

CHAOS AS A CHALLENGE FOR MODERN MANAGEMENT

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Abstract: Management, which thrived as a science as a result of the economic and social development, became a field that effectively uses achievements of sciences that have been developing their methods and theories for ages, e.g. philosophy, strategy or exact sciences. In recent years, we have observed theories connected with exact sciences being transferred into management studies. One of such theories is chaos theory, which is visible in mathematics and physics. This paper presents general principles connected with using chaos theory in management. It presents basic definitions, such as chaos edge, time edge and rhythm of changes. It also systematises views and achievements of both foreign and Polish theories. While discussing the role and importance of this relatively new concept of management, the author tried to show its utilitarian character.

Keywords: chaos, management, chaos edge, theory, change, organisation in motion.

1 Introduction

At the beginning of the 21st century, management as a science faced numerous challenges brought by sudden changes taking place at all levels of the life of modern societies. This refers to the spheres of customs, social behaviour and systems, as well as changes in the economy, management. Many changes or attempts to create new, modern, theories were forced by the crisis, which significantly redefined the modern world. It has turned out that management, which for years had been improving its methods, especially those connected with planning, building a strategy and mission, failed to properly read the signals sent by the world economy which was heading for a crisis. It seems that today it is most difficult to build and plan, or create strategies which can be used for many years. It became clear that it was necessary to look for new paradigms of management, which will work well in uncertain, changeable situations, in times of crisis and chaos. In this context, based on chaos theory, the concept of an organisation on edge of chaos was created in the field of management studies.

This theory appeared in academic literature in 1990s. In Poland, it is propagated, among others, by R. Krupski and P. Nestorowicz. The aim of this paper is to present the basic terms and problems connected with chaos theory. It was perceived by representatives of management studies as an answer to current problems. Chaos is intended to help to overcome some difficulties, to create new quality of an organisation. It has become obvious that current market challenges can be risen to by an organisation that is changeable, in motion, open, where the structures, scopes of activities or competences have not been fully defined or established, which can seize emerging opportunities and take risk. In short, an organisation that is able to act on chaos edge.

2 Basic definitions and assumptions, representatives

The term chaos, introduced into the study of management, is intended to be, first and foremost, another element, step, maybe stage, to increase the effectiveness of an enterprise, or, more broadly, an organisation. In such a context, chaos and its role is addressed in management by S.A. Kauffman (Kauffman, S.A., 1993) – a man that is credited with the general interest of the study of management in chaos. According to Kauffman, balance, or ability to maintain appropriate balance between improvisation and enterprise on the one hand and strong, structured operation of an organisation (edge of chaos) is the source of maximum effectiveness, capability of making outstanding profits. This refers in particular to the functioning in conditions that are difficult, changeable, turbulent, impossible to determine and

define. Other authors that apart from S.A. Kaufman write about chaos in the context of management in similar way are: S.L. Brown and K.M. Eisenhardt (Brown, S.L., Eisenhardt, K.M., 1998), whereas in the area of Polish management studies this issue is addressed, among others, by: R. Krupski (Krupski, R., 1999; Krupski, R. (ed.), 2005), P. Nestorowicz (Nestorowicz, P., 2001) and J. Rokita (Rokita, J., 2005; Rokita, J., 2009). It is however not difficult to notice that this issue, though interesting and attractive from the perspective of science, has not been described in a sufficiently precise way and is still waiting for a complete and broad interpretation.

As already stressed, chaos is something unordered, where it is difficult to find rules, relations between specific elements. In this case, a system (organisation) is very sensitive to even small changes to the initial conditions, whose effects are difficult to predict, cause difficulties, and everything is functioning in the state of instability, where it is difficult to find cause and effect relations. So, the aspects of stability and instability are opposing and often described as negative and positive feedback (Thietart, R.A., Forgues, B., 1995). This coexistence of stability and instability, sometimes in specific proportions, is the basis for identification of a certain area that became known as edge of chaos. We can thus assume that there are three states: stability, instability and the intermediate state (on edge) – edge of chaos. Appropriate functioning in this area, balancing on this edge, being in constant motion, or dynamics, may be the key to the new way of the functioning of an organisation, a way to survive in the conditions of constant changes and to achieve important objectives such as: profitability, building permanent advantage, creating own brand and recognition.

3 Characterisation of an organisation operating on edge of chaos

Although one of the determinants of chaos is difficulty in defining, describing or planning anything, in the case of an organisation operating on edge of chaos an attempt was made to define principles according to which such an organisation should function. The most popular and most often cited model of this type is the model by S.L. Brown and K.M. Eisenhardt (Brown, S.L., Eisenhardt, K.M., 1998). The authors assumed that an organisation is continuously functioning in a changeable environment, and constantly has to respond to signals coming from its turbulent environment. Therefore, an organisation may function properly when it learns how to manage change, and accepts that such management of change is the central and most important challenge facing it and its managers. Thus, a strategy of operation and management should be oriented towards building such an organisation that will be able to effectively and constantly change. This means that objectives of such an organisation will be different than in the case of classical theories of strategically management. The theory uses the concept of semicoherent (i.e. flexible) objectives, which are not always logical, coherent or comprehensive. Rather, they constitute a loose set of unspecified or undefined plans and intentions that an organisation should implement. This lack of definition and precision of plans makes an organisation, and its structure, more flexible. Such an organisation is characterised by specific features (Brown S.L., Eisenhardt K.M., 1998), such as:

- unpredictability;
- limited control;
- short-term ineffectiveness;
- activity;
- continuity;
- diversification.



Fig. 1 Specific characteristics of an organisation
Source: own work.

A model of an organisation operating on edge of chaos consists of three categories (fig. 2.)

- chaos edge – an organisation has a structure, although it is not sufficiently ordered and stable to stop or limit the occurrence of changes, some structure must however exist,
- time edge – an organisation has to operate across various time horizons; right combination of experiences from the past, present and attempts to predict the future is an element guaranteeing success,
- rhythm of changes – in an organisation, changes should occur at certain intervals, not only as a reaction to events that appear.

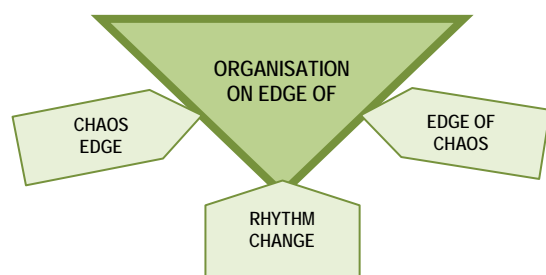


Fig. 2 Categories in the model of an organisation operating on edge
Source: own work.

An organisation that functions in accordance with the new principles is in opposition to the familiar and often tried-and-tested schemes of functioning. First of all, an organisation on edge of chaos resigns from rigid restrictions or rules and suddenly prefers breaking the existing order that has been built based on schemes. The organisational structure is not fully defined, and such an organisation is characterised by:

- unclear scopes of responsibilities,
- unspecified basic objectives of activity,
- undefined time needed to complete specific projects.

Further, communication in an organisation of this type focuses on instant, not very formal message where priority objectives

and tasks are not very precise or clearly formulated (Brown, S.L., Eisenhardt, K.M., 1998). It is thus rejection of what has been priority for a long time in the study of management, namely:

- solid, stable and identifiable organisational culture (everybody knew their place in the organisation and their responsibilities, considered himself an important part of this community),
- unchanging (even rigid) structure (specified, defined and described unchanging processes; established position, principles; the whole is fairly predictable),
- established, precise communication, clearly defined communication channels, informal communication is limited to a minimum.

Of course, the assumptions of the model developed by S.L. Brown and K.M. Eisenhardt can be perceived as insufficient or heading in the direction of too much freedom of all actions. Nevertheless, the issues of chaos, functioning on edge of chaos and challenges that organisations face as a result of that are also addressed in works of some (although not many) Polish theoreticians. P. Nestorowicz (Nestorowicz, P., 2001) argues that edge of chaos is a point between anarchy and stabilisation, a very important area where various options of development are created, organisational conceptions are born and a few variants or models are implemented at the same time. The model developed by P. Nestorowicz consists of four elements, i.e. mechanism of constructive confrontation, process of learning, open information system and organisational culture (fig. 3). In the mechanism of constructive confrontation, the existing actions, principles and methods are questioned. This mechanism is characterised by information disorder and readiness to take risk.

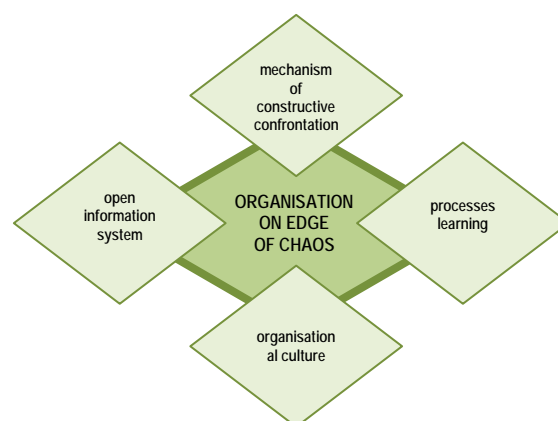


Fig. 3 Model of an organisation on edge of chaos according to P. Nestorowicz

Source: own study based on P. Nestorowicz, Organizacja na krawędzi chaosu, Wydawnictwo Profesjonalnej Szkoły Biznesu, Kraków 2001, p. 65.

Speaking about chaos, we usually think of something that is disordered, but also in constant motion, changing its place. Thus, the concept that we can relate to chaos theory is organisation in motion, which within the Polish theory of management is analysed by E. Maslyk (a.o. Maslyk E., 2003). Basically, the author started from the concept of organisational development, stressing that the concept of organisation in motion is the obvious response to unpredictable movements of the environment. This is also where we should seek the source of the potential of an organisation which, being in motion, change, can better adapt itself to changes and has greater potential ability to innovate and gain competitive edge (Skowron-Grabowska B., 2013).

In the Polish works, the problem of chaos is most intensely explored by R. Krupski (Krupski R., 1999; Krupski R. (ed.), 2005; R. Krupski, 2011, no 3). He stresses that when analysing this problem one should apply certain main categories of

strategic management, such as attractors, intermittency or bifurcation. In the theory and practice of management, attractors are life cycles of products, markets or an organisation. Thus, an attractor refers to certain courses of system behaviour, beginnings (different points) and ends of the courses. This is important in that each such course indicates the stage at which an organisation currently is, what potential next stages will be. Another category of chaos is bifurcation; in some points, so-called bifurcation points, a system (organisation) starts to behave in a different way, it develops new properties, becomes a different organism, so it may assume new roles and tasks, take up different challenges. Intermittency in management refers to possibility of identifying certain periods in which any regularities occur and periods where it is impossible to identify such regularities either in time or in space. This is important when creating predictions, developing plans.

R. Krupski highlights important features taken into account in the case of chaos and operation of an organisation on edge of chaos. He sees some paradox in the fact that suddenly chaos started to be related to management, as management is associated with order, and an organisation (enterprise) is usually perceived as an ordered system, i.e. anti-chaotic. However, taking advantage of emerging opportunities, involvement shown by people, which not always is planned or predictable, but creative – these factors may cause an organisation to change, develop, become flexible. Chaos may improve communication between employees, trigger partnership, capability of fast cooperation and the right links (Krupski, R., 1999). All this should serve one purpose, i.e. ensure that an organisation will increase its effectiveness, will make profit and gain competitive advantage that will last.

4 Future of an organisation in the context of chaos

Operating on edge of chaos involves resignation from the classical objectives of an organisation, i.e. survival and development, and assumption that nothing will be clearly and simply defined, nothing will be given forever. Organisations have to go away from what was the foundation of their existence: stabilisation, statics, relative predictability, durability of processes, established organisation, defined borders. Orientation towards chaos makes the following more important: unpredictability, „island” phenomena, individualisation, atomisation, closed systems, lack of borders (Perechuda, K., 2007). The decision to start to introduce chaos into the functioning of an organisation makes it necessary to go away from certain well-trying rules. It means the end of the stage of stability, of what is known and well-tested, even in the negative sense. The organisation and its members start their life almost from fresh, rejecting everything they have built and taken from others.

5 Conclusion

Any problems connected with introducing chaos theory into management are at the stage of analyses or experiments. This theory, first of all, attempts, in an unusual way, to solve the problem of increasing an organisation's effectiveness in a quickly changing environment. The times of relative stabilisation, established rules and long-term principles of acting have probably gone forever. It has become clear that the old classical views of theory or science are not in tune with the reality. It is thus to some extent logical that an attempt was made to take advantage of chaos theory, even if it is examined only from the perspective of theoretical or philosophical discussions. In the case of an organisation, it forces certain behaviour which may prove to be very important for its further functioning. A modern organisation has to be able to seize opportunities, properly assess market expectations, change its interests, and redefine earlier goals and priorities. Nothing in it should be constant or changeless. In short, it needs some chaos, a very difficult ability to function somewhere at the borderline between order and chaos, statics and dynamics, planning and spontaneity

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Primary Paper Section: A

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