from the convenience, humanity, and manageability of smallness.

Since 1973, Schumacher's vision of a world filled with large organizations that have been broken down, as Mr. Sloan did, into smaller semi-autonomous units has partially been realized. Smallness within bigness became a common theme in the writing of many management theorists and consultants during the 1980s and 1990s. Kanter (1985) and Peters (1987) both encouraged the use of small, highly flexible work teams and speak to the problems inherent in large, cumbersome organizations

Even as we enter the 21st Century, the benefits of small size are often extolled. In his best-selling book, *The Tipping Point*, Malcolm Gladwell (2002, p. 169) writes about the magic number One Hundred and Fifty. In building on the work of several anthropologists and biologists, Gladwell suggests that 150 may be the maximum number of people that can operate effectively and coherently in a single group. Humans simply do not have the brainpower (cognitive capacity) to work with larger numbers of relationships.

Gladwell illustrates the utility of this rule of thumb by pointing to the exceptional success of Gore Associates, the producers of Gore-Tex. In this company, the goal has been to allow specific production units to grow no larger than 150. As a result, there is an informality and integrity which is unique in contemporary organizations (Gladwell, 2002, p. 183)

> At Gore there are no titles. If you ask people who work there for their card, it will just say their name and underneath it the word "Associate," regardless of how much money they make or how much responsibility they have or how long they have been at the company. People don't have bosses, they have sponsors—mentors—who watch out for their interests. There are no organization charts, no budgets, no elaborate strategic plans.

At Gore-Tex, the goal is not to stay small. Rather, it is to repeatedly divide into small units even while the overall size of the organization is increasing (Gladwell, 2020, p. 185)

> As Gore has grown in recent years, the company has undergone an almost constant process of division and redivision. Other companies would just keep adding additions to the main plant, or extend a production line, or double shifts. Gore tries to split up groups into smaller and smaller pieces.

This Schumachian strategy of staying small seems to be working—but it depends on a clear sense of organizational intentions. Bill Gore's founding views for his company were influenced by the then new best seller by Douglas McGregor, *The Human Side of Enterprise*. His views and underling vision for his company are the glue (the integrative function) (Gladwell, 2002, p. 184)

> Gore is . . .a very unusual company with a clear and well-articulated philosophy. It is a big established company attempting to behave like a small entrepreneurial start-up. By all accounts that attempt has been wildly successful. Whenever business experts make lists of the best American companies to work for, or whenever consultants give speeches on the best-managed American companies, Gore is on the list.

Gladwell's views seem to be widely shared with other management gurus (such as Jim Collins and Gary Hamel). Furthermore, the perspectives and practices of Bill Gore has been carried on by his successors.

While Schumacher would undoubtedly be delighted with the success of Gore-Tex, he was quite circumspect about the role of small organizations in the broader ecology of contemporary organizational life. Schumacher emphasized the role of diversity in institutional size and scale. While some of Schumacher's critics portrayed him as always advocating small-sized organizations, he actually advocated the selection of an appropriate size for organizations—not just small size (Schumacher, 1973):

> For every activity there is a certain appropriate scale, and the more active and intimate the activity, the smaller the number of people that can take part, [and] the greater is the number of such relationship arrangements that need to be established. . . . What scale is appropriate? It depends on what we are trying to do. The question of scale is extremely crucial today, in political, social and economic affairs just as in almost everything else.

What then are we trying to do and when is being small not such a good thing?

Large Is Sometimes Essential

Many enterprises can survive and even thrive as very large organizations because they are able to capture a large share of the market, hence need not be terribly concerned with either price or efficiency. In past years, Standard Oil and IBM could thrive as large organizations because of this dominance of the market. In recent years, Microsoft stands out as an example of a large, dominating organization. Yet, the successful anti-trust suits against Microsoft—much like the antitrust suits against Standard Oil many years ago—suggest that there are definite limits regarding the control of market share.

Other enterprises must remain large because of the volume of sales needed to sustain the business—given their small profit margins. In many cases these are traditional production industries (such as garment and household appliance companies) or more contemporary discount stores that only make money through mass production or large volume sales. These organizations typically require large markets, massive investments in machinery and technology, and low labor costs. During the last decade of the 20th Century, for instance, Wal-Mart moved from a suspicion of technology to a wholesale embrace of computer-based technology as a "core competency" of the organization. Yet, as reported in 1999, Wal-Mart (Brown, 1999, p.73)

> . . . spends less on technology, as a percentage of sales than other retailers—0.5% last year [1998] vs. 1.43% for the industry. Wal-Mart can do this because of its size. 'They reap economies of scale from being large,' said Kurt Potter, a research analyst with the Gartner Group. By the late 1990s, Wal-Mart's computer centers in Bentonville [Arkansas] and Tulsa could store 43 terabytes of data—more than any other corporations. Today, of course, this storage capacity is vastly surpassed by the massive capacities of an on-line retail giant such as Amazon.

In yet other instances, organizations must grow large in order to attract sufficient capital to begin or sustain their key operations—as in the case of many e-commerce companies. Many small businesses are undercapitalized and never get off the ground. Furthermore, credit is often cut back for small businesses during periods of recession.

Finally, it should be noted that the internationalization of many business sectors often requires the presence of rather large organizational structures (or even consortia involving several large corporations) in order to compete effectively with the complex legal, financial and political forces operating in these international arenas. Many of the mergers during the 1990s and first two decades of the 21st Century were forged in large part to enable corporations to compete effectively in an international market—this is particularly the case regarding those mergers that involved American and foreign companies (making Tom Friedman's world that much flatter).

When Is Small Beautiful?

Despite the many advantages of size, it is not always appropriate for an organization to grow large. Small organizations are often most successful if they serve specific marketing niches, pioneer new technologies or supply parts (or second sources) to larger corporations. They also thrive when products or services must be tailored to individual customer needs, when quality is more important than cost, when skilled labor or research skills are needed and when the organization must sustain a long-term commitment to a distinctive set of values and social purposes (as in the case of a social service agency or school for gifted students).

This emphasis on appropriate-sized organizations is reinforced by the findings of the scientifically-based studies of growth commissioned by the Club of Rome during the mid-1970's (Meadows, et al., 2004). As the authors of this reports concluded, mankind can create and maintain a society in which people can live indefinitely on earth. However, to do so we must think in systems rather than in small isolated units of analysis (Meadows, 2008).

Most importantly, we must impose limits on ourselves and our production of material goods and nonrenewable or slowly renewable resources. We must concentrate instead on growth in other domains of life (the arts, scientific knowledge, personal development) which do not consume the world's resources, and must find ways to bring population and reproduction under control if we are to achieve a state of global equilibrium. Furthermore, we must make use of renewable, highly portable resources (information) rather than nonrenewable, immobile resources (energy). We can best do so in many instances by keeping our organizations small and highly flexible.

Organizations (or nation-states) that are very large and centrally controlled are inclined to accrue large energy costs because of the need to ship goods from one production facility to another, or to move people (via airplane, train, car) from one location to another for planning meetings, coordination of production and so forth. In the Soviet Union, for instance, coal was mined in one of the republics, then shipped to another republic for use in the production of steel, which in turn was shipped to a third location for the manufacturing of automobiles or tanks. A similar pattern of distributed production and centralized control was common in the United States during most of the Twentieth Century.

An excellent (and relatively low cost) rail system in the United States made nation-wide distribution feasible. Low cost telephone and postal systems made communication between these distributed centers also economically viable. A hub-and-spoke model of organizational operations flourished in this setting of low transportation and communication costs. Managers were taught how to predict and control their operations, even when operations were far-flung. Even when the costs of prediction and control were high, any concerns about costs were mitigated by an abiding sense that American industry was invincible, especially if lower cost foreign products were kept out or heavily taxed. This was certainly the case for many years in resource-intensive industries such as automobile manufacturing and the production of military weapons.

In the postmodern world this form of distributive production and centralized control has become prohibitively expensive, as well as ecologically unsound. Smaller organizations that produce goods using local resources are much more likely to survive this turbulent, energy-conscious era than are hub-and-spoke organizations—unless the organization is producing something that requires very few physical materials (such as software manufacturers or service providers).

Ironically, it is precisely those resource-intensive organizations that thrived as hub-and-spoke organizations during the Twentieth Century—such as automobile and appliance manufacturing—that have most needed to adjust to the changing realities of cost-containment. The new postmodern organizations that produce information and services need not worry about shipment costs or monitoring of production quality from a remote location—yet these organizations are less inclined than their modern-day counterparts to rely on control-based management or to establish hub-and-wheel operations.

Conclusions

Up to this point, I have primarily been setting the stage for the challenging conditions facing organizations of the 2020s. The stage has been set by descriptions and predictions regarding organizational size and complexity that come from more than 40 years of analysis – and from the major organizational theorists and researchers of these four decades. It is now time, in the next four essays, for us to turn our attention to more recent organizational analyses that have been offered by the new theorists and researchers who are addressing many of the same issues concerning size and complexity. It seems that these earlier analyses were quite prescient. Today, the matter of appropriate size is even more pressing for the digital age has allowed some organizations to remain small and nibble, while others have become quite large while dominating a specific field or even several fields thanks to the

Internet. Furthermore, organizations are becoming even more complex, as they become agile in many instances by taking on multiple forms and engaging in multiple collaborations with other organizations.

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