

## How to Apply the Chaos Theory to Organisational Management

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In today's business operating environment, it is almost impossible to predict the impact of the advent of a new competitor or technology in any industry. The fundamental problem is that industries evolve in a dynamic way over time as a result of complex interactions among firms, government, labor, consumers, financial institutions, and other elements of the environment. Not only does industry structure influence firm behavior, but firm behavior, in turn, can alter the structure of an industry and the contours of competition. This creates challenges for management in organizations. Existing theoretical models, however, tend to assume relatively simple linear relationships without feedback (Namaki, 2018).

Indeed, many strategic theories attempt to classify firms and industries and to describe appropriate strategies for each class; examples include the Boston Consulting Group matrix for resource allocation and Bartlett's classification of international strategies (Bartlett and Ghoshal, 1989). Although these models are based on recurrent patterns that we recognize in the real world, there are usually far too many exceptions for the models to have much predictive value.

Chaos theory, which is the study of nonlinear dynamic systems, promises to be a useful conceptual framework that reconciles the essential unpredictability of industries with the emergence of distinctive patterns (Cartwright, 1991).

The word Chaos means bedlam; turmoil and disorder and turbulence is its synonym in mechanic. This word means lacking any kind of structure or order and usually in everyday language chaos and disorganization are considered the signs of disorder and include a negative aspect (Namaki, 2018). But actually, after the new attitude has appeared and its scientific and theoretical aspects have been cleared today chaos and disorder aren't considered disorganization; inefficiency; and bedlam but the disorder is the presence of unpredictable and accidental aspects in active phenomena which has its own property. The disorder is a kind of ultimate order in disorder (Hajikarimi, 1390).

Chaos management needs to increase its levels of awareness about "management on the edge" and acquire some skills in the art of "management on the edge". He must protect new initiatives against "dominant attraction" and leaves it alone when it can protect itself (Morgan, 1997). In chaotic systems, to determine a predetermined plan and a mechanized design is not possible at all and if it is it can't be explained in the organization. Information, awareness, experience, and experiment can create recognition in these systems.

According to chaos theory, the world is a nonlinear, complicated and unpredictable system. This theory refers to systems which while displaying disorder contain a kind of order hidden inside them, and present disordered, nonlinear, unpredictable behavior in systems and believes in an ultimate order pattern among all these disorders (Namaki, 2018). Because of being nonlinear and complex it is very difficult to present a model for chaos systems. For this reason, it is attempted to present some aspects of

chaos systems with the help of examples and computerized models.

### ***Decision Making in Chaotic Condition***

Considering the decision making in certain and specified conditions and in stable environments different models are designed for decision making in management texts. Disorder overshadowed all scientific areas in chaos theory and decision-making models in this theory are no exception to this. In traditional look to management, decision making is a predictable process and failure in decision making is resulted from lacking knowledge or limits in prediction techniques and in the attempt (Namaki, 2018). While chaos theory, assumes that decision making is unpredictable and attempt for prediction future is a vain attempt. Or at least it believes that predicting future confidently and without any doubt is a hard task. In chaos theory, it is believed that correct and complete information is not achievable, and events are continually inconstant and have no relation to what happened in the past (Namaki, 2018). One of the models which are provided in response to current conditions is a model called “Garbage Can” which may refer to disordered and turmoil condition of the decision making. Some scientists have accepted this model as a suitable one for modern organizations since they are organized disorders (Namaki, 2018). This model was first designed by three-person named Cohen, March, and Olsen. Using this model they wanted to describe decision making in too vague and disordered conditions. This model actually puts the presupposition of politic and rational models under question and thinks that their insensitivity to vague and disordered conditions is the reason for their incredibility.

### ***The effect of chaos theory on organization and management theories***

This effect can be observed in issues such as learning organizations, analyzing the organization through the brain metaphors and hologram, paying attention to autonomous teams and decentralized and teamwork structures. According to Alvani (1987) the theories of scientific management, human relationship, quantitative management, and system management become legends and modern realities appear in chaos and disorder theories with particular properties.

According to Hutch (1997) in the era that changes are continual, accidental and constant, it is essential to break traditional thinking methods in order to use changes for our benefit. We are entered the era of misology; the era of big dangers and big opportunities.

### **Keynotes for change management**

#### ***1. Learning the art of management and changing backgrounds:***

In terms of complexity and chaos, the central role of managers is to form and create backgrounds in which suitable forms develop through the organizing itself. When by the pattern of “dominant attraction” an unsatisfactory condition is ruling, it is necessary to open the boundaries of the system to the instability or even deliberately create the instability; this action can help to the advent of new behavior (Namaki, 2018). To break the power of “dominant attraction” managers must find some ways for creating new backgrounds. For example, they can engage key experts’ and consultants’ minds of the organizations through showing financial realities to be unpleasant, stating the power of creation and

innovation, illustrating the status of competitors and the emerging competitive characteristics, and so on. The coalition of key compartments of the organization, who are able to change the existing condition, is another strategy of this kind (Namaki, 2018). These strategies can bring instability to the closed system and as a result, make it move toward the critical points. In this condition, if the changing powers have sufficient energy to conquer dominant attraction, dominant attraction set aside and new attraction replaces it. By applying new operation formation of changes and appearing new backgrounds will also be possible. Making some changes in reward patterns, or in the composition of the key employees and their posts, creating the fake financial crisis, making redundancy are some examples of what can be done to make the system move from its closed position (Namaki, 2018). In fact, it is necessary to note the fact that in complex non-linear systems, managers don't have control of changes. They can't describe the exact form of the replacing attraction pattern; but by making changes in key elements of the "dominant attraction" and by opening the boundaries of the existing system to the new information and experiences, they can provide necessities for the "replacing attraction" to appear. In complex systems, there are two kinds of loops inactivity: Reinforcing loops and balancing loops. Reinforcing loops are always seeking to change the "attraction" and balancing loops try for stability through negative feedback. According to Sangeh (2002) each time a resistance is seen against the change, it should be noted that one or more than one hidden balancing process or processes are acting, this resistance is neither stable and temporary nor something strange, but it is caused by the fear of changing the organization's traditional norms and the way of doing affairs. Instead of increasing the pressure to make the changes in organization and breaking the resistances, conscious leaders are looking for references for this resistance (Namaki, 2018).

### ***1. Living with upheaval and constant changing and momentary order as normal and natural life affairs:***

In complex systems, nobody is in a position to control or plan system operations comprehensively. Forms and conditions appear and it's not possible to impose them. In the best situation managers can lead the system to the "desired attraction" or activate the critical parameters which are effective on the evolution of the system. Managers also need to look at each innovation and experiment as an opportunity to learn (Namaki, 2018). What is more under consideration in the issue of the art of creating new backgrounds is the use of learned experiences and patterns in order to change "dominant attraction". Successful experiences help managers about what can maintain the role of "dominant attraction" and what can help the new attractions to emerge (Namaki, 2018).

The era we live in is the era of rapid changes and growing complexities. Managing complex organizations, complex problems, complex goals, and complex world, needs complex people. Complex people grow in complex organizations. Social systems that open their boundaries to these rapid changes and great upheavals gain the opportunity of achieving the maturity of understanding complexity (Nomaki, 2018). Closed systems remain simple and therefore their members also won't have the opportunity to manage the complex world. As a part of modern world our country also needs managers who have the ability to manage complex organizations and disordered and chaos condition; therefore these organizations must start to open their boundaries to upheavals and external changes and increase external interactions so that in complexity their members attain the opportunity of being complex.

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