NEW PRINCIPLES OF ORGANIZATIONS AS LIVING AND LEARNING SYSTEMS

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Lessons from 20th Century Natural Science for 21st Century Leaders and Organizations.™

Most governments and businesses have, for more than a century, used the traditional building-block idea as the basic concept of organization. This idea guided the division of the organization into sub-units that could be easily controlled. The practice of organizational governance developed according to principles of bureaucracy. In ideal form, organizational boundaries between areas of responsibility were to be fixed and governed by official rules. Authority was to be allocated according to a firmly ordered, well regulated hierarchy of super- and sub-ordination. The basis of unit or office activity was contained in documents that were permanently associated with the unit and the operation of the unit was to conform to certain rules and regulations that were to be learned and followed explicitly. Thorough and expert training in all aspects of the unit's area of responsibility was the prerequisite for holding a management position in the organization. Employee activities were restricted to the official business associated with the particular office they occupied within the organization.[1]

These ideas satisfied most requirements for organization until the post-World War II period. As complexity and the rate of change increased through the latter half of this century, however, the need for a new conceptual basis of organization became ever greater. Today it is imperative that we replace old, rigid forms of thinking about organizations and experiment with new ideas that permit us to be effective in a context of rapidly increasing environmental change and complexity.

The principles for organization that are described below are based on the works of scientists from several disciplines.[2] As new paradigms of thinking emerge in many fields of science to help understand new observations and research findings, so too must the paradigm of organization be revised in light of new environmental realities. Here are eight principles, and their major implications, to consider as a new basis for thinking about organizations as living systems.

PRINCIPLE 1. INTERACTIVE AND INTERDEPENDENT RELATIONSHIPS -- Human organizations are living systems composed of interacting and mutually interdependent people and technology that engage in continuous transactions to produce outcomes. Each person, group, department, etc., is both a whole with multiple parts and part of a larger whole. The critical element in organizational effectiveness is the quality of the relationships among the parts at every level of the system. Understanding and working in living systems requires a focus on relationships and transactions rather than on isolated parts. The nature of the whole is always different from simply the sum of the parts.

MAJOR IMPLICATIONS: Organizational analysis and management practices based on reductionism techniques of dividing the system into its constituent parts (e.g. employees, supervisors, managers, departments, business units, etc.) are essentially misplaced. While these parts may exist, analysis and management attention must be given to the relationships among the units rather than strictly within units. Any examination of the organization's functions must be done in terms of its systemic properties and relationships. Assessment of a system's problems must include their potential impact on other related systems.

EXAMPLES: *Performance appraisals must include effectiveness in relationship with other units as well as within individual areas of responsibility. The vulnerability of the telephone switching station in New York must be assessed in terms of its potential impact on telephone systems in Brussels and Hong Kong as well as the air traffic control system at JFK International Airport and the Chicago Commodities Exchange.*

PRINCIPLE 2. PARADOXICAL COMPLEMENTARITY -- Human organizations as living systems contain paradoxical functions in complementary relationships. They are both self-assertive on their own behalf and integrative on behalf of their contexts -- opposite functions that complement and balance each other. They also are able to maintain themselves through processes of adapting, healing, and establishing equilibrium, while they are also able to transcend themselves and transform themselves through processes of learning, planned change and evolutionary development.

MAJOR IMPLICATIONS: Attempts to resolve the tension of the paradox between self-assertion and integration must be avoided. Neither can dominate the other without threatening the life of the system.

EXAMPLES*: Managers will accomplish more if they are fair and respectful of their employees than if they are overbearing in their demands for performance. A company's marketing department must not dominate all other parts of the system or the system will lose balance and cease to function effectively.*

PRINCIPLE 3. SELF-ORGANIZING -- Human organizations are self-organizing and form multi-leveled structures. They simultaneously have the capacity to function autonomously and as part of a larger system. Each subsystem tends to organize itself accordingly.

MAJOR IMPLICATIONS: To maintain a healthy systems, each subsystem must be given the opportunity to organize itself to maximize both its autonomous and interdependent effectiveness. As each subsystem is able to fully function with power (both autonomously and interdependently), the entire system is strengthened. Organization leaders gain organizational effectiveness when each individual is fully informed about the total system context and fully empowered for individual performance.

EXAMPLES: *Help individuals to create their own job descriptions and take into account their individual characteristics (strengths, limitations, interests, etc.), and their key relationships with others, as well as their individual job elements. A government training department must carefully assess its clients' needs before organizing its resources and programs.*

PRINCIPLE 4. INTERACTION WITH ENVIRONMENT -- Even though they are self-organizing and can organize themselves independent of environmental influences, human organizations must constantly interact with their environment, adapting to it and influencing it in a myriad of ways.

MAJOR IMPLICATIONS: Prolonged insulation from environmental feedback can permit serious maladaptation and even organizational death.

EXAMPLES: A senior executive must wisely use an "open door policy" to encourage honest input from the widest possible variety of sources to maintain a clear sense of position in rapidly changing markets. General Motors, in part because of its size and wealth, ignored environmental feedback for decades and is now seriously threatened.

PRINCIPLE 5. ANY CHANGE AFFECTS ALL -- A change in any part of a system affects all other parts of the system. As a system, everything is connected to everything else and, eventually, will influence and be influenced by all other parts.

MAJOR IMPLICATIONS: Awareness must be maintained of possible interactive effects of changes (e.g. resistance, down-line impacts, etc.) on all other parts of the system when any modifications are made by any organizational member. Even seemingly minor changes in one unit can have major effects on other parts of the system.

EXAMPLES: *A clerk in the finance department delays payment to a supplier for a few days without checking with or informing the operations unit. Necessary supplies are not received. Orders are delayed in being shipped. Customers are dissatisfied. Letters of complaint are received by the CEO. Lengthy meetings are held to determine accountability (no one asks the supplier why they didn't ship on time because they are regarded as "outside" the system). In lieu of anyone else, the operations manager is given a reprimand and resigns in protest (joining the major competitor within a month). The company incurs a cost of $100,000 to replace and train a new operations manager, etc., etc., etc.)*

PRINCIPLE 6. FLEXIBILITY AND VARIETY -- Unlike machines, living systems possess a high degree of flexibility and elasticity. The size and shape of their parts may conform to certain general criteria, but no two parts are exactly alike and they can change the processes by which their parts relate to each other in a wide variety of ways.

MAJOR IMPLICATIONS: Capacities of organizational members and units must not be underestimated in their potential contributions to the goals of the larger system. As a business cycle is experienced, individual and members can be deployed from time to time to focus their energies and talents on a wider variety of objectives than may be traditionally assumed.

EXAMPLES*: There is no need to incur the expense of special personnel for the annual industry commercial exposition. With only a little extra training, people from the sales, marketing, operations, engineering, and other units may happily staff the organization's booth and be glad to use talents they don't ordinarily employ and experience a change of pace in their work lives at the same time. The telephone company originally installed its cables and switching equipment to transmit telephone conversations. Those same resources, more flexible than imagined, are now used to transmit voices, music, television and radio signals, computer data, fax messages, and more.*

PRINCIPLE 7. LEARNING CAPACITY -- A human organization, as a living system, can learn new processes of internal relationships and new ways to interact with its environment. It cannot be described as having learned something, however, until all parts of the system can demonstrate the learning in relationship to all other parts.

MAJOR IMPLICATIONS: Telling them doesn't make it so. Persistence and repetition in organizational learning efforts is essential to assure the necessary lessons penetrate to all elements of the system. The more central the lesson the longer the learning will take. The more each individual knows, the more potential there is for the creative application of information to develop new solutions and resources.

EXAMPLES: *Learning a new organizational objective, with all its implications for each unit and individual may take a year or more. Every unit and individual must demonstrate the capacity to respond appropriately to all the situations that come up throughout the period of a full annual business cycle. A secretary put the new budgeting system onto a computer network and helped every other secretary in the organization save millions by reducing waste and unnecessary duplication of purchases.*

PRINCIPLE 8. SELF-TRANSFORMING CAPACITIES -- As self-transforming systems, human organizations have the capacity for three major kinds of adjustments in response to changes in environmental circumstances:

1. Adaptations to temporary pressures pushes certain aspects of the system to its extreme limits. Changes of this kind are made at the expense of the flexibility of those aspects of the system that are at their extremes. There is no more room to stretch should the external pressure increase. Adaptations are, however, relatively easy to reverse once the environmental pressures have abated.

2. Structural changes are made by internalizing the stresses of adaptation and rearranging the shape or body to accommodate a more long-lasting adjustment. This change in shape permits greater degrees of flexibility regarding the remaining functions since they are not at their extreme limits of function. However, it will be difficult and require relatively large amounts of time and energy to revert back to the previous shape, if necessary, will be difficult and requires the maintenance of some previous capacities even though they are not used while functioning in the new shape.

3. Essential changes include changing the fundamental nature or essence of the system -- its basic make-up, purpose, central function, or context is made different to permit more complete success under new environmental conditions. This type of change allows maximum flexibility under the new conditions but is irreversible if conditions should revert to previous states.

MAJOR IMPLICATIONS: Judgments about changes necessary to assure the continued effectiveness of an organization in the context of new environmental conditions should consider the different kinds of adjustments that may be made in light of the trade-offs that arise regarding flexibility and permanence. If the environment has changed for all time, mere adaptation is an unwise adjustment. However, if market forces are still evolving and require a new response, structural change may suffice for the time being until the future is better understood.

EXAMPLES: *Redefine the essential nature of a typewriter company to adjust to the computer age. Change its structure to more fully interface with still emerging components of the computer industry. Retrain the way its old employees think about the company and the industry it is in. Help its new employees to adapt to a state of radical change only until the new nature and structure are in place and stabilized.*

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1 Weber, Max, Wirtschaft und Gesellschaft, Part III, Chap. 6, pp. 650-678.

2 The new principles of organizations as living systems are based on the works of chemists Ilya Prigogine and Manfred Eigen; biologists Conrad Waddington and Paul Weiss; anthropologist Gregory Bateson; systems theorists Erich Jantsch and Ervin Laszlo; physicist Fritjof Capra.

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