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HOLISM IN MANAGERIAL DECISION MAKING

N. Gökhan Torlak

Fatih Üniversitesi, İ.İ.B.F., İşletme Bölümü, Yardımcı Doçent Dr.

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Abstract: *The paper mirrors the rising maturity of systems thought and systems language in managerial decision-making or problem management. It is based upon the assumption that building blocks of reality are not parts but wholes—systems in which ill-structured and systemic problems having social and behavioral aspects and interdependency cannot be worked out with the methods and techniques of reductionist positivist science. They require better-equipped 'holism' to deal with. In this regard, systems thought and systems language play a significant role as a unified approach to problem management. It emphasizes the complementary role of various systems metaphors and systems methodologies in managerial decision-making and liberates the consciousness of managers/problem-solvers/decision-makers to cope with organizational issues through systems idea.*

Keywords: Holism, Metaphor, Method, Methodology, Problem-Solving, Systems Thinking.

YÖNETİM KARARLARINDA BÜTÜNCÜLLÜK

Özet: *Bu makale sistem düşüncesi ve sistem dilinin yönetsel karar verme ve problem yönetiminde olgunlaşan yapısını ele almaktadır. Sistem düşüncesi ve sistem dilinin dayandığı varsayım realitenin ana yapı taşlarının onu meydana getiren tek tek parçalarından değil, bu parçaların birlikteliğinden oluşan bütünden—sistemden olmasıdır. Bu sistemin içerisinde 'hasta yapılı'—sosyal ve davranışsal özellikler—gösteren ve 'sistemsel'—parçalar arasındaki bağlılıklardan oluşan—problemler pozitif bilimlerin indirgeme yöntemine dayanan teknik ve metotları ile çözülemezler. Bu tür problemler daha iyi teçhiz olmuş bütüncül bir yaklaşımla çözülmelidirler. Bu bağlamda, sistem düşüncesi ve sistem dili problem yönetiminde birleştirici bir yaklaşımla önemli bir rol oynamaktadır. Bütüncül yaklaşım yönetsel karar verme süreçlerinde değişik sistem analojileri ve sistem metodolojilerinin birbirlerini tamamlayıcı rolüne vurgu yapar ve karar veren yada problem çözen firma yöneticilerine sistem fikrini aşılar.*

Anahtar Kelimeler: Bütüncüllük; Metafor; Metot; Metodoloji; Problem Çözme, Sistem Düşüncesi.

I. INTRODUCTION

In an era of mounting intricacy, transformation, and diversity, how do organizations sustain their survival? They have to remain viable in an environment where there are swift technological innovations, fleeting customer preferences, short product life cycles, cutthroat competition, globally structured and organized production and trade systems, and continuously changing universal and governmental rules and regulations. These factors generate colossal pressures on managers whose firms should be efficient and effective in the global environment. They have to demonstrate a new leadership style and to be open to the help of advisors, consultants, and academics. In fact, they need a fundamental shift in their approach and philosophy to the managerial problems. They should not be satisfied with instant solutions to the simple problems. For example, quick-fix solutions to the production management problems through enterprise resource planning (ERP), to the marketing problems through customer relationship management (CRM), to the finance/accounting/ management issues through balanced scorecard, or to the control, communication, and participation concerns through total quality management (TQM) are all generate sub optimizations. They are also extremely costly.

Today' managers should develop a rigorous appreciation in their philosophy that they need a systems language when they approach to the organizational problems. They have to think of organizations as systems, which have parts and also belong to a greater system. Each has its own environment. Problems in this holistic thinking are hidden in the interactions of a system's components. Systems thought as a holistic approach to problem management emphasizes the complementary role that the various systems methodologies can play an important role in the overall task of managerial decision-making. It also consists of rich theoretical knowledge and practical approaches to battle with, as Ackoff appropriately defined, "messes" or interrelated problems of the world. Through the diversity of methodologies and methods systems idea generates creativity and power in problem management [1]. They are goal-seeking and viability improving; hard systems thinking, system dynamics, organizational cybernetics and complexity theory, purpose exploring; strategic assumption, surfacing and testing, interactive planning, and soft systems methodology, fairness ensuring; critical systems heuristics and team syntegrity, and diversity promoting; postmodern systems thinking [2].

In light of above considerations, the paper first makes clear why do we need systems thought? Second, handles the nature of the holistic perspective on the basis of its fundamentals and its movement, and finally points up the practical images of systems thought.

The paper is divided into three parts. The first part initially deals with the concept of holism, the problems for science: complexity in general sense, the extension of science to cover social phenomena, and the use of scientific methodology in real world situations, and then benefits of holistic framework for the organizations. The second part firstly analyzes the unified characteristic of systems thought that offers sophisticated solutions to the interconnected problems of the business world, and then the movement of systems thinking. In its holistic feature, there is an emphasis on those of two pairs of ideas, namely emergence and hierarchy, and communication and control. In considering its movement there are two broad areas of systems work; first, the development and study of systems ideas, and then the application of systems ideas in other disciplines. The final part briefly describes the practical aspects of systems thought: various filters that highlight problem situation from different perspectives and different systems approaches that tackle different types of problems and ensure organizational development. As a consequence, the paper makes the practitioners' / problem-solvers' / decision-makers' be aware of the fragmented nature of management science and cope with complexity with diverse methodologies in a complementary fashion. In the conclusion part, the paper draws up some guidelines to construct a holistic approach for managers in organizations.

II. WHY DO WE NEED SYSTEMS THOUGHT?

The systems thought is based on the philosophical concept of holism that is opposed to atomism of mechanistic scientific theories of Newton and pre-Darwin world. The atomist believes that any whole can be broken down and its separate parts and the relationships among them can be analyzed. It is a static and deterministic view of the world. However, in holism the whole becomes primary or it is 'greater than sum of its parts' and the parts' functioning is conditioned upon their relationship to each other. The early Greek holism saw the world as 'changeless unity,' indivisible, and 'wholly continuous.' In the seventeenth century, Spinoza's holistic philosophy was based on the fact that all differences and divisions in the world were reflections of an underlying single substance—God and nature. In the eighteenth and nineteenth centuries, Hegel's holistic philosophy gave priority to the nature and state. The nature has mystical and unified reality whereas the state is indiscernible and a higher collective reality from which individuals derive their identity and to which they owe their compliance and loyalty. Having influenced by above eras all collectivist political thinkers like Marx emphasized the importance of unity, social whole, and social group that have character and desire of its own [3].

In the twentieth century there has been a tentative movement toward holism in such diverse areas as politics, social thinking, psychology, management theory, and medicine. All reacted against individualism that led to the outcomes of alienation and fragmentation. Individualism privileged positivist scientist/practitioner who occupied significant positions in organizations in the world. Their scientific philosophy was based on the principle of Ockham's Razor that says "do not multiply entities unnecessarily." Engineer-managers coped with complex organizational problems through Descartes's second rule for 'properly conducting one's reason,' which divides up the problems being analyzed into separate parts and this division, it is assumed that, will never distort the phenomenon being studied. According to them, it is possible to obtain knowledge of the world through the application of rational thinking to the properly designed experiments. It concisely expresses the formal laws that yield lawlike statements. Within this framework, the pattern of human activity is institutionalized and evinces the characteristics of reductionism, repeatability, and refutation [4]. They produce logical deductions that make a priori statements about essential connections between entities. However, holists recognize that lawlike statements cannot explain the nature of social reality. Holism is surely orientated to social, political, and cultural factors. For example, in economics holists are not concerned about such abstract variables as savings, investment, competition, profit maximization and efficiency. Rather, they are interested in attitudes and behaviors of economic actors, what mobilized them to save or invest? Holistic intellectual orientation in social sciences is based on the concept of 'unity' through a set of values or socioeconomic structure that conditions everything. It also gives primacy to the subject matter over method. Scientific model and optimizing behavior of reductionist approach is replaced by concrete and particularized approach. Furthermore, it emphasizes dialectic that overcomes human tendency to be biased and one-sided [5].

After a brief overview of the concept of holism, we will answer the question of to what extent can the method of science cope with complexity? There is a need to analyze some of the limitations of the method of science as the complexity of the issues increases.

We are forced to reduce our knowledge to some man-made isolated domains—different subjects and disciplines, such as physics, biology, psychology, sociology, etc. This makes it easier for us to arrange the classification of knowledge according to some rational principle. Many possible categorizations have been proposed based on a number of different principles.

Checkland [4] argued that the order in libraries show the worked out classification of knowledge. Aristotle had recommended library organization and the catalogue of great library based on the roles of authors: poets, lawyers, historians, etc. In the nineteenth century Auguste Comte's classification of sciences is also worthy of mentioning. Comte aimed at setting up a uniform arrangement of all human knowledge in order to provide a base for the new science of sociology, through which it would be possible to transform social life. Comte's doctrine was that human thought in any subject area passes through three phases: a theological phase dominated by fetishist beliefs and totemic religions; a metaphysical phase in which supernatural causes are substituted with forces, qualities, properties; and lastly a positive phase in which the concern is to find out the cosmic regularities governing phenomena. Comte argued that sciences had all passed through this sequence. Comte also placed the sciences in a natural order, which recorded as follows: mathematics, astronomy, physics, chemistry, the biological sciences, and finally sociology. The point here presupposes that each science is more complex than those before it.

Pantin [6] who also discussed the problem of complexity for science made a useful distinction between restricted and unrestricted sciences. In a restricted science such as physics and chemistry a limited range of phenomena are learned, well-designed experiments are possible, and it is probable that mathematically expressed hypotheses can be checked by quantitative measurements. In an unrestricted science such as biology or geology, the impacts under examination are so intricate that designed experiments with controls are often not possible. Quantitative models are more vulnerable and the observations are dominated by unknown factors. The social sciences are all unrestricted in Pantin's sense, and present considerable problems for the method of science. In this way they introduce a new kind of difficulty beyond that of plain complexity.

The unrestricted sciences or social sciences like anthropology, economics, sociology, political science, etc. have to cope with exceptionally difficult problems. It is not sufficient only to look at complexity and the non-availability of experimental objects that bring problems. There is also the greater problem of the special nature of the phenomena to be studied [7],[8]. The messy nature of social phenomena, we can expect the findings of a scientific approach to the investigation of social reality to have particular features, which differentiate them from the findings acquired by the natural sciences' investigation of the physical world [4].

First, in social sciences any generalizations and exact definitions are to be imprecise. For instance, the employer who evaluates two equally well-performed employees' performance differently develops a tendency to consider the social class of the employees more important factor than the nature of the task accomplishment. However, in a restricted science like chemistry we exactly know how do we achieve water? Two hydrogen and one oxygen together make the water. It is a single clear form and generalized. We can invite anyone to check the observational findings and repeat the process.

Second, the availability of many possible attributions of social phenomena distinguishes the findings of social science from those of natural science. People who actively participate in the phenomena probe attributions, meanings and change the situation in a potentially distinctive way. This means that the possibility of perspectives or interpretations is always confusingly available in the case of social phenomena. Max Weber indicated that the scientist's observation must include interpretation in terms of its meaning for the actors, but the social scientist needed a considerate approach to the situation. Weber's point is that the special implicit values of participants naturally affect the interpretation of the situation in evocative human behavior. This shows a clear distinction between a social scientist who accept the people's own account of the meaning of a situation and a natural scientist who desires to achieve the descriptions of occurrences, which any observer may check by repeating them [4].

Third, the social science has the difficulty of making predictions of social happenings. In social systems there are always mixes of intended and unintended effects. Forecast of the outcome of observed happenings in social systems may change the outcome. Social systems can react to predictions made about them.

In looking at the problems of management, social sciences unlike natural sciences would never help us in the solution of real world problems because social sciences do not have rules and laws which are well tested, expressive, and rationally linked. The management is concerned with determining goals and methods, with evaluating alternative courses of action, measuring performance, or taking corrective action.

In the analysis of benefits of systems thought for organizations, we may argue that that a holistic approach would bring about significant advantages for them. These may be regarded as recommendations to the managers. Unlike reductionist manager, a systems approach-equipped manager will generate a systems framework or mechanism—emphasizing structures and functions within the organization that helps guide the development of all components, such as management, planning, purchasing, production, accounting, finance, sales and marketing, and personnel, and the interactions among them, which sustain the whole system. A systems based framework or philosophy within the organization provides a foundation

for constantly understanding component parts and their interactions. Organizational units and individuals who learned this holistic way of thinking will make use of it as a reference point to capture agreed and disagreed issues and develop a common language within the organization. In addition, the holistic perspective would provide a mechanism for understanding the performance of the functioning components and their relative contributions to the whole system. In this way, it is possible to highlight missing components and/or malfunctioning parts as well as how each individual part fits within the whole system.

Furthermore, each component's needs will be identified. Some organizational units would require more attention to their matters than others or some of them would have more critical needs than others. This would bring to the fore the prioritization of units' activities. In this way the organization would accommodate the changing issues over time. Ensuring linkages and interdependency among the whole system's parts through the organization of information mixture is so crucial for the viability of the whole system. Finally, the systems language will promote mutual understanding among system parts and structure the communication within the organization. To sum up the above ideas, the following advantages can be drawn up.

- A systems philosophy helps organizational members think the viability of the whole system and then sustain the component parts and their interactions.

- A systems approach based manager will generate a systems framework in which organizational structures and functions are identified.

- A systems framework helps develop a systems language by which a continuous appreciation of component parts and their interactions are emphasized and developed.

- A systems framework will highlight the activities of each component part and their contribution to the whole system. This will unveil the critical issues or the prioritization of units' activities.

- A systems framework will organize the information mixture and ensure collaboration and integration among organizational units.

- A systems framework will advance reciprocal appreciation and structure communication within the organization.

III. THE ADVENT OF A HOLISTIC APPROACH TO COPE WITH COMPLEXITY: SYSTEMS THOUGHT AND SYSTEMS LANGUAGE

In this part, we point up the reasons for the significance of systems thought and systems language, which gained foothold in many different disciplines, through looking at its foundations. Systems thought and systems language in its classical sense is based upon the ideas of *emergence* and *hierarchy*, and *communication* and *control*. In addition, we briefly consider the systems movement.

The first strand of systems thought comes from biology that is an unrestricted science and coped with complexity by scientific method. Biology considered the ways of thinking in terms of wholes, and it was a biologist Ludwig von Bertalanffy, who suggested generalizing this thinking to refer to any kind of whole, not simply to biological systems. The second strand in systems thinking comes from electrical communication and control engineering [4].

Before the advent of systems thought, the dispute between Vitalists and Mechanists was bitter. Vitalists such as Hans Driesch argued that the development of a whole organism from a single egg must mean that in each developing organism resides an inexplicable spirit-like 'entelechy' or 'élan vital,' which somehow directs and controls the growth of the whole. The mechanists despised the unscientific posture adopted by the vitalists. The vitalists favored teleology whereas mechanists preferred teleonomy. Teleology is a philosophical doctrine in which developments happen as a result of the ends served by them rather than as a result of prior causes. However teleonomy is a neutral term indicating that an observer in terms of the ends served by them may describe developments. This relationship between teleology and teleonomy resembles that between purposeful and purposive. Purposive means that a system serving a purpose describing an activity in the real world, teleological, and purposeful means that a intentional human action is involved in the system, teleonomic [4]. There was a sufficient room for the metaphysical assumptions of vitalists to flourish because mechanists did not introduce convincing notions that explain the behavior of social phenomena. However, vitalism failed due to scientific developments based on complex empirical findings and causal relationships. So the way was open for the mechanistic thinking, which was based on analysis, reductionism, hierarchical relationships among ultimate components, and individual optimization of components in pursuit of some goal. The major problem with these assumptions is that organizations did not perform well when their parts are individually optimized. Systems thinking emerged as a response to this failure to explain the biological phenomena in terms of interdependence of the components of the whole [9].

In the late nineteenth and early twentieth centuries the organicism as an analogy was widely used for other larger entities such as families, societies and civilizations. In the mid 1940s Bertalanffy used the generalized organismic thinking into thinking concerned with systems in general.

The essential feature of the living systems is characterized as hierarchy and at certain points in the hierarchy a degree of 'organized complexity.' The organization of the processes is the clearest and indeed the only decisive unique feature between the vital happenings and the ordinary physico-chemical processes. The concept of organized complexity that became the focal point of the new discipline systems; and the general model of organized complexity is that there exists a hierarchy of levels of organization, each more complex than the one below, a level being characterized by emergent properties which do not exist at the lower level. Emergent properties are meaningless at the lower level. The idea eliminated the metaphysical notions such as entelechy and claimed that a whole is synthesis in which independent parts are structurally related and unified. Biological explanations emphasizing the existence of hierarchies of levels of organization in living organisms highlighted the constraining nature of elements at higher levels over the activity or the freedom of the elements at lower levels. In treating the living organism as a whole, rather than simply as a set of components together with relationships between components, von Bertalanffy drew attention to the important distinction between systems that are open to their environment and those, which are closed. Open system is one having imported and export of materials, energy, and information. Organisms or open systems have to maintain equilibrium; they can achieve a steady state, which depends upon continuous exchanges with an environment. Steady state creates and maintains a high degree of order. The preservation of the hierarchy will entail a set of processes in which there is communication of information for purposes of regulation and control. Von Bertalanffy also suggested that the behavior of open systems in biology could be observed in open systems in other disciplines, thus he called a 'general system theory' that allowed insights of one discipline to be used in other discipline.

Control mechanisms studied in natural systems and in man-made systems are known as cybernetics, the Greek word meaning steersman. Plato used the word making an analogy between a helmsman steering a ship and a statesman steering the ship of state. Wiener [10] suggested the word to cover the theory of messages, and of message transmission for purposes of control in many different contexts. Recognizing the generality of the notions of communication and control, Wiener defined cybernetics as the "entire field of control and communication theory, whether in the machine or in the animal". Ashby [11] considered cybernetics that deals with all forms of behaviors, as they are regular and reproducible. Wiener realized the importance of the process of feedback, namely the transmission of information about the actual performance of any machine to earlier stage in order to modify its operation. The modification aims to reduce the difference between actual and desired performance.

In the relationship between systems thought and management and organization theory, there were two dominant periods. In the first phase, the tradition that is profoundly influenced by the assumptions of scientific management puts emphasis on the achievement of preset goals. What are the methods to achieve the goals? There was obvious negligence of the purposes of the parts and human factor. The approach was optimization and the design of the system was purposive—reaching the specified targets. However, organizations as social systems consisted of human beings who have their own purposes that are not necessarily coincide with the goals of the overall system. Human beings' purposes are formed by different experiences and education, which generate different worldviews or Weltanschungen. In the second phase, the tradition uncovered the importance of sub systems to the overall system effectiveness as well as the organization-environment harmony. Theorists such as Selznick [12] studied organizations as 'co-operative systems' seeking not only the economic purposes but also the 'recalcitrant' interests of their parts. Likewise, Parsons [13] emphasized that the survival of social systems is conditioned upon satisfaction of 'functional-imperatives' or needs—adaptation, goal-attainment, integration, and latency. Recent theorists such as Burns and Stalker [14] discovered mechanistic and organic management system models that are related to the appropriate environments, Lawrence and Lorsch [15] found out the varying degrees of differentiation-integration of subsystems respective to their different and separate environments, and population-ecology theorists like Hannan and Freeman [16] explained the factors that influence the rate of birth or death of organizations in a population of existing ones, value rate interaction between populations, and 'communities of populations' sharing similar environments.

In the analysis of systems movement (Figure.1), there are two broad areas of systems work; first, the development and study of systems ideas, and then the application of systems ideas in other disciplines such as systems revolution in geography.

Within the work of systems thinking, there are also two areas; first one is related to purely theoretical development of systems ideas and their interrelationships. A good example is General System Theory. The second one is concerned with developing the ideas by seeking to engineer systems in the real world or problem solving application of systems thinking to real world problems.

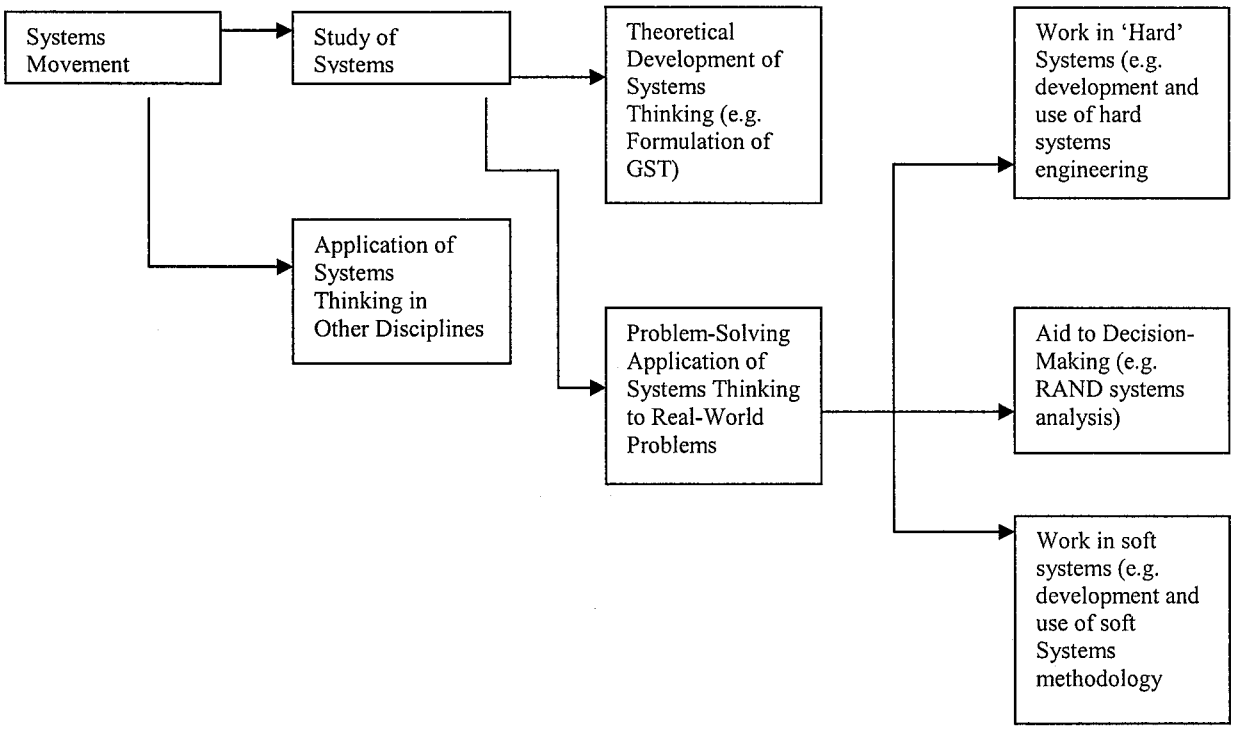

Figure.1. Systems Movement

Source: Checkland, P.B. (1981). Systems Thinking, Systems Practice. Chichester: Wiley [4].

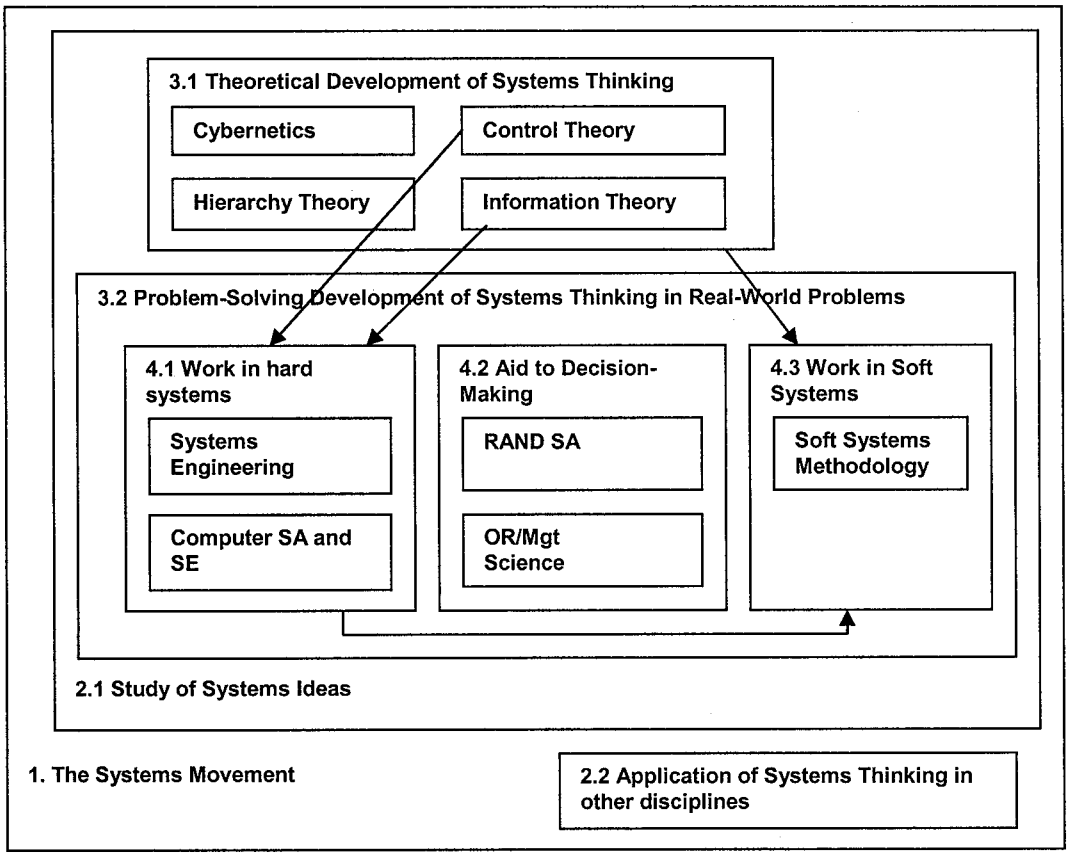

Figure.2. The Shape of the Systems Movement

Source: Checkland, P.B. (1981). Systems Thinking, Systems Practice. Chichester: Wiley [4].

A good example is hard systems engineering. Within this category there are three sections: First is called engineering hard systems (e.g. use of hard systems engineering methodology) that is concerned with goals or problems that are 'given.' So the only problem is to be capable of being efficient and effective. Second is related to using systems ideas as an aid to decision making such as in operational research. Third is concerned with work in soft systems methodology to tackle soft or ill-structured problems that have both social and behavioral aspects.

IV. THE PRACTICAL IMAGES OF SYSTEMS THOUGHT

In this part, we basically highlight how systems thinking will bring benefit and effectiveness to the practitioner/problem-solver/decision-maker in the formulation and solution of problems—organizational development. We shall first put emphasis on systemic metaphors, which are diagnostic tools to gain insight into organizational practice or conceptual clarification and understanding of the complex networks' problem situations [17], and then the different types of systems methodologies to cope with these ill-structured problems that have social, behavioral, coercive, and manipulative components.

Morgan [18], [19] describes metaphors as 'developing the knack of reading situations with various scenarios in mind, and of forging actions that seem appropriate to the readings thus obtained.' They are systemic because each one equals to some kind of complex interactive network. The most powerful attribute of metaphoric approach to problem situations will provide managers with generating creative insight about the organizational concerns. However, each insight has limited implications, and thus should be supplemented with others. In this way we create competing but complementary insights. Morgan who gained popularity among system thinkers reviewed the literature describing organizations as "machines", "organisms", "brains", cultures", "political systems", "psychic prisons", "flux and transformation", and "instruments of domination." Jackson [2] added ninth metaphor 'organizations as carnivals' from Alvesson and Deetz [20]. Different metaphors look at organizations from different perspectives and contain theories of organization each yields distinctive appreciation of companies' character and functioning. This obviously affects what managers see as significant and how they seek to change it. We will briefly review nine images of organizations with reference to their respective key theories, which capture almost all assumptions of management and organization theory. They are:

- Mechanical metaphor or 'closed system' view; places emphasis on the efficiency and effectiveness through control and authority in order to achieve predetermined goals.

- Organismic metaphor or 'open system' view; stresses the preservation of the organizational survival by adapting to the environment and recognition of the needs of the organization, including its human participants.

- Neurocybernetic metaphor or 'viable system' view; emphasizes the learning, decision-making, and information processing capability of the organization.

- Cultural metaphor; focuses on individual and organizational values, norms and beliefs.

- Political metaphor; focuses on the political climate of organizations, such as issues of interests, resolution of conflicts, and the exercise of power.

- Psychic prison metaphor; is concerned with the profound impact of the conscious and unconscious processes of the human psyche (such as preferred ways of thinking and unconscious processes) on the structure and functioning of organizations.

- Flux and Transformation metaphor; puts emphasis on deciphering the logics of change that profoundly influence the construction of organization.

- Domination metaphor; handles how organizations hegemony their employees, as well as international politics and world economy.

- Carnival metaphor; puts emphasis on transient liberation from constructed order, 'a suspension of all hierarchical rank, privileges, norms and prohibitions.' During carnival the life is dependent on the laws of its own freedom.

The most influential strands in treating organizations as if they were machines are Max Weber's 'bureaucracy theory' [21] that is the most technically advanced organizational form based upon an advanced division of labor, a strict hierarchy, government by rules and staffing by trained officials; Fayol's [22] 'administrative management theory' that advises managers to forecast and plan, to organize, to command, to coordinate and to control, and sets out fourteen principles designed to guide managerial action; and Taylor's [23] 'scientific management' that is the best way of doing each task in an organization could be based upon a fair day's pay for a fair day's work. It brings about an extreme division of labor and the shifting of control away from the point at which the task is carried out. The closed system view generated hegemony on the management theory during the first half of the 20th century. Its ideology is based on the overall goal-seeking feature of

organizations. It places emphasis on designing goals, breaking down tasks to achieve them, and establishing rules that guide behavior of system components. Authority, coordination, and control are important qualities in the achievement of preset goals. However, it fails to recognize the purposes of system components and cannot generate organizational forms that are in tune with their environments.

The primary aim in the organismic metaphor becomes survival. In this model theories include discovery of individual needs that covers the studies on employee needs by Mayo [24] and Roethlisberger and Dickson [25], Maslow's [26] hierarchy of needs, Herzberg's [27] 'two-factor theory', and McGregor's [28] 'Theories X and Y'; discovery of organizational needs that covers Selznick's [12] 'structural-functionalist' perspective and Parsons's [13] 'functional imperatives'; organizations as 'open systems' that analyses Bertalanffy's [29] General System Theory, socio-technical theory of Tavistock studies [30], Burns and Stalker's [14] 'management system theory', and Lawrance and Lorsch's [15] 'differentiation-and-integration' model; the species of organizations that determines the mutual characteristics of 'excellent' successful U.S companies in the light of Peters and Waterman's [31] refinement of adhocracies; the population-ecology view of organizations [16]; and the ecology view of organizations that is based upon the work of Trist [32]. The assumptions of organismic metaphor are organizations as wholes contain interrelated parts, which are open to their sub-environments. They must adapt to their environments if they have to survive. Therefore, the requirements of the environment and the congruence between the whole system goals and parts' sub-goals are so significant. However, it neglects the fact that there might be difference between individual/group goals and the organization's overall goals. It conceals conflict, struggle, and internal change.

The neurocybernetic metaphor puts emphasis on active learning deriving from cybernetics rather than passive adaptability. It considers organizations as information-processing systems. Some of the significant theories in this context include Wiener's [10] negative feedback principle, Simon's [33] objective rationality, Galbraith's [34], and Beer's [35],[36],[37] Viable System Diagnosis. It also regards organizations as learning systems, which are based on the works of Argyris and Schön [38] and organizations as holographic entities [18]. The overall goals of these theories are to ensure effective information-processing, decision-making and control in organizations. The organization should have the flexibility to respond environmental disturbances and be capable of displaying single-loop learning and double-loop learning simultaneously. Innovative industrial companies and R & D work groups are good examples of this approach. However, this strand does not give attention to individuals, conflict, power struggles, and the process of setting goals.

The culture metaphor stresses the significance of philosophy, spirit, and the drive of an organization in which component parts are human beings. They have different perceptions of reality or attribute different meaning to the same events. The success and survival of an organization is hugely conditioned upon the achievement of shared values and beliefs. In this way they could avoid conflict and secure freedom and innovation. The most influential strands in treating organizations as cultures are culture and organization emphasizing culture as an autonomous external force shaping individuals and organizations [39-41] corporate culture and subcultures considering internal variable characteristic of culture in organizations [41-43]; and how organizations as 'socially constructed realities' are developed and sustained [44], [45].

The political strand treats organizations where people who belong to various class and status think and act differently [46], [47]; where the diversity of individuals' interests and groups conflicting [48-51]; and where there is enormous reliance on mobilization of bias that serves the interests of power-holders in the process of resolving conflicts among individuals and groups [52], [53]. The political metaphor places power, control, and coercion at the center of organizational life. It uncovers tensions and strains, recognizes organizational members as political actors, and stresses goals that are rational for some and are irrational for others. However, it may bring about an unreliable organizational ambience due to overemphasis on political issues.

Psychic prison metaphor points up the repressive image of organizational life in terms of traps of favored thinking and unconscious processes. In the trap of favored thinking, there is great emphasis on the resistant cognitive images of past success, zero-defects, and 'assumed consensus' [18]. In the trap of unconscious processes, the emphasis is directed to the essences of unconscious processes such as repressed sexuality [54], [55], patriarchal family [56], death and eternity [57], tension [58], [59], transitional objects [60], and shadow (unrecognized and rejected desires) and archetype (definite forms in the human mind shaping thinking and helping understand the external world) [61] that trap people.

Flux and transformation metaphor emphasizes surface happenings in organizational life that are shaped by concealed processes. It guides managers in a way that they have to observe hidden patterns behind the reality, which is constructed in the aspects of transformation. The most influential theories in this metaphor are organizations are as 'autopoiesis' or self-producing systems [62]; mutual causality emphasizing the

understanding of tensions deriving from circular relations [63]; Hegel's dialectical change considering change as a result of opposites, retaining something from rejected previous forms, and revolutionary changes in quantity leading changes in quality [64]; and chaos and complexity theory treats organizations as systems that need greater complexity, crisis, new perspectives, continuous questioning, disorder , and chaos that are the most desirable states for the viability of an organization [65], [66], [67]. However, there is great skepticism about the existence of deep and unchanged rules in organizations.

The domination metaphor mirrors the exploitation of certain groups by others in organizations. The interests of groups are always unbridgeable. The only reason that holds organizational members together is the exercise of power of some groups to control the activities of others. Thus, the consensus is false. The others who are silenced or not involved but are affected include women, handicapped, minorities and those of a different sexual orientation. The domination metaphor includes Marxist theory focusing on organizations that allow one group of people to accumulate capital and to generate economic surplus through exploiting employees. Bureaucracy is the vehicle to exercise coercion and to protect the privileges of masters. Large firms accumulating surplus without spending on the welfare of people enforce economic depressions [68], [69]; 'class-based' structures of organizations emerging from mechanization of production and homogenization of work [70], [71] gave rise to labor market segmentation [72]. Working conditions also promoted work-related hazards such as industrial accidents and mental diseases.

The carnival metaphor will be better understood, if we compare it with Debord's [73] 'society of spectacle.' Spectacle is a dominant model of social life; a narrative that legitimates and rationalizes consumption and production. Its language includes the signs of ruling production and consumption. The spectacle is the existing order's uninterrupted discourse that makes separation perfect within the interior of man through the exile of human powers. It fails to recognize people who are silenced and marginalized. It imposes a life scripted by others in which theatric performers organize production and consumption. Spectacle equates material accumulation with happiness through a legitimating mechanism of social control. In organizational life, workers, managers, owners, customers, all stakeholders are designers and accumulators of spectacles. From a dialectic perspective, the idea of spectacle should be accompanied by the resistance of those who are isolated and alienated. Carnival metaphor that is suggested by Bakhtin [74] makes room for criticizing the rigid social authority or questioning the prevailing norms of society. It gives opportunity to people to generate new practices and new order. People should not be limited to applying the rules in a social context and continuing with the same behavior [75]. They should be 'reflective' or be aware of possible alternative rules [76]. It rejects a life whether social or organizational that is scripted and authorized by others who are so-called better storytellers. People who are oppressed can engage in social experiments, which are put forward by Boje, et.al. [77], such as 'invisibility theatre' where spectators' critical consciousness is liberated and they became active spectators who develop alternative scripts and characterizations, and 'forum theatre' in which the rules of the game of power become explicit and there will be no boundary between audience and actors. Audience becomes co-directors and coach who suggest rule changes and new scripts experiment with new solutions to different forms of hegemony. The game continues until satisfactory solutions to oppressive situations are found. Carnival metaphor stimulates resistance and empowers latent audience with critical consciousness who become actors and script writers and can change the dramatic action.

In the analysis of systems approaches we will be loyal to the categorization made by Jackson [2]. However, we will identify systems approaches in tabular form in terms of sociological paradigms they serve, time they belong to, basic goals they aspire, problems they perceive, systems metaphors they privilege, systems methods they use, and weaknesses they have (Table 1). This could be a useful way of thinking about organizational development in terms of social discourses they are based on, organizational issues, images and problems they perceive, and tools they employ. Here, it is also important to make a distinction between methodology and method. On the one hand, methodology refers to the general guidelines that direct the use of methods. Methodology cannot be isolated from the theory of the specific systems approach. Methods, on the other hand, are process-orientated and have steps that reach a particular target. They can be isolated and used for the service of other systems approaches.

According to Jackson, systems approaches are four types in general: They are goal-seeking and viability ensuring; hard systems thinking, system dynamics, organizational cybernetics and complexity theory, purpose exploring; strategic assumption, surfacing and testing, interactive planning and soft systems methodology, fairness ensuring; critical systems heuristics and team syntegrity, and diversity promoting; postmodern systems thinking.

Table.1. Four Systems Approaches In Terms Of Paradigms They Serve, Time They Belong To, Basic Goals They Aspire, Problems They Perceive, Systems Metaphors They Privilege, Systems Methods They Use, And Weaknesses They Have.

Systems Approaches	Goal-Seeking and Viability Improving	Purpose Exploring	Fairness Ensuring	Diversity Promoting
Sociological Paradigms They Serve	Functionalist	Interpretivist	Emancipatory	Postmodernist
Time They Belong to	Modern	Pre Modern	Late Modern	Post Modern
Basic Goals They Aspire	Law-Like Relations among system parts through efficiency, effectiveness, adaptation and self-organization	Existence of differing values, norms, beliefs, interests, and appraisal standards and the necessity of a unified shared culture through conflict, learning, mutual understanding, and change in debates	Unmasking domination in order to provide reformation of social order	Reclaiming conflict and creating conversational space for lost voices
Problems They Perceive	Inefficiency, ineffectiveness, unproductivity, and disorder	Illegitimacy, meaninglessness, and misunderstanding	Eliminating domination and providing consent through ascertaining whose interests are served, identifying processes by which power holders achieve and exercise authority, analyzing organizational predispositions and biases, and clarifying culture and sources of power	Marginalization, oppression, totalization, normalization, and lost conflict and negotiation
Systems Metaphors They Privilege	Mechanical Organismic Neuro-Cybernetic Flux and Transformation	Culture Political	Psychic Prison Instruments of Domination	Carnival
Systems Methods They Use	Hard Systems Thinking, System Dynamics, Viable System Diagnosis, Complexity Theory	Strategic Assumption Surfacing and Testing, Interactive Planning, Soft Systems Methodology	Critical Systems Heuristics, Team Syntegrity	Knowledge Systems Diagnostics, Foucault's Practical Aspect of Genealogy, Deconstruction, Generative Conversation
Weaknesses They Have	Using deterministic rules in the solution of all problems: quantifying all issues. Failing to recognize human component: neglecting values and interests of all stakeholders. Preserving status quo: allowing dictatorial action.	Serving to the interests of power holders. Neglecting the irresolvable character of issues in conflict situations. Never guarantee industrial democracy in debate processes. Neglecting constraints emerging from power imbalances.	Neglecting power, domination, and ideological hegemony in organizations. No guarantee for the proper material conditions of effective and democratic dialog and genuinely equal representation of ideas in debate.	Exaggerating diversity, creativity, and exception, heavily contingent on ethical practice of facilitator, and being limited to the capacity of the facilitator to recognize the marginalized issues of those who are oppressed.

Goal-seeking and viability ensuring systems approaches are based on the functionalist paradigm. The assumption stresses that there is an objective truth to be discovered by scientific analysis. It emphasizes optimization through efficient allocation and use of resources, effective achievement of goals, productivity, adaptation to the environment, and self-organization. Thus, it creates predictable system behavior, consensus, and regulation. In terms of time identification, these methodologies belong to the modernist era in which company managers can empirically study and understand organizations through rational thinking such as using scientific methods and techniques to probe and lead the system effectively. The assumption of this era is that there is a concrete organizational reality and objective world that can be empirically studied and understood through rational thinking [78]. Basic goals of these approaches are to generate law-like relations among system parts through efficiency, effectiveness, adaptation, and self-organization. They try to eliminate inefficiency, ineffectiveness, unproductivity, and disorder. Metaphors they privilege are mechanical, organismic, neurocybernetic, and flux and transformation, which are described above. Methods are Hard Systems Methods (Operational Research, Systems Analysis, and Systems Engineering), System Dynamics, and Organizational Cybernetics: Viable System Diagnosis, and Complexity Theory. Shortcomings of these methods can be outlined as follows. Hard Systems Methods support reductionism that fails to cope with interconnected problems of the world, cannot implement experiments on the system they improve due to expense and ethics, have to deal with biased models and non-quantifiable factors, neglects various anticipation of problem situation by multiple stakeholders, prioritize the values and interests of clients or preserve the status quo. System Dynamics is a

theoretical, uses judgment, provides limited usefulness due to inaccurate future predictions, and presents inappropriate theory and method that shape the system without taking into account the different perceptions of individuals. Organizational Cybernetics: Viable System Model fails to recognize the human component of the system, the way to arrange motivation and industrial democracy, power asymmetry in organizations, and ascribes 'good management' only to requisite variety among organization, operations, and environment rather than to the importance of purposes for participants in an organization. Finally, the Complexity Theory is insufficient in the social realm, presents a number of deterministic rules that are not applicable to the probabilistic components and unquantifiable variables, and allows dictatorial action when locating the organization at the edge of chaos [1], [2].

Purpose exploring systems approaches are based on the interpretivist paradigm. The assumption stresses that organizations as socially created realities would be better regulated and maintained if they achieve greater reciprocal comprehension among different interest groups through norms, values, rites, and rituals. Organizational interests people have are sharply different due to different interpretations of the same situations but there is a possibility of conviviality of working together better or a resolvable dissension among parties through a participative involvement that leads to the unified shared culture and integrative values. The interpretive paradigm obviously embraces 'subjectivity' rather than 'objectivism' that underpins functionalist systems approaches. In terms of time identification, these methodologies belong to pre modern era in which company managers recover the integrative values of the organization through mission and vision statements. The assumption is that there is a need to understand intentions and viewpoints of human beings [78]. Hermeneutics (understanding the 'life assertions' or objectifications such as institutions, historical situations or language of human mind), phenomenology (*transcendental*; attention is directed to the pure intentions of consciousness rather than neither ideal reality nor psychological reality and *existential*; 'life world') and phenomenological sociology (*ethnomethodology*; identification of 'taken for granted assumptions' which characterize any social situation and the ways in which members involved and *phenomenological symbolic interactionism*; the way individuals create social world) are significant components of this paradigm [78]. Basic goals of these systems approaches are to display the existence of differing values, norms, beliefs, interests, and appraisal standards (mounting pluralism) and the necessity of a unified shared culture through the clarification of purposes in debates and encouragement of conflict, learning, mutual understanding and change. They try to eliminate illegitimacy and meaninglessness. Metaphors they privilege are culture and political metaphors, which are described above. Methods are Strategic Assumption, Surfacing and Testing (SAST), Interactive Planning (IP), and Soft Systems Methodology (SSM). The weaknesses of these methods are as follows. SAST is applicable to those of systems whose are participants have willingness to expose their interests and values. In coercive organizations, SAST only will serve to power holders. SAST assumes that identifying complex problems is the same thing with dissolving them. IP assumes that there are no radical conflicts of interest between and within system, larger system, and subsystem. The idea of all stakeholders will freely and openly participate in the process of IP is hard to believe. Furthermore, stakeholders with differing degrees of advantages and disadvantages in terms of economic, political, and international resources will never be equal in the participation process. Also, the practitioner in the use of IP will never challenge his client's interests, which may give rise to irresolvable conflicts among stakeholders. IP obviously neglects different forms of power and domination in organizations. SSM is not applicable to systems in which irresolvable conflict and coercion become significant. SSM also does not provide the guidelines for 'genuine' involvement in debate. It neglects constraints deriving from power imbalances in organizations [1,2].

Fairness ensuring systems approaches are based on the emancipatory paradigm. The assumption stresses that there is a need to remove sources of power and domination that tyrannize particular individuals and groups in organizations and society. The illegitimate use of power and various forms of discrimination necessitates a radical change in the social order in organizations and society. In terms of time identification, these systems methodologies belong to late modern era where pluralism is all right for the greater good of organizations. However, organizations must recognize difference in the spirit of fairness and justice, and thereby establishing openness and consensus. This requires criticism of status quo and identification of social and organizational practice that masquerades subtle forms of domination. Basic goal of these approaches is to unmask domination in order to provide with reformation of social order [20]. They try to ascertain whose interests are served, identify the processes by which power holders achieve and exercise authority, analyze organizational predispositions and social biases, and clarify organizational culture and sources of control. Metaphors they privilege are psychic prison and instruments of domination, which are described above. Methods are Critical Systems Heuristics (CSH) and Team Syntegrity. The weaknesses of these methods are as follows. CSH neglects material conditions that make certain beliefs, values, and ideologies dominant in organizations. CSH also is utopic in its boundary judgments because power and domination will always give rise to the closure of debate. Furthermore, CSH's answers to 12 boundary questions are incomplete and may lead to ineffective rational argumentation because

stakeholders may have implicit biases toward some of the critically heuristic categories. Finally, CSH does not have mature tools and techniques within it and is not appropriate for problem situations where power operates ideologically as a result of 'mobilization of bias' in the structure of organization. In Team Syntegrity, generating a democratic and effective dialogue through a group of participants 'Infoset' cannot be practicable in the real world due to power relations and organizational hierarchy. Other criticism is about constraints such as 30 people and 5 days to debate 12 topics in the participant-driven decision process that appear artificial. Furthermore, the democratic debate is limited to the distorted forms of knowledge or 'content-less' type of knowledge that are brought by participants to the speeches. As a complement to this critic, the possibility of participants' incapability of fully engaging in dialogue, comprehending what has been said, and remaining topic-orientated in discussions are shortcomings of this approach.

Diversity promoting systems approaches are based on the postmodernist paradigm. Assumptions are objective truth, rationality, and progresses are false. Language is not a regulative instrument for consensus, but a world-constituting action—'language as social action' [79]. Difference, diversity in opinions, tolerance conflict, disorder, insecurity, and instability will ensure creativity and respect voices of those who are silenced. In terms of organizations, it is a 'prologic' perspective that sees organizations as heteroglotic in nature and made up of different voices. Domination is mobile, situational, and not done by anyone. Therefore, organizations should reclaim suppressed conflict in everyday actions, meaning systems, and self-conceptions through legitimizing marginalized and suppressed people [80]. Creativity, fun, and 'carnivalesque' actions should be supported that encourage 'communal negotiation' through social practical function of language and pluralistic cultural investments in the conception of true and good. Organizational life should make room for conversational spaces in which distinctiveness and independency of different players are recognized [79]. These ideas derived from the writings of Nietzsche and Heidegger who both aimed to promote 'self-emancipation' as an alternative to the universal emancipation of Enlightenment. 'Self' is contingent upon social, cultural, and physical forces and 'being in the world' should be restyled by individuals [2]. Alvesson and Deetz [20] showed the relevance of postmodernist perspective to the organizational research by pointing out seven subject matters. They are the loss of power of the grand narratives (no misleading 'totalizations' but dissension and discrepancies), the centrality of discourse (discursive formations shape social structure and individual identities), the power/knowledge connections (discourses give opportunity to some to create domination while others' interests are silenced), research aimed at revealing indeterminacy and encouraging resistance rather than at maintaining rationality, predictability, and order ('genealogy' is the way to unveil discursive formations that serve the interests of power holders on a local basis), the discursive production of natural objects rather than language as a mirror of reality (language is misleading that illegitimately privileges any particular discourse as reality), the discursive production of the individual (the accumulation of the knowledge is on the shaky ground), and hyper reality—simulations replace the real world in the current world order (relationships among signs give them meaning, signs do not reflect some reality) [2]. In terms of time identification, these systems methodologies belong to post modern era in which organizations began to create conversational spaces for all voices to be heard. Basic goals are to reclaim conflict and to generate a setting for lost voices. Problems they perceive are marginalization, oppression, totalization, normalization, and lost conflict and negotiation. Systems metaphor they privilege is carnival, as described above. Methodology of postmodernist approach is explicitly set out in the general principles of Participatory Appraisal of Needs and Development of Action's (PANDA) [81]. The spirit of this approach could be characterized as difference, deconstruction, ambivalence, flexibility, and contradiction. Methods are Knowledge Systems Diagnostics, Foucault's Practical Aspect of Genealogy, 'Deconstruction,' and 'Generative Conversation.' The major weaknesses of all postmodern methods are to overemphasize diversity, creativity, and exception, to be at the mercy of the ethical practice of facilitator, and to be limited to the capacity of the facilitator to recognize the marginalized issues of those who are oppressed [2].

V. CONCLUSION

In this paper, we have aimed to show that the only cure to compete with extreme complexity is the holistic approach—systems thought and systems language. We have reviewed the concept of holism, the reasons for using this perspective, its benefits for the organizations, it nature, its movement, and more importantly its employment. In its use we have put emphasis on the idea of organizational development through systems metaphors and systems approaches. We have described systems metaphors as diagnostic tools that provide insights and conceptual clarification about complex organizational issues. Then we have briefly analyzed four systems approaches in terms of social discourses, time period, goals, problems, metaphors, methods, and their shortcomings. On the basis of above considerations, we have come to the conclusion that a manager/decision-maker/practitioner who would like to construct a holistic approach in its organization, she/he should fulfill the following guidelines:

- Create a systems philosophy in the organization in which organizational units and individuals give primacy to the viability of the whole organization.

- Construct a systems framework in which organizational structures and functions are identified.

- Develop a systems language by which constant understanding of component parts and their interface are emphasized and developed.

- Highlight each component part's activities and their contribution to the whole system.

- Uncover critical unit activities.

- Structure communication and integration that promote mutual understanding among organizational units in the management chart of the organization.

- Consult with or employ a systems practitioner who will use systems metaphors to highlight organizational concerns and implement appropriate systems methodologies and methods, as well as train the organizational personnel.

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Gökhan TORLAK (gtorlak@fatih.edu.tr) has a PhD of Management Systems at the University of Lincolnshire & Humberside. He is a lecturer of Management and Organizations at the Fatih University. His research areas are innovative design of organizational structures, creative managerial problem-solving through the use of holistic approaches in organizations, and issues of management and organization theory.