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Order in chaos

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Abstract

Has long been one of the current human intellectual pursuits. Many mystics have denied changing reality of the world and always escape from the monotonous life have taken Rummy. The theory of complex systems management in organizations affected put their principles of complexity theory for managers is the message that the era of management by objectives of the hierarchical or through precise control logic preset is over. Web order in chaos, systems are constantly fluctuate between the various attractions (dynamic), and sometimes a small change causes a change in complex systems and chaos pear, traditional methods are no longer responsive. The paper that has been done to review aimed to heading off problems in the area of management in contemporary organizations face significant turbulence developing and growing our executives familiar with the logic of this system.

Key words: Chaos, The Butterfly Effect, Dynamic Adaptability, Extravagant Attractions, The Decide on the Chaos, Chaos Theory Explained.

Introduction

Lofty peaks in the world of science to encompass more than the conquest of nature. Although the systems were first observed in the realm of physics, classical mechanics, but non-linear dynamic behavior makes them virtually impossible to predict the long-term behavior. It was later proven not only in theory but in practice is impossible to predict the long-term barriers to achieve an accurate forecast and there the study on the topic of meteorological studies began. Climate scientists are studying a number of different cases based on weather conditions and the impact of global weather patterns and their area. They spent two years studying the climate of a particular region and quite temperate climate change were relatively recorded all changes. A record of climate change every day graph on the top six in the morning and six afternoon shift was recorded. But in the autumn of the second year of the charts suddenly changes strangely changed. The plot was registered to confuse the symptoms of severe weather, but it does not see any changes will be seen. Scientists began studying the case to see the reason for the change but did not notice anything. After the fall, everything was normal again. This prompted them to another year to continue his studies at the site.

In the autumn of the following year they had everything under consideration. In this year were the result of his observations. Near a lake where a group of migrating birds in the fall went. What resulted was a drastic change in the graph birds. One of the scientists were curious to find out if these birds followed what was not there. He uses a computer program to simulate the location and once with and once without

the presence of their birds sang. When the birds were exactly as the user computer was in fact indicated. But without the presence of birds in the region was a big storm which destroyed about 12 hectares of the area was.

In fact, it makes the conditions for the formation of hurricanes hitting the birds avoid the more serious and deeper and simulation studies to the conclusion that the most important slogan atmosphere of the world to be known as chaos theory Butterfly ZAND-Saharan Africa, wings and a tornado in South America takes shape. Butterfly wings it creates pressure on the atmosphere are perhaps very little, but intensify the process makes it trivial and low pressure over after a massive storm in the distance. Elsewhere, a group of genetic scientists are studying the genetic map of frogs. They were trying to provide genetic map of this species and the genetic knowledge to use it in the way of progress. To prevent breeding frogs and control experimental conditions, they decided that only male frogs use. After about a year of study strange thing happened suddenly. They found that the number of frogs when the frogs were added five! After the study they found that to avoid extinction, genetic mutation occurred in frogs and this group of frogs six months of the year were male and female six months. Are changing their gender in their reproduction. And this creates chaos theory was the second important slogan: Life will survive your way. The idea at first was only a theory. Our next studies turned it into a theory. Further studies of science brought it to the limit. So that nowadays architecture and civil unrest can also be used. Because one of the principles that the science says is that nothing is predictable. As a result of these observations Lorenz in 1965 researching the mathematical model of the Earth's climate was very simple, non-solution to a differential equation to solve this equation numerically with computer arrived appeal. Computer check printed output shows that Royal Lorenz used the computer, the output is rounded up to 4 decimal places. Because calculations took into the computer with 6 decimal places, the loss of varieties was the cause of such an effect. The fact impossible to predict long-term climate shows. This idea spread further thanks to the work of Henri Poincaré, Edward Lorenz, and Benoit Mandelbrot is Michael Faygnbavm. Poincaré was the first to prove that the three objects (eg, the Sun, Earth, Moon) amorphous and insoluble problem. Other branches of Chaos Theory is used in quantum mechanics, quantum chaos is. Pierre Laplace or Poincaré Omar Khayyam said before, the problem was discovered phenomenon.

It then issues within all scientific and empirical, mathematical, behavioral, and social management imported and fundamental changes, particularly climate science, astronomy, mechanics, physics, mathematics, biology, economics and management provides the chaos theory, systems Dynamic complex as the atmosphere, animal population, liquids, pounding the human heart, and examine the geological processes.

The key idea of chaos theory is that in every disorder, chaos lies. This means that the order should not be sought only in one scale, local-scale phenomenon, seems to be completely random and unpredictable, perhaps on a larger scale, and is quite stable and predictable.

Today, in the way we do things around us change is ongoing. The complexity, uncertainty and lack of certainty, chaos, and turbulence characteristics of the phenomena that scientists were not interested in the past, but today the attention and very ate. Chaos theory in the study of complex systems helps the snake and, taking into account the principles of certainty and probability together a realistic solution to the problem of providing today (Heydari et al., 2002). Administration can also take the interest of chaos theory, because many of the features of human behavior in organizations are complexity and unpredictability and uncertainty theories oriented and certainly cannot be explained. However, if we

adjust for the behavior of chaotic systems, many organizational issues arising from the impossibility of predicting behaviors in the organization, will disappear. Good organizational studies reveal. Chaos theory is also widely used in decision making. Chaos theory is also widely used in decision-making decision-makers. Environmental decision-makers are often faced with complex properties and is not interpreted with theories of traditional decision-making. In such a situation with the help of chaotic systems can be analyzed environmental factors to be realistic and just solution achieved (Faqih, 1997). Kskla and Howell (2006), in an article entitled chaos theory in educational management organizations and schools, said that chaos theory and complexity management through self-motivation to encourage organizations, so the organization as long as there are conditions for survival, Not bad, chaotic management diversity, encourage innovation and deficiencies and contradictions in these organizations is the lack of agreement and disagreement essential element in innovation (KslklaVhavl, 2006).

Chaos

Chaos, confusion, clutter and chaos, the equivalent of the term "case" is. "Who is" the root word derived from a Greek word originally meant infinite space before the creation of the vacuum and without form. It also means eternity and mass confusion amorphous and disordered world and the assumptions employed in ancient Rome the word in the sense of interpretation and imagination, was a formless mass that raw and balance in order to have it, but in modern and contemporary applications The word to describe the state of disorder and chaos, the clutter, chaos, turmoil, turbulence web order used (Aybd, 1994). Hills in 1990, riots or disorder is defined as "a chaos of disorder and chaos regular 'or order in disorder. The results are unpredictable and chaotic regularly because that is a certainty. Irregularity in the sense of a mathematical concept is that it can be defined very precisely, but it can be considered a kind of randomness and uncertainty. Uncertainty due to internal reasons and due to that irregularity, there is an external disturbance and randomness because of the behavior disorder, irregular and unpredictable accurate. The gum disorder is defined as: the turbulent life habit born when the order is created.

Details Chaos Theory

Chaos theory has unique characteristics that reflect the management has created important so that these features traditional management paradigm inflicted serious harm on the body and go up to the new paradigm in the management and other related sciences form. These features include:

1. The Butterfly Effect: Lawrence wondered investigation concluded that a slight change in the initial conditions of climate prediction equations, leading to severe changes in their results will be. In other words, this theory butterfly effect a minor change in the way that leads to a very big difference in the end will mean, for example, if a license in "Beijing" is filled with the cloud moved, he may be a result of the "of the New York »storm develops. Web order were seen to be seeking a solution to the chaos theory and the study (Ahmad, 2005).

2 - Adjustment Dynamic chaotic systems in relation to their environment and act like living organisms and their environment to create an adaptation dynamic between the (same).

3 - Strange attractions: different types of attractions like attractive fixed point; the limited attractions, attraction or chaotic strange globular and attractions. Unlike the previous attractions is a strange attraction were the order and predictability, chaotic, and that is why some of them also called chaotic attractions. It should be noted that as strange geometric pattern attractions, while chaotic dynamics into account, and the two together different attractions and also should be noted that the chaotic strange attractions are, but not all chaotic strange attractions. So-called strange attraction for these properties is correct. Strange sights

are no pattern and follow a specific pattern and their value in the same pattern having a complex geometry and dimensions of these attractions are incorrect and the way they; D-pad and wide.

4 - Self stationary in chaos theory, a kind of similarity between the parts and the whole is detected. Thus, each part of the model as a whole are similar. Effect on the behavior of the members of the organization can create unity, everyone on one side and purpose are the same (same).

Decision in chaos

In the management literature, different models designed for decision-making, decision-making in specific environments were considered stable. In chaos theory, chaos pervades all areas of decision-making in the theory of the models are no exception. In the traditional view of management, decision-making or decision-making process predictable and failed due to lack of information or due to the limitations of forecasting techniques and effort. If the theory of chaos and turmoil, unpredictable decisions and trying to predict the future is absurd assumption. The complexity, uncertainty and lack of certainty, chaos, and turbulence phenomena that are characteristic of much attention and been. Or disorder, or chaos theory, the theory of ultimate order, we will help in the study of complex systems, and taking into account the principles of certainty and probability, both realistic solution to today's problems provides. The chaos theory leaves a major impact on decision making, are summarized as follows:

1. in the turbulent and chaotic world of today should instead focus on making a long-term, short-term and flexible decision-making should be considered.
2. Flexible contingency planning as part of their decision-making process of each organization must be very important.
(3) Should be intuitive and innovative approaches to rational decision making is more valuable.
4. Create temporary structures and systems is more important.
5. Modify the organization's culture to attract new values appropriate to a world full of chaos must be considered.
6. Should the chaos following the order (Alvani, 1999).

Explanation of Chaos Theory

Over the past 20 years, in the field of mathematics and modern physics, scientific method and new and very interesting theory called "chaos" has emerged. Chaos theory, complex dynamical systems such as the atmosphere, animal population, fluid flow, pounding heart, and examine the geological processes. The key idea of chaos theory is that in every disorder, chaos lies. This means that the order should be sought only at a scale, local-scale phenomenon, totally random and unpredictable it seems perhaps a larger scale, is quite stable and predictable (Gaeini, 2007). "In view of behaviorism in psychology, in fact, with a change of scale, in order to achieve and to predict the behavior and rules or modification of behavioral disorders is provided, otherwise if the individual behavior of people considered nothing but a random and would be unpredictable. " Scientific method (methodology) that provide the theory, change the scale to look at the events in such a way that it can be discovered structural order. Of course, a new look at this logic to the order, many of the traditional disputes about philosophy also challenged the argument and the (redemption Vsqfy, 2005).

Another interesting issue is the chaos theory, with its emphasis on dependence (sensitivity) to initial conditions. This means that very small changes in the initial values of a process can lead to significant differences in the outcome of the process. The following simple example might be interesting: If a

passenger cannot reach 10 seconds late to the bus stop bus that runs every 10 minutes from the station and the metro is that every time a train to the airport. He does. For the intended destination of the passenger, flight only done once a 10-second delay so the passenger will lose a full day. Many natural phenomena such are sensitive to initial conditions. Crushed stone on a mountain ridge may be based only slightly inclined to the left or right, to the north or south valley tumbles, while over millions of years by geological processes and the forces of wind and water. .. Several thousand kilometers transported, we can see that the right and left little interest in how much the fate of the rubble has been effective. Another familiar example, physical and psychological dependence on the conditions of fertilization and genetic problems (MehralizadehVzndvanyan, 2006).

Although such a perilous chaos dependence on initial conditions can be many events sociology (the revolution) and the psychology of the track, but only one domain (which will be mentioned below), has special attention for this issue is not. That often for the entire life of a phenomenon, the same weight in terms of the effectiveness of internal and external factors considered, while the Chaos Theory, a key role in the initial and boundary element knows. Edward Lorenz, the renowned scientist meteorology, many years later in his famous "butterfly effect" became famous, such as the "in a dynamic system such as the atmosphere, very little turbulence caused by the wings of a butterfly eating could become a hurricane on the scale of a continent. " In many sociological and political events can also be a page a very complex factors and ignoring factors seemingly simple, by taking seriously the seemingly trivial factors was the correct analysis of the event. Earlier we pointed out that in this case, in a wide scope of work has been done. This field of psychology and theory of the great genius of psychology, Freud, with such an approach. Freud root of all human behavior in life affect the initial conditions in chaos theory knows from childhood and track these actions to childhood, to behavioral analysis. In addition to mentioned, chaos theory, fractal theory and offer a new concept of the physical dimension and concepts such as "self-similarity" and "self-interested" in discovering order in effect opened a new gate in place can Seriously, is used humanities.

The formation of the theory of the butterfly effect

The Butterfly Effect is a phenomenon named because of the sensitivity to initial conditions caused chaotic systems. This phenomenon suggests that small changes in the Earth's atmosphere is a chaotic system like (egBalzdn license) can cause drastic changes (hurricanes in another country) in the future. The idea that a butterfly can change the chaotic first time in 1952 in Ray Bradbury short story called The Sound of Thunder effect was introduced. The term "butterfly effect" in 1961 in the wake of an article by Edward Lorenz was born. She hundred thirty-ninth session in 1972 Ayayayas presented a paper entitled "Are Balzdn butterfly in Brazil can cause a hurricane in Texas?" Apart from the weather, other dynamic systems sensitive to initial conditions to be seen. A simple example, the hub is located at the top of a mountain. The ball hit quite a bit, depending on what direction the blow is struck, it can fall into any of the surrounding valleys (ibid.).

Chaos and change management systems

System approach of the main aspects of management science, and in the meantime, there is a fundamental aspect of system dynamics approach. Managing dynamic systems, due to multiple factors, multiple

variables, diversity and plurality of distinct elements in the system, it can be very complicated (Bear, 1984 Vklyr, 1985).

The organization has a lot of variety, stories or adopt a different system modes of behavior are complex (Harden, 1989).

However, predictability in the management system makes it difficult, especially the linear systems may be less, but often non-linear systems are formed and dominated by non-linear interactions are Mmvlanrkh growth or decline the variable and human factors (non-linear function) management system 187 creates the role of the management systems can lead to the chaos pear.

Should also be noted that systems such as enterprise systems as dynamic systems, separate units and an unlimited period is not established, and this is why often multiple measures to determine the current state of the system is necessary (Bear, 1984). Additionally, a balance must always be a balance between all parts of the system to be applied (Ashby, 1960). Variable complex organizational systems, at the same time a balance between all of the following categories is highly unlikely, even in large organizations, just to get some degree of balance can be raised. The sustainability of these systems are also links directly to the number of your elements more complex than less likely to maintain balance, are (the same).

Chaos and change management

They fit shovel chaotic path to a certain destination, but also be able (with adjustment factors) to ensure riots led to the creation of special purpose and they can not only capable of such midwives, pregnant tumult new phenomena Bzayannd subtle, but they can. The innovations in the care situation to develop optimal strength and discipline of chaos and the rise of the use of structures, organizational systems, miniature work, inspired programs, installation management Ain, values, principles and concepts could be possible (Aybd, 1988).

Although much is unknown in the field of chaos, especially in its organizational approaches and change management approaches, several perfectly good sense is not in doubt, however, can be outlined principles for managers:

First, organizations need to develop a substantial interest in the manufacture and processing of internal processes that can improve their capacity to change.

Second, the most successful organizations of the necessary capacity for learners and learning from experience and speed have learned into practice. Learning and gaining knowledge must be closely related to the practice test.

Third, the establishment of order and disorder processes in organizations, are closely related. And outlining the framework for discipline, coupled with Vrhgshayy break patterns on account of irregularities are necessary for innovation. All this requires the implementation of a continuous cycle of analysis, action and edifying (ibid).

Guidelines for Management in chaos or confusion

Five pieces of advice as the five basic principles for managing in turbulent conditions is considered to be:

1. The role of managers

In complex systems modeling and prediction system operations are not possible. Shape and appearance of their own and can not be Rathmyl, managers can only grounds of "good attraction" provide or alter parameters that affect the evolution of the system. Managers should the principles and concepts such as self-organization, learning organizations, autonomous groups, enabling smart organizations such as living

organism metaphor, the brain and the hologram managed to become familiar with the literature of this paradigm.

2. The kind of learning art (Collage)

Collage metaphor means, merged, including organizational metaphor that management has recently entered into texts. Collage art which Baknar the objects, pieces, images, drawings and components Inconsistent new identity, a new and meaningful services.

3 - Small changes, big effects

Nonlinear system in chaos, is very sensitive to slight changes in small and that the smallest changes and disorders in general Asrtqvyt enhanced system and can lead to big changes. This feature is known as the butterfly effect for managers to carry the message that, for the great changes require immense machines, but must find hot spots and then determine the actions of slight changes in the big changes guided.

4 - The Art of Change

Complex systems and chaos between the various attractions are captured continuously. This situation will continue until Yabdk·h a new attraction could be the most dominant attractions. Then again, the system moves to the critical points of conflict begins again and the process of evolution in this direction is taken. Hamid Reza Trkmndy, Zybavb www.zibaweb.co Peter Senge believes that every system either loop the loop amplifier balancing rings are involved. Rings amplifier planning to change the dominant gravitational balancing loop stability and stability are followed. Singh says in this regard: leaders who are trying to create change in their organizations, unconscious processes to deal with the balance paid, the resistance of the system against changes they feel but actually the source of my resistance. Each time a resistance to change was observed, it should be noted that one or more of balancing process are working undercover, this resistance is not stable and fast transient rather than something mysterious, but from the fear of change in the traditional norms and practices is. Informed leaders instead of increasing pressure for changes in the organization and resources of this resistance are seeking to break resistance.

5 - Rethink the traditional management concepts

Hierarchical structures and anomalies in the system that are constantly exposed to changes in the position it is?

The military came up random and irregular events follow the logic, the conceptual plan will be? Does this not mean that someone tries to move onto a winding path in a straight line?

Today, managers of funds with complex systems with multiple, different, engaged and dynamic face. Therefore, to design and conduct the organization wave's changes, only one structure, a style and an attitude and a strategy cannot do anything. Therefore, they should be poured continuously matching their organizations as are appropriate. The organization seeks evolutionary nature of gravitational attraction varies managers in the way organizations are facing the challenge of matching components. Organizational components must be so mixed that represent the dominant attraction and military identity harmonious, efficient, and innovative and this is one of the challenges that managers face today.

	Original source
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Freud(1965)	**One authors**

Feigenbaum	**One authors**
Hills (1990)	**Two Authors**
Lorenz	**One authors**
Laplace Demon	**One authors**
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