

## Making Sense of Transformation: Quantum Realities in a New Age

### CHAPTER OBJECTIVES:

Upon completion of this chapter, the reader will:

1. Make sense of complexity concepts as applied to health organizations.
2. Translate complexity notions into leadership processes.
3. Apply concepts of quantum and complexity thinking into decision making, practice roles, and organizational realities.

### INTRODUCTION

The cycle of change seems to have quickened and intensified. The problem with current change is twofold. First, the pace of change has quickened so much that it is difficult to keep up, and second, the changes themselves are filled with so many other changes and increasing levels of complexity that they are difficult to understand. People are finding change challenging and difficult to cope with.

The leader's role is directed toward understanding the complexity of change and translating it in a manner that can be understood by those upon whom it impacts. First, however, the leader must find her or his own meaning embedded in the change, to translate it from a personal perspective with both passion and coherence. Given its current complexities, a different understanding regarding change and its function in the world is unfolding. In today's world, driven by increasing technology, globalization, fiber optic connectedness, and the machinations of complexity science, the leader has much to contend with in translating realities into the common work experience of those he or she leads.

Chaos and complexity as a systems dynamic address elements of the universe as they affect all living systems. As we leave the industrial age, with all that implies, we leave an age that was defined more by the mechanistic elements of function and relationship than by its relational elements. In the sociotechnical age, the understanding of reality operates on a much broader and significantly different premise. Much of the structures, format, and activities of the industrial frame were defined

#### Gem

Change never begins nor does it end—it is the fundamental reality of the universe. People don't start to change or stop changing. Change simply is!

#### Newtonian-Age Characteristics

- Reductionistic
- Vertical
- Mechanical
- Hierarchical
- Compartmental
- Whole as the sum of its parts

by Newtonian realities. Isaac Newton saw the universe as a great machine. Deeper and richer research since then has indicated that the universe, instead of being a great machine, is an even greater set of intersections and relationships (a great thought). Instead of understanding the universe and its systems and subsystems as a great machine viewed independently, compartmentally, and discretely, the universe can now be understood as something wider ranging and more intensely related than previous Newtonian-based science and research indicated.

Quantum or complexity science is a group of theoretical constructs that look at the universe and its elements as complex adaptive systems. Quantum science seeks the relationship between and among all things and attempts to define the nature of that relationship and its action and impact on all life experiences. Because of the intensity of relationships intersecting between multiple disciplines, questions of complexity are not simple, nor are they easy to answer. Although still in its infancy, complexity science is beginning to provide a broader base of understanding for the actions and intersections of life everywhere in the universe. From the broadest frames of reference to the narrowest and most minute elements, complexity and quantum science looks for themes and the intersections between them.

Perhaps one of the best ways of understanding complexity science is recognizing in it a polarity with apparently existing opposites, each playing a definitive and critical role. In the more traditional linear worldview, there are specific assumptions used to represent the overuse of one pole, thereby skewing what would otherwise be a balance in worldview assumptions. Out of complexity science comes emerging worldview descriptors in a wide variety of arenas and disciplines such as holism, observer in the observation, complex adaptive systems, nonlinear relationships, polarity thinking, quantum physics, variation, morphogenesis, self-organization, pattern analysis, etc.

Quantum science looks at change: how it works, what it means, from where it moves, and to where it is going. Quantum science is actively interested in adaptation, integration, interaction, probability and prediction, and the continuous dynamics of movement.

**Quantum-Age Characteristics**

- Multilateral
- Multidirectional
- Relational
- Intersecting
- Interacting
- Integrating

## UNDERSTANDING COMPLEXITY

**Newtonian Conflict**

Frank was busy trying to sort out the organizational chart for the hospital. He felt that if he could get people configured on the chart in the right manner, efficiency would result. Alignment of related jobs and responsibilities with the right department was key. Yet, he was finding it difficult to create such alignments because different relationships needed to emerge at different times and with changing players. Such structuring worked well with large chunks of the organization, but it was problematic when he got to more functional levels of the system. Relationships were fluid and ever changing, depending on the circumstances, and alignments needed to be more fluid. The organizational chart with its hard lines and boxes didn't seem to address that everyday reality.

The leader must know how to incorporate into her or his understanding of leadership this application of multifocal complexity. Furthermore, a leader must apply these notions of quantum reality and complexity to the leadership role and workplace interactions. Within quantum reality, it is increasingly understood that, although the individual is very important, the relationship between and among individuals and their collective relationship to the system is even more critical. The ability to integrate group activities, to cross group boundaries, and to see all systems as a fundamental set of relationships is a critical skill set for the contemporary manager. This leader must reflect an understanding of the independent and interdependent activities that are necessary to create effectiveness and sustainability in systems.

In complexity applications, the leader knows the importance of interpreting and applying network topology in systems and relationships looking at the arrangement or mapping of the links, nodes, and elements of these networked relationships in a way that emphasizes the physical and logical connections between nodes in a complexity. This network topology is one application of complexity having significant implications with regard to types of relationships, the intersections of interactions of these relationships, and the necessary leadership supports that facilitate them. In these models the leader is able to distinguish between network

topologies such as point-to-point, buss, star, rain, mesh, tree, hybrid, etc. Furthermore, the leader is able to recognize which leadership capacities are appropriate and viable when applied to specific network or relational topographies.

Rather than exhibit unilateral control, this leader recognizes that control must be distributed across the network/system. This distribution is entirely dependent upon the work, accountability, the authority necessary to undertake the work, and expectations for performance. The leader also recognizes that there must be a goodness of fit between context, content, and outcome. Great change is achieved through small and successful increments of change that, when aggregated, lend themselves well to the success of greater and broader change. This kind of change is nonlinear and does not represent many past strategies that have been used to undertake change. The quantum leader knows that the relationship between the expenditure of energy and the input of work will not always relate to the breadth and depth of the output. In short, the vagaries associated with work may have little to do with how much work one does, but rather have more to do with the intensity of fit between the activity, the intent, and the outcome. Clearly, the leader must have a new understanding of this complex and dynamic relationship between workers and work.

The nonlinearity of complex adaptive systems tends to favor continuous and dynamic innovation and creativity over stability, a strict format, and unchanging structure. The notion of *attractors* is important in quantum systems. In the Newtonian model, the notion of attractor relates to instantaneous rest patterns or regions, such as the rest moment of a pendulum on a clock. Attractors tend to draw specific energy to them. They are also where the system's action or pattern is energized and bounded. This concept is important because rather than looking at barriers to action, process, or change, the leader begins to look at the inherent energy of the system and asks how to act in concert with it.

Overcoming the machine metaphor in leadership is tricky work. The notion of *machine* is so intensely tied to all our leadership experiences and models that it will be difficult to shift from them. The leader may often find that dependence on the machine model of organization, relationship, or interaction is an impediment to undertaking a more effective leadership role in a quantum format. Combining micro and macro concepts will be equally important.

Emerging science related to the human genome is a classic example of the growing importance of microbiological studies in the future management of disease. On the other hand, human macroevolutionary dynamics have had a tremendous impact on the multiplication and adaptation of the human species. Both of these forms of transformation, micro and macro, have equal importance in understanding health care, and exercising the role of a health service provider requires the ability to embrace both.

For the leader, there are important skills that are necessary for applying complexity principles in the expression of the leadership role. In an excellent work outlining the application of complexity theory to health care, called *EdgeWare* (Zimmerman, Lindberg, and Plsek, 1998), the authors enumerate nine basic principles that influence the leader's role in health care. Each one of these principles forms a firm foundation upon which to both conceive and unfold the quantum role of leader. Using these nine principles as a frame, we have explored them with our own unique quantum perspective, and we discuss them next.

### Kaleidoscope

An easy way to "see" complexity is through the lens of a kaleidoscope. The interfacing and interweaving elements of the constantly changing intersection of parts that continuously "dance" together as they mold new shapes and configurations best represent the components and wholeness of complexity. What is important in viewing the kaleidoscope is the requirement of movement and intersections. Both are necessary for the unending formation of new forms and the unlimited arrangement of possible configurations and relationships in the ever-changing shapes. What a powerful tool for seeing quantum visions.

### Creativity Over Stability

In the quantum world, stability is a synonym for death. Stability means no movement, which is synonymous with a dead system. Think of how many people and organizations "lust" for the peace and safety of stability in a universe that does everything it can to upset the stable and create the conditions for movement and change.

### Stability Signposts

- Policy
- Procedure
- Ritual
- Routines
- Organization charts
- Titles and positions

### Quantum Leader Characteristics

- Fluid
- Flexible
- Mobile
- Reflects synthesis
- Works from the whole
- Coordinates the intersection

**Principle 1**

*The leader looks at every activity in the organization through the eyes of quantum systems.*

The leader has a great deal of work to do to overcome the existing structures and models of organization in her or his work setting. The machine metaphor has been inculcated in both the design and restructuring of clinical work. In quantum thinking, the leader is fully aware that the compartmentalization and vertical orientation of the organization is not adequate for the work being done there.

Clinical work requires strong levels and processes of integration and horizontal relationships. Because of the needs of patients and the clinical activities of the organization, it is critical for interaction and communication to be facilitated across the system. Most health systems, however, are designed to be more vertically integrated than horizontally linked. Although many clinical activities are linked, many of the organizational structures within which they unfold are not connected in the same way. In effective healthcare systems, linkages, integration, and interface of clinical and support activities operate continuously and dynamically throughout the organization. The leader, therefore, is continually struggling to accommodate this reality, and sometimes leaders must focus on overcoming the organizational impediments to accomplishing the leader’s work and the work of those who provide care.

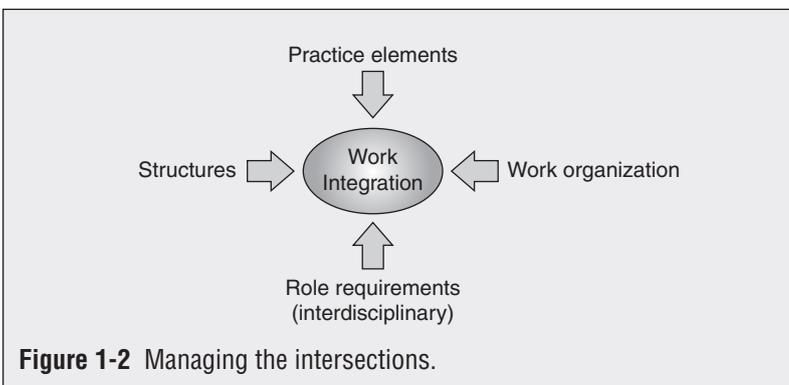
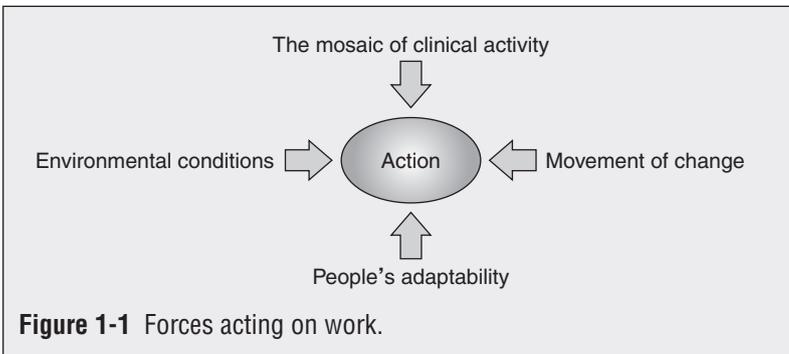
Many existing Newtonian systems reflect a high need for control. However, clinical providers need great latitude for individual and collective integration, information, and relationships in the exercise of their clinical work. The leader recognizes this and makes sure that all clinical systems and structures are able to support a more dynamic and interactive frame of reference.

The clinical work of health care is a complex mosaic of intersections and collective activities that requires heavy emphasis on relationship building, communication networks, and well-coordinated interfaces between professionals and structures in the workplace. This is the central focus of the leader’s organizing work. Yet the leader also works to see the hidden intersections and connections in all relationships and where they exist in all organizational and human activity. The leader’s focus is predominantly on the intersections and relationships between individuals and functions, support structures and work, organization and clinical activity, and practice and practitioners. This multifocal approach to understanding and applying the leadership role is critical to both effectively seeing the role and applying the necessary skills for facilitating the interactions and confluences to assure that the work is effective and achieves its desired results.

In this set of circumstances, the leader begins to conceptualize a change in her or his view of the organization and of the work. The more the leader sees individual activities from the perspective of the whole, noting the common elements embedded in all activity, the more likely the leader will have an accurate perspective of actions and responses necessary to obtain sustainable outcomes. In this way, the leader begins to think about process as a part of structure, structure as

**Quantum Control**

So much of management is historically about control. In the quantum world, control is not an issue; change is. Everything is in constant movement, shifting and becoming. The wise leader recognizes that the role of leadership is in managing the relationship of people to the constant movement of the dynamic of change. It is in managing people’s response to this constant movement that the leader can then ensure creativity, innovation, and relevance remain the fundamental core of all work.



embedded in all processes, and both structure and process as fundamental components of obtaining outcomes and creating the conditions for positive relationships and sustainable processes.

### Principle 2

*Create the broadest possible vision with any number of variables in which people are free to form and unfold new ways of working and creating.*

All systems have a high level of unpredictability embedded in them. This reflects an understanding in complexity and quantum science that simple constructs lead to complex behaviors. The tendency of leadership is to be overly specific and detailed in setting of agendas, developing strategies, or pursuing directions for the organizations and for people's work. In contrast, in quantum reality, overspecifying work and activities interferes with the ability of the system to adapt quickly and easily to changing conditions and circumstances as well as to shifts in work and projects. Indeed, as projects and work unfold, the work itself changes. Doing the work acts as a catalyst for future changes that can only be anticipated as the work unfolds. In this case, experience itself changes the conditions and circumstances of the work. Systems are continually flexible, adaptable, and inherently innovative if allowed to unfold in unpredictable and uncertain ways. The leader must be aware of this confluence of interactions and forces as a profound and essential part of unfolding goals and objectives as well as project outcomes.

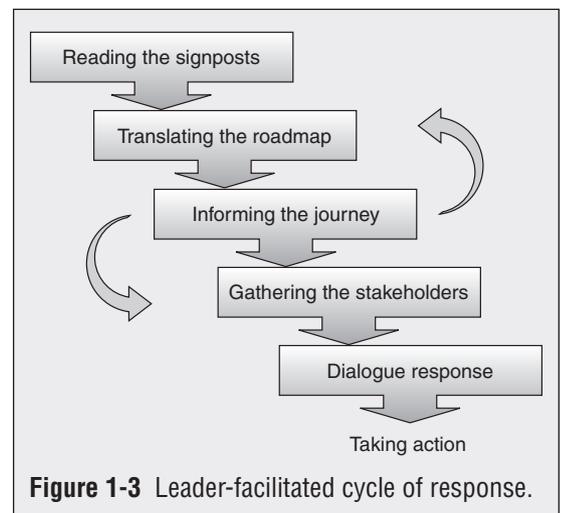
The leader must be aware that innovation and creation at work respond specifically to environmental and contextual forces. These forces influence much of the contents of programs and projects. The leader must become a good signpost reader, aware of the environmental and conditional circumstances operating and influencing the conditions and activities of work. Any change in the payment structure for health-care services automatically creates a change in the emphasis, content, and character of those services. A change in social policy regarding confidentiality, for example, has a direct impact on the design, implementation, and management of clinical and business information systems. A new technological discovery in the practice or clinical service creates a new technique and methodology for clinical intervention, changing the mechanism for intervention, the way in which patients are cared for, the way in which processes are paid for, and the supporting infrastructure related to delivering the new service.

What is also helpful for the manager is to recognize the virtuality of complexity and its embeddedness in every level and component of human dynamics and life activity. Processes and interactions are dynamic, not completely dependent on any one function or structural element in the organization. In fact, much of this action goes on out of view, almost at the level of the unconscious, forcing the leader to be aware of the dynamics operating in a higher level than that which is immediately visible. The leader must look at means, threads, or even pictures moving across the backdrop of activity that are clear indicators of process and progress. These indicators may even be activities themselves. In this set of circumstances, the leader is looking for the connections, the points of convergence between efforts and activities, and is attempting to identify the "noise" that indicates they are not working well together or that the confluence of forces are not merging in a way that will create the conditions for integration, operation, practice, and functional success.

It is also wise for the leader to recognize that a good vision, set of objectives, or focus can lead to a broad base of related effective and essential activities. For example, taking

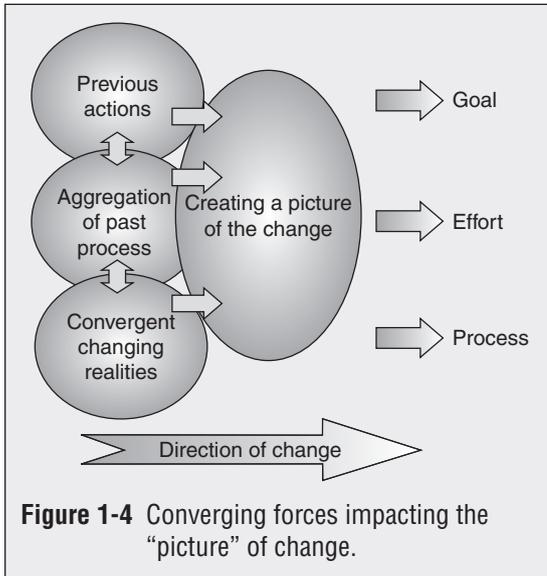
### Gem

Leaders recognize that their relationship is with the whole system, not with the department with which they are frequently aligned. Leaders manage their services by bringing their unique service perspective to the whole system and linking and integrating it with other perspectives in order to address the needs of the whole.



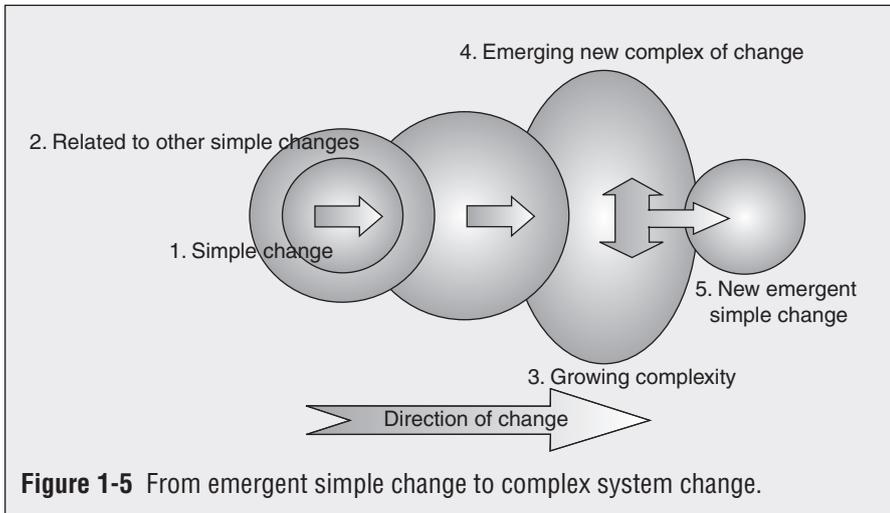
### Dynamic Processes

Leaders and staff often conclude that there is an end to particular effort or work process. The leader must take on a new mantle of thinking about beginnings and endings. In quantum change, all process is dynamic and continuous; it neither begins nor ends. The leader is continuously engaged in interacting with the constant ebb and flow of all process. The good leaders simply ascertain at what place in the flow specific processes unfold and how those activities lead to the goals being sought.

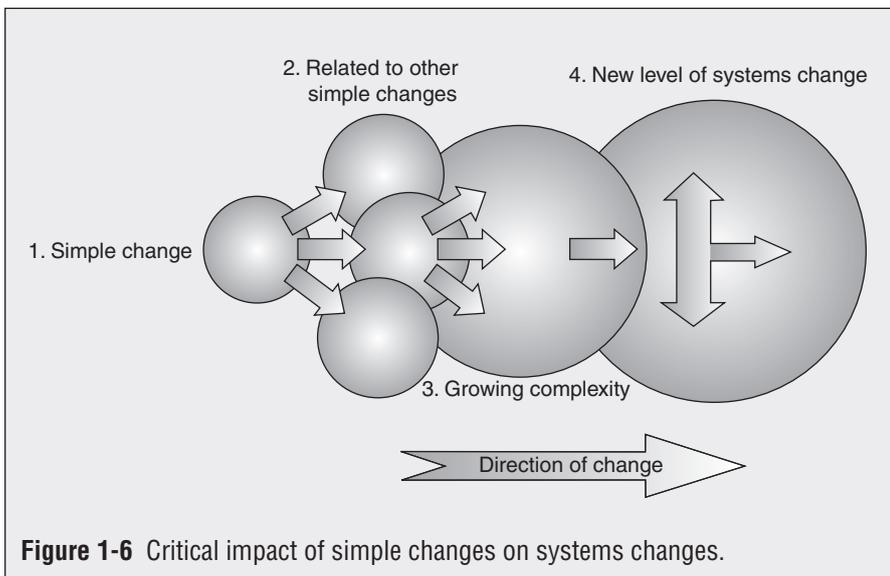


on a new diagnostic technology can have considerable impact across the system. If the diagnostic technology provides an opportunity to diagnose the potential for disease early on, it may eliminate or limit the use of currently employed technology that addresses the same disease when discovered in its later stages. The new technology changes or limits the need for and application of technology that may historically have been a source of great service and revenue for the organization. The implication is that the choice of new technology has a broader impact on the effectiveness and focus of the system than simply the individual diagnostic activity of the technology itself. This example is a small indicator of the effect that specific choices might have on other activities in the organization. The leader is always aware of this and is continuously looking at the broader-based implications related to any unilateral, simple, or focus set of choices.

In creating a vision, it is important for the leader to recognize that a simple, broader-based vision may itself transform all the functions and activities in an organization. If, for example, a clinical organization’s vision changes from providing good high-quality bed-based services to providing equally high-quality outpatient and ambulatory care



services, implications will be considerable regarding the organizational infrastructure, support systems and their priorities, capital planning activities, and financial and revenue considerations. In fact, each and every one of these functional elements will be transformed in ways that are significant for both the viability and the future success of the organization. A simple change in a broadly delineated vision creates complex changes across the system. This holds true with almost any undertaking related to setting visions or goals at any level of the organization.



What is critical for the manager and leader at any level of the organization is his or her reflection of the global impact of simple changes in goals, direction, or priorities at any place in the system. These changes, regardless of where they occur, can have broader-based implications for any and all other parts of the system. It is important for the leader to realize that, regardless at what level of leadership he or she operates, he or she has considerable impact on the organization as a whole when making decisions, regardless of the level of the system at which these decisions are made. In quantum complexity, decisions made at any place in the system can have tremendous implications and impact on decisions and activities unfolding at any other place in the system. While this should not be a frightening consideration, it should be a sobering realization

with regard to the implications and impact of decisions that occur at a unit level or any organizational level within the human work system.

### Principle 3

*Create a balance between structural and mechanical formality and relational and intersectional dynamics, recognizing the contribution of each to the other and of both to the whole.*

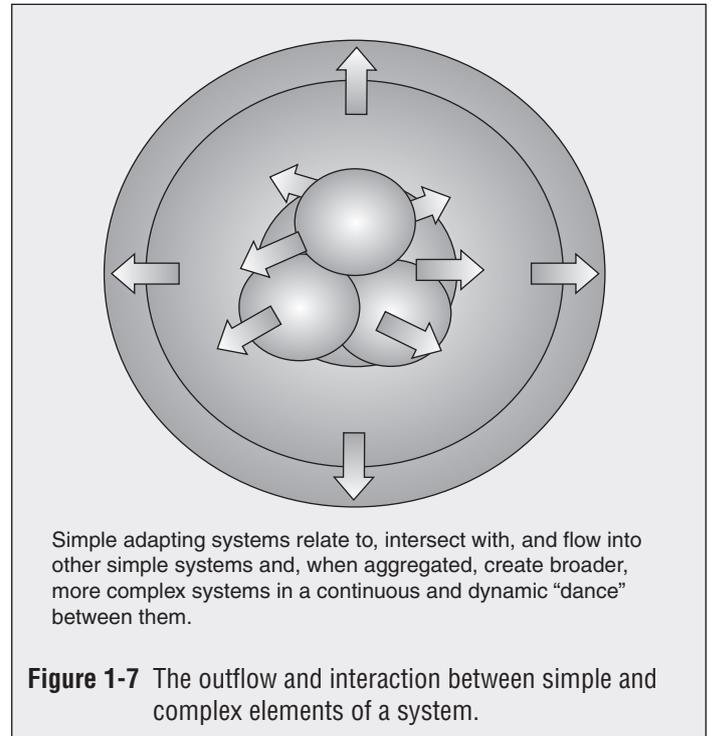
There clearly is always the need for structural formation in undertaking and functioning in human organizations. However, what is important to recognize is that structural formats are tools that give form and discipline to the far more variable and dynamic processes associated with human action. The leader must recognize that balance needs to be obtained between structural elements in the organization and the dynamic elements of human action.

The relationship between structure and human dynamics is not constant or rigid. Additionally, one is not an outflow of the other. What occurs in any given point in time is a continuous “dance” between structure and human action to changes in its cadence, outflow, interaction, and music as the relationship unfolds. The leader maintains a high level of awareness regarding the nature and content of the interaction between structure and human dynamics at any given point.

What often occurs in the dance between structure and action are changes in circumstances, conditions, and external forces in the environment that create a set of new conditions. These conditions now change the circumstances or the context influencing the dance between structure, process, and the relationships of work. The leader in this set of circumstances looks carefully at the mix of these influences and forces and what it says about appropriate action or response at any given moment. The environmental and contextual indicators related to the immediate situation provide more information than a simple assessment of the current situation or activities. Here the leader asks what she is indicating with regard to where the organization is within her context and what signposts are revealed with regard to appropriate response and specific direction. Through reading these contextual factors well, the leader can see better and make a better and more appropriate response with regard to direction, priorities, and action choices.

While the leader must maintain appropriate attention to building good supporting infrastructure, he or she must also be aware of the relationship and confluence of forces that are always indicators of any change moment. Those forces provide information regarding the dynamics of the journey, the elements of change, and the ascending priorities at any given moment that indicate a need for different strategies, a change in direction, or the establishment of new priorities or processes. Structure is modified by the dynamic of the dance of change. The leader recognizes the need to modify, alter, adjust, or even transform structures in order to make the organization more adaptable and more effective in its response to the demands of a given moment or specified change events.

Historically, the greatest problem for organizations has not been their power or influences or economic significance but instead has been their inability to quickly and nimbly adapt to the subtle and sometimes small changes that can transform their circumstances, their conditions,



**Figure 1-7** The outflow and interaction between simple and complex elements of a system.

#### Quantum Guide

The wise leader is always driven by a relationship focus. This leader constantly seeks to better see and configure the interaction between people, processes, and structures. It is this critical interface between these elements upon which the constant forces of change are acting.

Responding to and adjusting relationships, decisions, and actions within the context of people, processes, and structures disciplines the activity of the leader and keeps leadership action focused on the dynamics that lead to sustainable systems change.

#### Gem

Absolute stability in quantum awareness is a synonym for death. The persons and organizations that fail to continuously adapt and grow are doomed to die. For the leader, it is important to translate this message to all people in the organization: “adapt or die.” In this set of circumstances, all work is change and change is the work. This message is the centerpiece of good leadership and the requisite in all leadership performance.



the river and gather from it the information and tools necessary to adequately unfold their role in conjunction with the roles and processes of others along the river's edge.

This notion of a flowing, dynamic river of information is critical to understanding the application of information in making decisions, undertaking action, producing outcomes, and evaluating effective performance. Recognized as a part of this flow is the understanding that different points along the river of information require different kinds of resources that are available in a changing format. They alter emphasis and even content depending on the need for information and the point at which that data is gathered. It is the complex interplay along the river's flow that brings value to the use of information. Clearly, different people require different information at different points along the information flow. However, once gathered, all the information creates a composite or aggregate of information that in one way or another will speak to the health, the integrity, and the viability of the organization as a whole. The leader acts as integrator, facilitator, and coordinator of the information flow, linked information, and its application as a tool for evaluating the effectiveness and the efficacy of the organization's journey.

While we have used information as one example of the management of flow and of handling change in interacting with chaos, what is important to remember is that the organization, if it is successful, is continuously living on the edge of chaos. Effective, viable, healthy, and alive organizations are those that walk that tightrope between stability and chaos with a tendency to favor the essential chaos embedded in their own necessary changes.

Organizations must be committed to their own change. In order to make those changes, there must be in organizations and human systems a connection to the chaos, a willingness to engage its realities, and a process that incorporates the vagaries and uncertainties that chaos brings into the dynamics of planning, strategizing, and acting for the future of the organization. The leader represents this ease with chaos in her or his own role. This person recognizes the essential value of the change dynamic and the chaos that change brings with it and represents well an engagement with and embracing of the realities and elements of chaos. The leader recognizes the levels of functions and structure that are present in the organization. This leader also

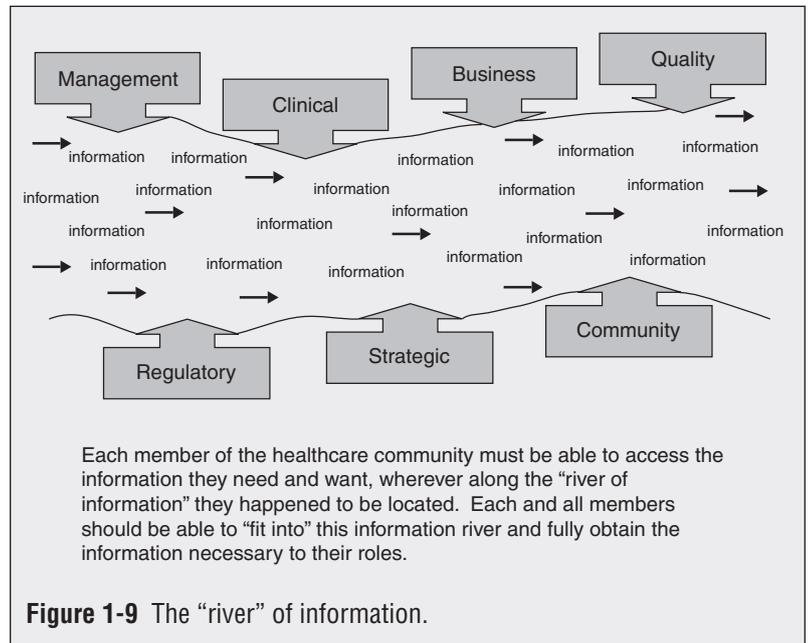


Figure 1-9 The "river" of information.

### The Tension Tightrope

Change can never occur in the presence of high levels of satisfaction. It is incongruous to expect that people will change those things from which they are enjoying great satisfaction. The leader, then, must manage people at the tension between satisfaction and dissatisfaction. The wise leader recognizes the level of balance in motivating the staff to change between their level of satisfaction and dissatisfaction in the attempt to have staff respond to the need for change. Finding this place of critical tension is challenging, yet it is necessary if staff is to engage their own journey of change.

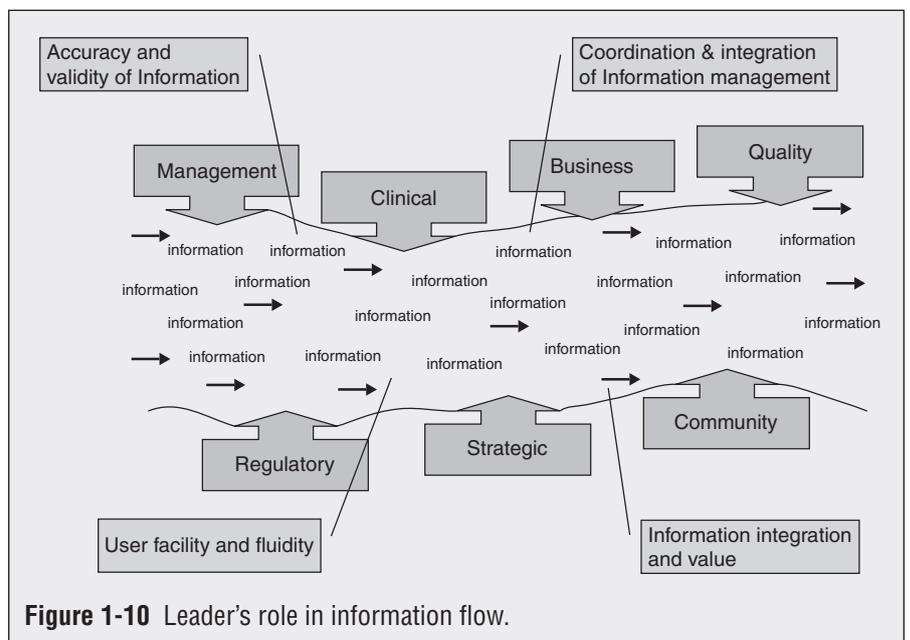
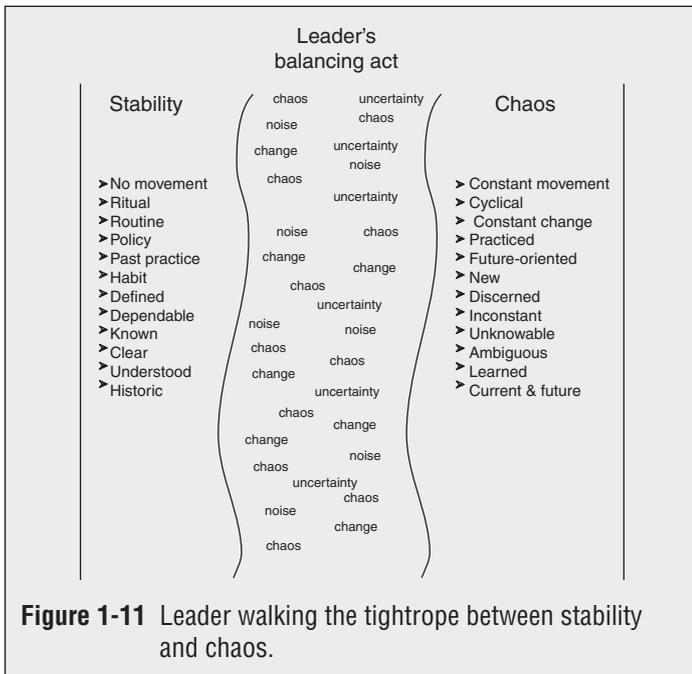


Figure 1-10 Leader's role in information flow.



recognizes that the more the organization is available for the challenges and dynamics of change that foreshadow its future and define its journey, the more successful it will likely become.

**Principle 5**

*The uncertainty of transformation in change brings with it the necessary engagement of both tension and paradox.*

The leader recognizes the need to maintain a specific level of tension in the organization. However, this tension is not related to distress or high levels of painful relationships. The tension embedded in quantum leadership is one that is intentionally maintained between creativity and complexity on the one hand, and peoples’ need for stability and regularity on the other. The leader recognizes the fundamental need for stability in the organization and incorporates it into the structural elements and components of unfolding work, as well as the relationships necessary to support both the work and the worker. However, the leader does not sacrifice the fundamental tension between order and chaos just to guarantee worker comfort.

A part of sustaining successful activities and the future of the organization is recognizing the tension between current systems functions and operations and the environment, which is continuously creating the conditions that change current realities. The leader, as the major signpost reader, anticipates the fundamental and essential changes embedded in all movement in human systems. That individual has the responsibility for communicating the movement of change, the impact of that movement on current functions, and the need to prepare for the very next thing. In this, the leader manages the timing, processing, and case for change in a way that balances the stability and integrity of people in the organization with the growing demand for change in the way of doing business.

In dealing with the continuous dynamics of change, the leader learns to master paradox as a way of moving change. The leader recognizes the essential paradox between the fundamental need for stability and the equally fundamental drive for adaptation and change. In managing these realities, the leader uses paradox as a tool for making change. For example, the leader might suggest to a group most reluctant to change how they might maintain their stability and order by radically altering their work processes as a way of ensuring that stability. Clearly, this makes little sense, but it does challenge people to use existing notions and concepts as a vehicle for addressing specific required adaptations and changes.

In living comfortably with paradox, the leader must be willing to raise paradoxical questions as a part of unfolding her or his role in guiding people to undertake essential change. Furthermore, the leader must inculcate in her or his own personal behavior the willingness to live with paradox. The leader asks herself or himself questions about leading and how that might be undertaken without providing control and order as a framework for leadership. How does the leader direct change without initiating that direction herself or himself? How does the leader integrate acceptance of essential change and change activities by modeling acceptance within the context of the leader’s role?

The leader creates the conditions and circumstances in which paradox is a part of problem solving and change making. For example, the

**The Chaotic Paradox**

Nancy was struggling with two groups of people in her organization; one group was eager to undertake the new changes in practice, and the other was equally as strongly committed to current practices. Nancy knew that changes had to occur; she just wasn’t clear exactly what changes were appropriate and what practices should remain the same.

Confronted with this paradox, Nancy decided to get both groups into one room. Using a flip chart, she undertook an intensive dialogue between both groups around the issues and concerns related to the needed change. Using the flip chart to document all thoughts and critical points. Nancy was able to identify the values needed to be retained, the challenges of change, and insights regarding what changes needed to occur and how they might unfold.

By combining both the purveyors of change and those who valued stability and engaging them both around the need for change, Nancy was able to use paradox as a tool for discernment and built a consensus around a specific direction for change. Furthermore, Nancy was able to engage the stakeholders in the discernment and establishment of their own direction for change.

leader might gather complex groups together with highly divergent opinions in an effort to create sufficient diversity to make any one solution or points of view untenable. The paradox is used as a frame of reference for helping people identify and address essential change. Using the need for stability can form a foundation upon which paradoxical, radical, and significant change can be undertaken in the workers' efforts to maintain their stability and good order. Such processes call the leader to not only embrace the need for paradox but also use paradox as a tool for challenge and change.

**Principle 6**

*Ambiguity and uncertainty are fundamental conditions for effective change: you don't have to be sure to be successful.*

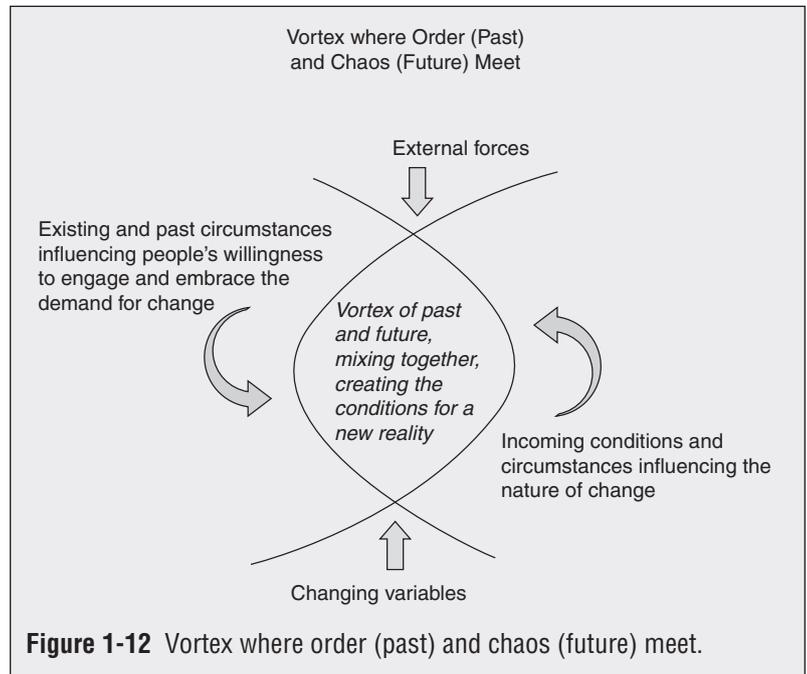
Evolution, heredity, and adaptation are all rife with examples of how uncertainty is essential for the ability to thrive. Indeed, without the necessary diversity and uncertainty of species and the highly variegated environmental conditions of the earth, there would not have been sufficient differentiation to support life as we know it. Uncertainty is an essential constituent of all adaptation.

Organizations have difficulty with uncertainty. The mechanical foundations of organizational structure and activity exist to remove as much uncertainty as possible from the conditions and circumstances of organizational behavior. By so doing, these organizations contribute to their own lack of adaptation and ability to thrive. One of the fundamental roles of the leader is to assure the organization does not become so enamored of its stability, form, and function that it fails to be aware of the fundamental need to shift and adapt all processes, reflecting the contextual changes that are driving it to thrive in a new or emerging reality.

The leader is constantly aware of the environmental forces and external influences that are creating the conditions for change within organizations. Indeed, the leader's role is to translate the fundamental forces of change into the language of the organization so that its people are continually aware of the action of these forces and their lives. These conditions create the uncertainty that is so much a part of life's experience. It is not that uncertainty is untenable or inappropriate; it is more that uncertainty is frequently ignored, as organizations concentrate more on their function and the stability they so desperately seek.

The leader always lives at the point of uncertainty. In fact, the leader is often a boundary walker, looking down at the issues, concerns, and actions of the organization from its "balcony." From this perspective, the leader begins to gain a better insight of the broad diversity of forces that act in concert to create the conditions for successful change. Nevertheless, the leader knows that no one choice or action unilaterally drives effectiveness or success.

In staying on the periphery of the organization, the leader avoids the temptation to become absolute, certain, and specifically clear about the single most correct action. In fact, good leaders tend to favor experimentation and innovative processes. This ties a number of different approaches to one solution and is a mechanism for finding the best



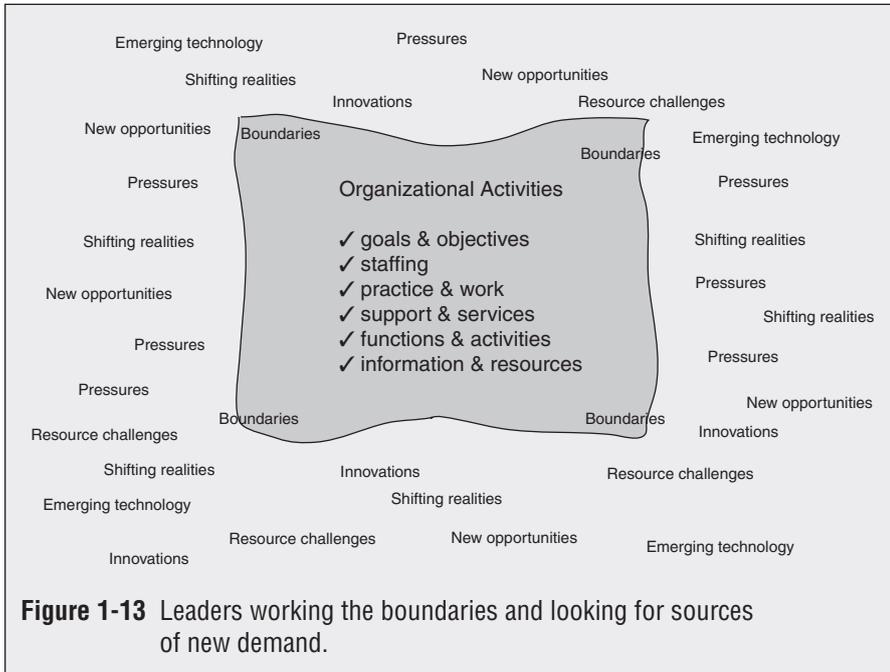
**Figure 1-12** Vortex where order (past) and chaos (future) meet.

**Gem**

Certainty can never be obtained to a sufficient enough degree to eliminate ambiguity. Uncertainty will always be a condition influencing human judgment and decision making. The leader will never have sufficient information or data upon which to know with absolute certitude what choices are right. Information can indicate factors influencing decision making and, when aggregated, can indicate the appropriate direction for choice. However, judgment must still be rendered, risk faced, uncertainty confronted, and action taken. That is the work of leadership.

**Quantum Guide**

Leaders make time in their schedule to periodically go to the "balcony." Distancing themselves from their own role and workplace, leaders go far enough away to broadly scan the environment, conditions, and circumstances that affect the lives of people and their organization. This is an essential role of the leader if the leader is not to be drawn into a narrow frame of reference for experiencing change and shifts in roles and performance. The leader is then better able to return to the staff and translate accurately to them the conditions and characteristics of the broader journey. This brings a deeper understanding to their own work experience and acknowledges their particular contributions to the organization's success as a citizen journeying in a larger world.



fit between selected processes and an effective outcome. This availability to a variety of approaches and solutions provides a better frame of reference for focusing on those mechanisms that span the possibility of being more successful than simply strategizing, deciding, and directing a solution based on consensus or unilateral decision making.

The good leader clearly defines the frame of reference, constructs, or conditions that relate to a solution. But what this leader does not do is find a specific single response or action that will be necessary to a situation's resolution. Instead, the leader gathers individuals around various solutions with the intent of finding in each of them those elements or processes that might lend themselves to addressing an issue or concern in a more meaningful way. Through this availability, process, experimentation, or

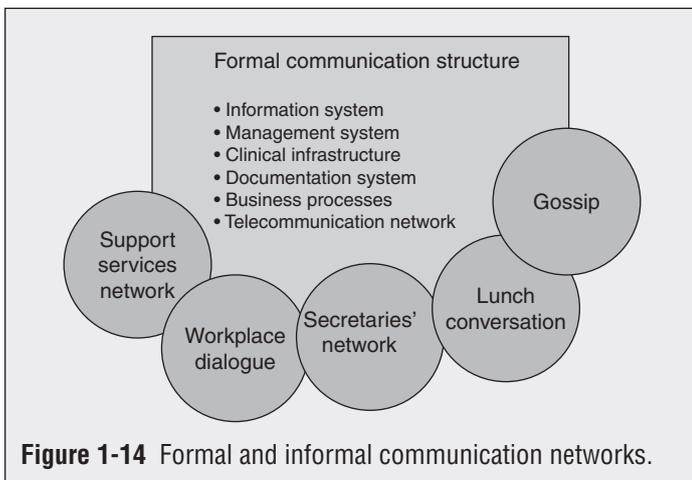
innovation, the leader increases the possibilities of good choice and extends that availability to a variety of elements that may impart a sustainable solution or a whole new set of processes to better advantage the organization and its work.

**Principle 7**

*The informal organizational networks are critical to an organization's success, as are the formal networks.*

Leaders intuitively know that the informal communication and action network of organizations and systems are highly effective tools of communication and information generation. However, this is often not formalized into the ongoing operational reality of the organization. In short, these informal networks are looked at as anomalous, rather than as normative operating processes of human dynamic systems. In formal networks, gossip, story sharing, personal life experiences, and so forth are all a part of the essential constituents of the communication system. Often these informal networks or informal groups of individuals have a greater significance to the effectiveness of the work of the system than do the formal structures and communication networks.

It is perhaps in these informal or shadow networks that much of the creativity and innovation of the organization is located. Indeed, Art Kleiner's new research on core group theory (2004) indicates that many of these powerful individuals and groups are not located within the formal organizational and leadership structure. Yet these individuals and groups have a huge significance with regard to the organization's effectiveness and creativity. Located throughout the system, these core individuals and groups often form informal networks where ideas, notions, innovations, and significant changes are discussed. Any number of stories have been told with regard to how creative and innovative processes have unfolded, not from the ordinary and usual format and structures of the organization, but rather from the serendipitous actions and activities of individuals and groups having gathered informally for purposes other than those defined by work. The leader accommodates



this reality and recognizes that through informal networks, much creativity and innovation upon which the future of the organization depends gets discussed in a safe context.

Leaders not only value these informal networks, they use them. The good leader tries to access and maintain relationships with some of the better-known components of the informal networks, such as secretaries, unit clerks, housekeeping, and security services, as well as the wide variety of lunchtime gatherings, where the real issues and concerns of the organization are addressed with a great deal of specificity and clarity and in ways not usually permitted within the normal organizational constructs. This leader recognizes these gatherings as fundamental tools of innovation, creativity, and truth telling that help the organization in its own growth and adaptation as well as its orientation to current reality.

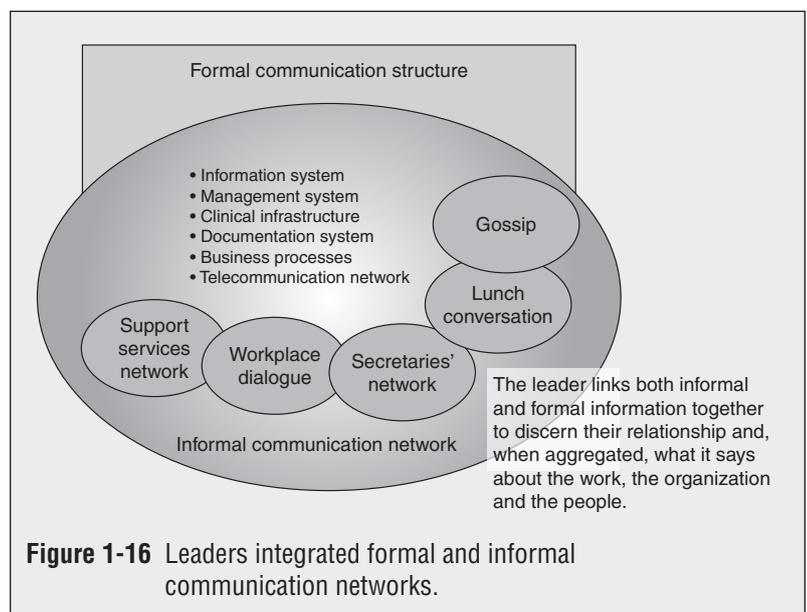
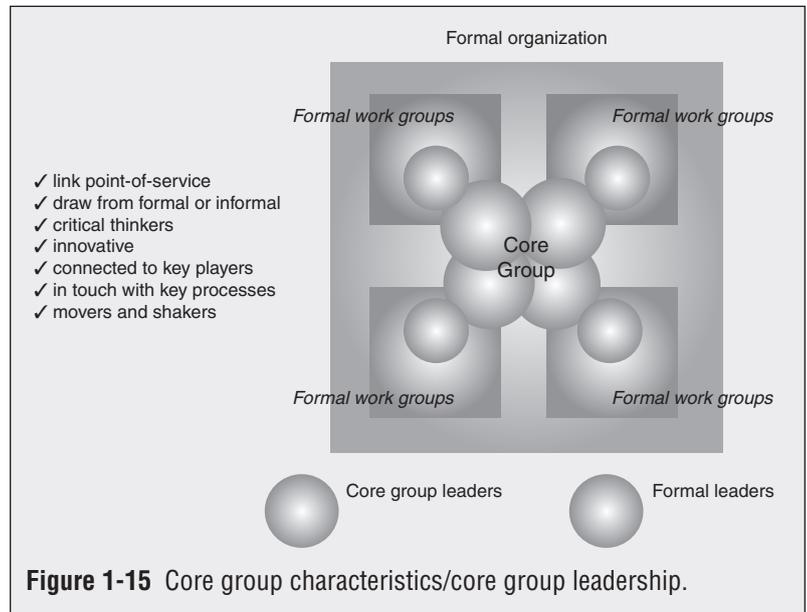
The leader recognizes these informal networks hold opportunities to truly problem solve and obtain ideas and notions that might not otherwise be obtained in the formal system. Because of the complexity and compartmentalization of much of the structures of health care, leaders would be advised to join, indeed, create informal networks that operate outside the formal structure. This will provide access to the highest levels of creativity and diversity, and leaders can then better apply ideas generated there to the work and dynamics of the organization.

**Principle 8**

*The most important part of systems is their intersections: larger systems should be the aggregation of successful smaller systems.*

In quantum reality, all systems are aggregations of smaller systems. Smaller systems clump together in a dynamic of interaction and intersections to create larger systems when such clumping provides value and meaning for the smaller systems. This reflects a principle that, regardless of the size of the system, "systemness" is always present, from the smallest measures of intensity to the largest measures of complexity. Indeed, if one wants to understand a large, complex system, it is better to look for the simplicity that lies at its center.

If one looks at the Internet, it becomes clear exactly how systems operate. As an individual uses the Internet, he or she creates personal intersections, interfaces, networks, and an information complex based on what he or she seeks to do or to accomplish. An individual system that meets the specific needs of that individual is created. However, to interact with the Internet, individuals access a part of a broader, more complex system within which their unique body of information becomes a part of a larger chain and complex of information and access points (Internet networks or communities). This makes it possible for others to draw from the Internet what they need from it. Continuing this dynamic throughout the whole human community, one can begin to see the narrow simplicity and broad-based complexity of interactions and intersections that make the Internet the complex yet simple system that it truly is.



### Seeing Systems

Leaders see themselves from the perspective of the whole system. All leaders identify themselves with the system as the whole rather than with that part to which they are associated. When leaders only associate themselves with their component of the organization, they frequently fail to act in the best interests of the whole. Indeed, they sometimes sacrifice the interests of the whole system for the needs of their service or department. When this happens, their influence and the impact on the system causes both the system and, in the long term, their own department or service to be compromised. Seeing systemness broadens the perspective of the leader, challenging the leader to act locally as though the viability of the whole system was at stake.

All of complexity is a result of cross-referencing, crossover, and integration of a broad complex of sometimes unrelated sets of elements or factors that, when aggregated, create increasingly complex organizations. Whether computers, the human body, or even the universe, all their elements make up both simple and complex systems. The notion of advancing between the simple elements and the aggregated impact they have on all elements is a metaphor for understanding complex adaptive systems. For the leader, the only way to truly understand complex systems is to be able to effectively make simple systems work well in themselves and then interface well with other simple systems that are also working well. Through this complex integration of simple, effective systems, complex systems are built and sustained. A failure of any one system is ultimately a failure in the entire complexity of the larger system. Here the leader recognizes that assuring the effectiveness of the simple functional system and addressing its successful interface with other systems builds the complex array of intersections necessary to sustain larger systems and to assure that simple systems and the larger array of complex systems work in concert to be mutually self-sustaining and life affirming.

### Gem

All systems are in motion. The leader is guiding the system on the fly. As the system continues to move in a dance with its environment, purpose, and circumstances, the leader is working to maintain and sustain a good fit between the organizational environment, purpose, and work. This continual interchange between each of these elements is the essential condition for thriving. In order to assure that systems and people continue to thrive, the leader never forgets that the leader's essential work is embedded in linking and integrating these forces.

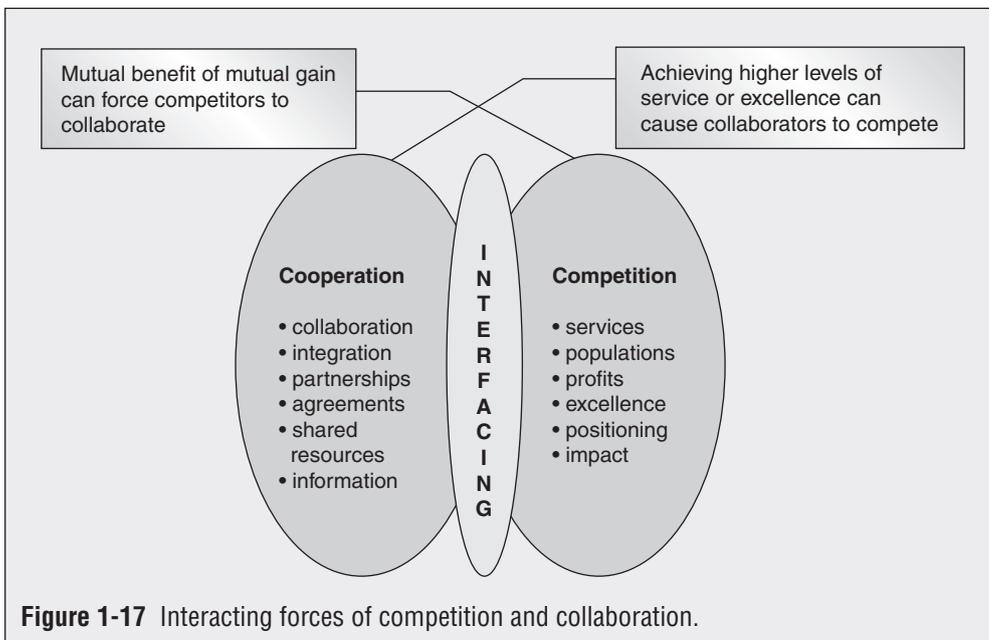
### Principle 9

*All creatures both compete and cooperate for resources and for the opportunity to live.*

Competition is embedded in the very fabric of life experience in this principle, exhibited at all levels of life from the cellular to the most complex organisms. Competition is a normative and universal experience. Cooperation and mutuality are equally essential to the ability to thrive. Whole communities of creatures at all levels of evolution work in concert to assure their mutual survival.

However, competition is also vital to life. In this paradox, competition is as important to adaptation and sustainability as are mutualism and symbiosis. At all levels of liability in life experience, examples of cooperation between and among species, organisms, and environments is as much an example of the activities and structures of life as is competition.

In nature, competition between animals is the most visible representation of the competition built into life. When species prey or feed upon each other in order to sustain life, they are clearly representing competition. Yet at the same time, cooperation between species is also often necessary to mutually support life. For example, African wrens live on the backs of water buffaloes, eating ticks that would otherwise irritate and infect the skin of these animals. In the ocean, smaller fish often accompany unrelated larger fish in order to feed off the creatures that would



**Figure 1-17** Interacting forces of competition and collaboration.

otherwise infect or endanger the life of larger fish. At all levels of existence, examples of both cooperation and competition are evident in every degree of complexity.

The leader looks for opportunities to visualize complexity and seeks to find the points of competition and cooperation that must exist in equal degrees in order for work to be successful or for the workplace to thrive. In fact, competition may contain within it the seeds of cooperation between competitors when mutual advantage is at stake. The leader may be aware of the need to produce incentives for cooperation even with those with whom he or she may most directly compete. The leader must also incorporate the possibility of forming alliances around specific issues with competitors without sacrificing the other arenas within which the leader would continue to be competitive with another organization.

Neither competition nor cooperation predominates in quantum systems. Whether one prefers to cooperate during competition is an indication of a higher-level issue affecting potential resonance in the system. This does not mean that competitiveness is eliminated as a condition or circumstance of one's life experience; instead, it means that where cooperation is possible and can advance the integrity of systems and systemness, it should be the preferred strategy. Here again, however, competitiveness and cooperation are not constant variables. The degree of competitiveness and cooperation may change, depending on the set of circumstances, issues, or frame of reference within which relationships are established. Since these are in themselves a dynamic, they may adjust or shift, ultimately changing the ratio of cooperation to competition. The leader exemplifies an awareness of these changing circumstances and can accommodate them, adjusting the degree of competitiveness and cooperation depending on conditions and circumstances reflected in the relationship between them.

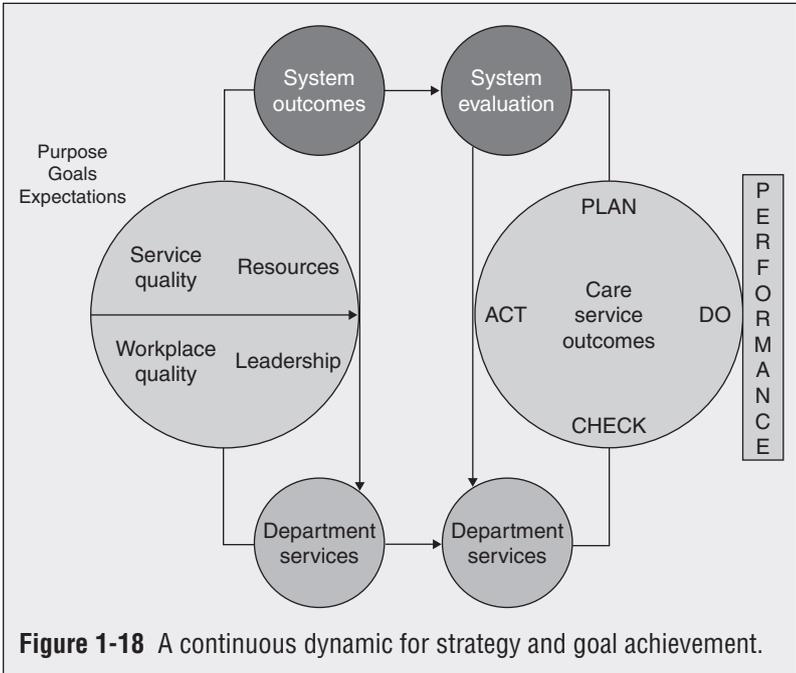
## CONCLUSION

Complexity management is simply another tool available to the leader to both understand and apply systems processes in order to effectively guide and lead people and organizations on the journey. Although chaos and complexity models are in their infancy, there is much already available to further our understanding of the application of complexity models in leadership decision making and the design of organizations. Every good leader will develop a growing understanding of the application of complexity and chaos in

### Competing for Quality

Marie and Fred are managers at St. Anywhere's Hospital. They have both been leaders in the hospital for a number of years and have worked diligently to assure the hospital success even in tough times when resources were short. However, although they both cooperated and collaborated extensively in advancing the interests and success of the hospital, they maintained an ongoing competition with regard to measures of clinical quality and service excellence. Marie and Fred constantly competed with each other to see who could achieve the best service and quality scores in the organization. Invariably their departments exchanged measures of excellence as they continue to compete with each other for higher levels of quality.

Marie and Fred present an example of both collaboration and competition expressed in a way that serves as a means to support the system. In this case both collaborated to sustain the success of the hospital, but each also competed over performance measures. Their accomplishments benefited each department, yet at the same time advanced the interests of the system. There is an example of a continuous and dynamic interplay of the forces of both competition and collaboration.



### Gem

Complexity science calls us to understand the unpredictable, chaotic, and uncertain influences and circumstances that guide the action of all life in the universe. While the leader looks for order and symmetry in the workplace, just beneath the surface lies the chaos and complexity that are the foundations upon which the next order and symmetry will unfold. It is this continuous dance between order and chaos, simplicity and complexity, and leadership and systems that guides the unfolding of the future role of the leader.

the exercise of leadership. This new critical concept will have increasing influence over the design and structure of work in the quantum age. Understanding the impact of complexity on decision making, organizational design, relationships, and work and applying it in the exercise of leadership will be essential to the success of the leader in the 21st-century workplace.

### SCENARIO-BASED FUTURES PLANNING

As the future becomes increasingly important but remains basically unclear, it becomes vital to be involved in processes that help organizations and people discern their preferred future. However, rather than predicting the future, it is important to look at the signs (vectors) that, when converged, indicate the pathway or journey to the future, rather than the future itself. Leaders must use a number of creative processes and mechanisms for both gathering stakeholders around their own futures journey and defining the actions and activities that will be necessary to create a preferred future.

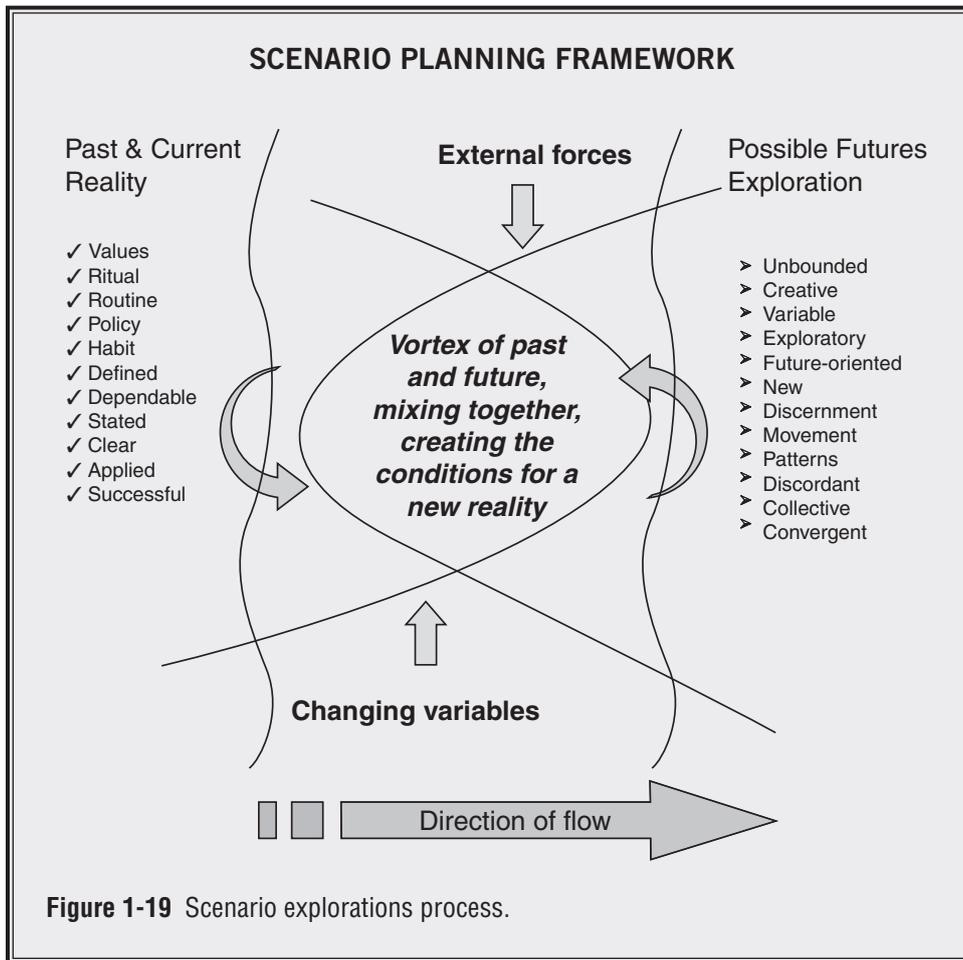
Scenario-based approaches define possible conditions and circumstances and the factors that may emerge if those conditions or circumstances unfold. The specific organization or people affected by a given scenario explore the potential responses and actions. Usually three kinds of scenarios are identified: (1) the scenario that emerges if nothing changes, (2) the scenario that exists in the worst possible case, and (3) the scenario that will emerge if all positive factors converge to create an ideal set of conditions or circumstances. Building scenarios is like constructing stories reflecting specific and defined elements and components that, when aggregated, give a picture of life within the derived scenario.

Scenario leaders use the following processes in the group's exploration of possible futures:

- Brainstorming
- Conceptual block busting
- Vectoring
- Data interpretation
- Technology assessment
- Financial projecting
- Community planning
- Demographic shifts
- Pattern management
- Future search technologies
- Consensus decision making

#### ***Scenario Exploration***

Gather a small group of formal and informal leaders around a single issue, such as patient care, new technology, length of stay, quality or cost control, and so on. Using the single issue as the driver, use the above techniques to attack the issue under the umbrella of a different scenario format: whether conditions remain the same, worst-case options, and best-case options. Identify how your world would operate with regard to the specific issue under each one of these scenarios. Remember that current elements, data, circumstances, and conditions provide the backdrop for the scenario as it unfolds. When scenarios are completed, they can be adjusted with regard to action planning, which will direct the organization to create a preferred future based on the preponderance of the evidence with regard to which scenario appears most appropriate and demands the most specific response.



## COMPLEXITY CASE STUDY

Sandra has been the clinical manager in critical care for 10 years. She has noticed that there has been an increasing level of changes in technology and clinical practice in the past 5 years. This new technology has created a different way of treating patients and has called clinical providers to adjust the way in which they deliver care for those patients. Because of the new technology, patients who are more seriously ill are now receiving higher levels of complex and intense care. At the same time, the demand to reduce the length of stay has accelerated as costs have increased and the revenue margin has tightened.

Staff have been reasonably responsive to the demand for change. However, there is a large number of staff members who are finding it difficult to let go of past practices and patterns of clinical behavior. At the same time, there is a large number of staff members who are eager to embrace the challenges of new practices and to incorporate them more quickly on the service. Sandra notes that this diversity of behavior is present in the medical staff as well. She's finding it hard to determine whether she needs to take a decisive lead and direct the staff to address these new changes or if she should take the additional time required to engage them in dialogue and group process so that together they might determine the best methods of action. Time is of the essence, yet all must be involved.

A group of the critical care staff have been meeting informally over lunch to talk about some of the issues in the service and to discuss matters of concern with regard to changing practice and new patient care demands. They have come up with many creative suggestions and are eager to begin implementing them as soon as possible.

Sandra appreciates their contribution but is beginning to feel as though she's losing control and now is no longer the source of providing direction in her department.

Administration, using a future-search approach, has developed a new strategic plan and set of goals and objectives for the health system. Each department has fully participated in the development of the strategic process and now must begin to incorporate the strategic goals into the operation and activity of the department. Every department must give evidence of advancing the strategic goals of the organization, a part of which is departmental competition for advancing quality and service excellence. Sandra must begin to build this initiative in her department. She is feeling challenged and is unsure how to manage all of this work and still implement new sets of priorities and actions in her department.

### Complexity Case Study Questions

Using quantum examples from the principles outlined in this chapter, review Sandra's leadership case study and respond to the following questions that reflect leadership in a quantum age.

1. What are three elements of complexity that can be identified in Sandra's circumstances?
2. Is there conflict or resonance between the organization's method of creating a vision and direction and Sandra's obligations to do the same in her department?
3. How certain does Sandra need to become about her issues and responses to them before she undertakes action?
4. Does Sandra have issues around controlling information, the content of work, the distribution of power, and the management of personal and institutional anxiety?
5. What are the paradoxes Sandra is now confronting in the course of providing clinical care and doing the business of the department?
6. Sandra must act on multiple levels. What are those multiple circumstances and levels of action that must occur in order for the unit to continue to grow and to thrive?
7. What is the emerging power of the informal system? Has the core group changed the dynamics of leadership and the movement of change?
8. What is the relationship between the larger organization (larger, complex system) and the department (smaller complex system), and how is the tension and resonance between them now managed differently?
9. What are the elements of competition and collaboration that are reflected in the departmental goals and staff activities?

### Application

Take the same questions and apply them to your own department's concerns or issues. Begin your discussion of your own department's issues by focusing on a particular problem or concern currently confronting the service or the department. In the context of group dialogue use the questions above to explore the issues and concerns. Try to establish a different frame of reference for answering them and a new set of processes for responding to them. Remember, there are no limitations or parameters, so exploration, innovation, and creativity are the tools that should be applied to this group process.

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