DOI: 10.2478/orga-2022-0019

A Model of Organizational Change Process

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Purpose/Goal: The article focuses on organization development process based on functioning of change motors; therefore, the author focuses on accomplishing three objectives. The first objective involves adding to the four change motors described by A. H. Van de Ven & M. S. Poole the fifth one, actually the balancing development motor. The second objective deals with devising a five change motor model based on motor interaction during the life cycle of an organization. The model represents the stages of change motor functioning, description of their interaction and combination of different stages of this functioning. The third objective implies developing and describing the method of the analysis of change motor interaction.
Method: Lewin's field theory, punctuated equilibrium theory, and complexity theory common aspects were identified using the method of comparative analysis and the method of synthesis, which allowed describing balancing development as a change motor.
Results: The five change motor model was developed using the method of metaphors and the method of conceptual modeling.
Conclusion: The results presented in the article can provide more thorough understanding of the development process of an organization since they contribute to the explanation of how an organization declines in its life cycle due to the functioning of its change motors and how this decline can be overcome by implementing a transformational change. The use of the five change motor model presented in this article will provide insight into the development process of an organization as well as contribute to its further theoretical and empirical research.

Keywords: *Development process, Change process, Change motor, Management theory, Organization theory*

1 Introduction

At present the issues of organizational change and development processes are becoming increasingly relevant since external environment is changing extremely fast (Tetenbaum, 1998; Kondalkar, 2009; Rothwell & Sullivan, 2010) and requires organizations to be flexible (Karman, 2020), creative (Balažic Peček & Ovsenik, 2018) and able to constantly adjust their activities (Mitki et al., 2018) and to introduce transformational changes (Burnes, 2009; Cummings & Worley, 2009; Waddock, 2020). In such circumstances, one of the major factors of successful development of an organization is understanding the essence of change process in all its complexity, which is demonstrated by four change motors represented in the outstanding study by Van de Ven and Poole (1995).

Van de Ven and Poole (1995) consider development to be a process of changes, which can be both progressive and regressive. They interpret the process as four change motors: a life cycle motor (the metaphor of organic growth), a teleological motor (the metaphor of purposeful cooperation), a dialectical motor (the metaphor of opposition, conflict), and an evolutionary motor (the metaphor of competitive survival) (Van de Ven & Poole, 1995).

Received: 26th December 2021; revised: 8th November 2022; accepted: 22th November 2022

On the basis of the above-mentioned interpretation of the development by Van de Ven and Poole, in this article the author attempts to accomplish three objectives in order to describe the development process of an organization. In the beginning of the article, meeting the first objective, the author added the fifth change motor to the four ones proposed by Van de Ven and Poole (1995), namely the balancing development motor. The second objective deals with devising and describing the five change motor model that implies their constant interaction throughout the life cycle of an organization. The description of this model is presented in the second part of the article. The third objective implied developing and describing the method of the analysis of change motor interaction and is given in the third part of the article.

The results of this study may be useful due to the following reasons. First, the description of the balancing development motor could help to explain why and how organizations decline (e.g., Mintzberg, 1984; Levy, 1986; Weitzel & Jonsson, 1989) in the course of their life cycle (Greiner, 1972; Adizes, 1979; Jawahar & McLaughlin, 2001; Lester & Parnell, 2008) and how they can overcome it by implementing a transformational change (e.g., Cummings & Worley, 2009; Anderson & Ackerman Anderson, 2010). Second, the use of the five change motor model contributes to deeper understanding of the organization development process since this model describes the impact and interaction of change motors specific for different stages of organization development. Third, the method of the analysis of change motor interaction involves devising a development chart of an organization as well as the associated items of the analysis, which allows gaining information that is necessary for introducing progressive changes in an organization.

The logic of the balancing development motor is explained using Lewin's field theory (Lewin, 1947, 1948), punctuated equilibrium theory (Tushman & Romanelli, 1985; Gould, 1989; Gersick, 1991), and complexity theory (e.g., Lewis, 1994; Brown & Eisenhardt, 1997; Griffin et al., 1998) as an offshoot of chaos theory (e.g., Lorenz, 1993; Kiel & Elliott, 1996; Wheatley, 2006). The above-mentioned theories contain the following common aspects: (1) the existence of interaction between two kinds of forces, that is forces that impede changes and forces that induce them (Lewin, 1947, 1948; Tushman & Romanelli, 1985; Lewis, 1994; Brown & Eisenhardt, 1997; Tetenbaum, 1998); (2) the existence of some basis of order which, on the one hand, requires adjustment to carry out radical changes while, on the other hand, contributes to the conservation of the set order. Now let us dwell on the first aspect, while the second one will be thoroughly examined later.

Thus, a special feature of all the referred to theories is that they emphasize the interaction of two kinds of forces which in this study will be labeled as order forces and disorder forces. The interaction of these forces is constant, order forces being based on organizational inertia and disorder forces being based on entropy. Order forces foster conservation of the current order in an organization, while disorder forces lead to the change of the current order and introduction of a new one. The interaction of order forces and disorder forces within the logic of balancing development motor functioning will be considered below in greater detail.

Lewin's field theory, punctuated equilibrium theory, and complexity theory common aspects were identified using the method of comparative analysis and the method of synthesis, which allowed describing balancing development as a change motor. Then, the five change motor model was developed using the method of metaphors and the method of conceptual modeling.

2 Balancing Development as the Fifth Change Motor

2.1 Entropy as Generating Force of Balancing Development

In this paper, the generating force of the fifth change motor is considered as entropy that gradually increases in accordance with entropy increment law (Georgescu Roegen, 1971; Kirwan, 2000). The concept of entropy can mean a measure of unavailability of energy (Kirwan, 2000), a degree of the system's inability to change (Wheatley, 2006), a degree of uncertainty (Shannon & Weaver, 1964), and a measure of disorder (Angrist & Hepler, 1967). As the result of entropy increment an organization can get more and more disorganized, so it has to fight entropy all the time (Brown & Harvey, 2006) in order to impede disorganization and survive. An organization struggles for survival as an open system (Brown & Harvey, 2006), which requires constant balancing between order and disorder (e.g., Brown & Eisenhardt, 1997; Tetenbaum, 1998) by means of balanced interaction of order forces and disorder forces. Therefore, the fifth motor was called the balancing development one.

On the one hand, this balancing development is brought about by organization inertia that can both contribute to conservation of efficient organizational routines (e.g., Nelson & Winter, 1982; Kelly & Amburgey, 1991; Feldman, 2000) or impede adjustment of an organization to changes in its external environment (Hannan & Freeman, 1977, 1984; Miller, 1993; Barron et al., 1994). On the other hand, balancing development involves obtaining and using the external environment resources, adjustment to external environment changes (Kondalkar, 2009; Ganji Bidmeshk et al., 2021), which is invariably accompanied by emerging entropy (Kirwan, 2000). Thus, entropy can be generated in order to promote functioning of an organization, though rapidly increasing entropy can result in or-

ganization's decline caused by its disorganization and lack of energy for further functioning. As Georgescu Roegen (1971) said, "life, at least in the form it exists on this planet, is compatible only with a moderate entropy".

Moreover, it should be mentioned that constant balancing between order and disorder is based on the implementation of changes that can be either supported or opposed to by the organization's internal and external environment (e.g., Paton & McCalman, 2008; Cameron & Green, 2012; Huczynski & Buchanan, 2013; Srivastava & Agrawal, 2020).

Thus, two groups of agents can be distinguished both in the internal and external environment of an organization: (1) agents that are considered to be the order forces fostering conservation of the current order in the organization, (2) agents that are considered to be the disorder forces that foster change of the current order and introduction of a new one. Depending on the circumstances, the same agents may function as order forces or disorder forces. The dominance of one of the groups of agents mentioned above can cause the growth of organization's entropy since in this case: (1) the use of its energy may be dysfunctional (Beckhard, 2006), (2) its resources may be used irrationally (Kondalkar, 2009), (3) its communication problems (Ford & Ford, 1995; Morrison & Milliken, 2000; Brown & Harvey, 2006; Harris & Nelson, 2008) may result in increasing uncertainty (Clampitt & Williams, 2004; Hargie et al., 2004; Mowles, 2015). Lack of attention of the organization's management to these circumstances can cause an ever-growing entropy and, thus, steadily increasing uncertainty, disorder, the inability of the organization to change. As a result, these conditions put the mere existence of the organization in danger and can lead to its decline if the organization does not react on the dissatisfaction with its functioning on the part of its internal as well as external environment (Mintzberg, 1984; Levy, 1986; Weitzel & Jonsson, 1989).

Hence, entropy should be seen as the generating force lying at the basis of the fifth change motor. In case it is excessive, it can cause the decline of the organization, while on the other hand its generation itself can promote the organization's progressive changes. The positive or negative influence of the fifth change motor on an organization is determined by the ability of the organization's management to balance between order and disorder taking advantage of order forces based on organizational inertia and disorder forces based on entropy.

It should be noted that both order and disorder forces can have positive or negative influence on an organization. The nature of this influence will be determined by how well the order and disorder force balance corresponds to the particular stage of the organization development within its life cycle. The five change motor model presented in this article may help to describe the conditions characteristic of this or that degree of balance between order and disorder forces.

2.2 Deep Structure as the Basis of Order

In the context of the fast changing external environment (Tetenbaum, 1998; Kondalkar, 2009; Rothwell & Sullivan, 2010), organizations must be able to carry out transformational change (e.g., Burnes, 2009; Cummings & Worley, 2009; Anderson & Ackerman Anderson, 2010). Therefore, special attention should be drawn to the organizational change process, the relevance of this issue being proven by a fairly large number of studies devoted to the types of organizational changes (e.g., Golembiewski et al., 1976; Levy, 1986; Porras & Singh, 1986; Anderson & Ackerman Anderson, 2010).

Whatever of the above-mentioned classifications is used, it becomes evident that there is a close relationship between different types of change and some order basis whose adjustment can bring about a radical change in the organization. All in all, it is the emphasis on some order basis that represents the second common aspect of Lewin's field theory (1948), punctuated equilibrium theory (Tushman & Romanelli, 1985; Gersick, 1991), and complexity theory (Lewis, 1994; Eisenhardt & Brown, 1998; Mitleton Kelly, 2003).

The author of this article does not claim to introduce a new term for definition of the above-mentioned order basis or to elaborate its components since there are numerous interpretations of the basis, which has been mentioned above. Nevertheless, the mere existence of this order basis is the most important factor that can explain the logic of functioning of the balancing development motor and disclose the content of the five change motor model of an organization. Thereby, from now onwards let us use the term deep structure that was introduced by Gersick (1991) as the most general one for the analysis of incremental and radical changes and for the definition of the order basis. "Deep structure is the set of fundamental "choices" a system has made of (1) the basic parts into which its units will be organized and (2) the basic activity patterns that will maintain its existence" (Gersick, 1991).

One can better understand the process of radical change connected with the deep structure if trialectics is used as the logic of organization change (Ford & Ford, 1994). Using trialectics, let us consider a new deep structure that succeeds the degraded current deep structure as an attractive material manifestation point (Ford & Ford, 1994). Degradation of the current deep structure manifests itself in becoming less efficient, not being able to provide the change of the organization as response to dissatisfaction with its functioning on the part of its internal and external environment and can eventually result in the organization's decline (Mintzberg, 1984; Levy, 1986; Weitzel & Jonsson, 1989). According to trialectics, such conditions result in disequilibrium. This disequilibrium can cause replacement of the current deep structure by a new one which is regarded by the members of the organization as

a more attractive one, considering its survival potential.

The deep structure continues to exist until equilibrium is reached, which in trialectics is understood as the moment when "the circulation of energy between apparent opposites" (Ford & Ford, 1994) is maintained. Within the balancing development motor, these opposites are represented by the order forces based on organizational inertia and disorder forces based on entropy. Dominance of one of these opposites results in disequilibrium, which is expressed in the disruption of energy circulation (Ford & Ford, 1994).

Functioning of the balancing development motor is a cycle that consists of periods of equilibrium based on the deep structure used, degradation of the current deep structure, disequilibrium, and formation of a new deep structure or dissolution of the organization (see Figure 1). Entropy is the generating force of this cycle. At some point, its increase, in accordance with entropy increment law (Georgescu Roegen, 1971; Kirwan, 2000), makes an organization balance between order and disorder, but eventually it is bound to take an organization from the period of equilibrium to the period of disequilibrium.

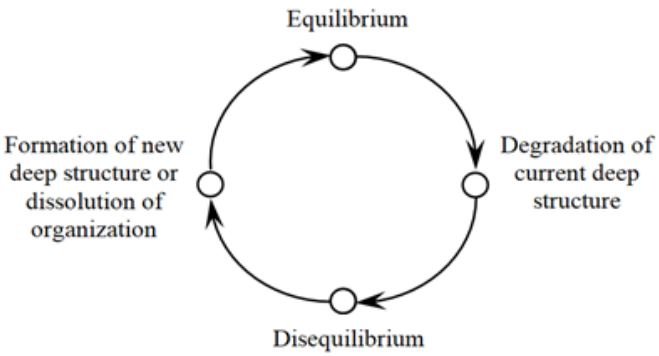

Figure 1: Logic of Balancing Development Motor Functioning

As the result of entropy increases, an organization can reach a bifurcation point (Prigogine & Stengers, 1984; Wheatley, 2006) that causes either the formation of a new deep structure of the organization or its dissolution. The deep structure is the basis of order. On the one hand, the formation of the deep structure permits to restore the equilibrium. On the other hand, degradation of the deep structure causes disequilibrium.

Thus, balancing development should be seen as a process of changes whose implementation enables energy circulation between order forces and disorder forces, that is their balanced interaction. While this energy circulation is taking place, the organization manages to balance between order and disorder. Accumulation of energy within order or disorder forces can mean disruption of its circulation between them, i.e. disequilibrium, which can result in transformational change or dissolution of the organization.

In this article, the continuous interaction of the five change motors is described to explain how an organization is approaching the key point at which its transformational change, allowing it to survive the decline or dissolution (Weitzel & Jonsson, 1989), can take place.

2.3 Combination of Episodic and Continuous Changes

Depending on the our focus when studying the process of organizational changes, we can regard them as episodic or continuous (Weick & Quinn, 1999). Episodic or continuous changes imply the use of two different models the comparative analysis of which was done by Marshak (1993). Implementation of episodic changes is based on Lewin's three-step model (1947): (1) unfreeze, (2) move, (3) freeze. Continuous changes occur in a different sequence: (1) freeze, (2) rebalance, (3) unfreeze (Marshak, 1993; Weick & Quinn, 1999). The basis of continuous changes is a model, denoted by Marshak (1993) with a general term "The Confucian model of change". This model assumes changes to be continuous and cyclic. To illustrate this point, Marshak uses the five agents (elements) cycle typical of Chinese philosophy and medicine, the cycle depicting the sequence in which these agents generate each other (Chan, 1963; Tierra & Tierra, 1998; Jiuzhang & Lei, 2010; Maciocia, 2015). These five agents are Wood,

Fire, Earth, Metal, and Water and in Chinese philosophy they become the focus of attention not only of metaphysics but of public administration and politics as well (Chan, 1963; Graham, 1986, 1989; Fung, 2009).

The development process of an organization should be examined regarding the combination of episodic and continuous changes since this approach will contribute to a more thorough understanding of the essence of this process. If the problems of the organization are connected with its strong inertia, then it is necessary to understand the logic of implementation of episodic changes. If the management of an organization aims at its continuous adjustment to the changes of the external environment, it is crucial to determine the logic of implementation of constant changes (Weick & Quinn, 1999). Therefore, this article considers the combination of continuous and episodic changes on the basis of interaction of five change motors. For this purpose it seems viable to use the classification of the types of organizational change given in the work of Anderson and Ackerman Anderson (2010). Using this classification, developmental change is considered as the continuous one, transformational change as the episodic one, while transitional change is seen as a type of change that is in between continuous and episodic changes.

Hence, this study proposes a model of five change motors of an organization. This model can help to describe the conditions of interaction of change motors most characteristic for different types of organizational change including transformational change. This enables an organization to overcome the stage of decline and to survive (e.g., Cummings & Worley, 2009; Anderson & Ackerman Anderson, 2010). Besides, the above-mentioned model allows determining conditions of change motor interaction in which different logics of change (formal logic, dialectics, and trialectics) (Ford & Ford, 1994) should be used.

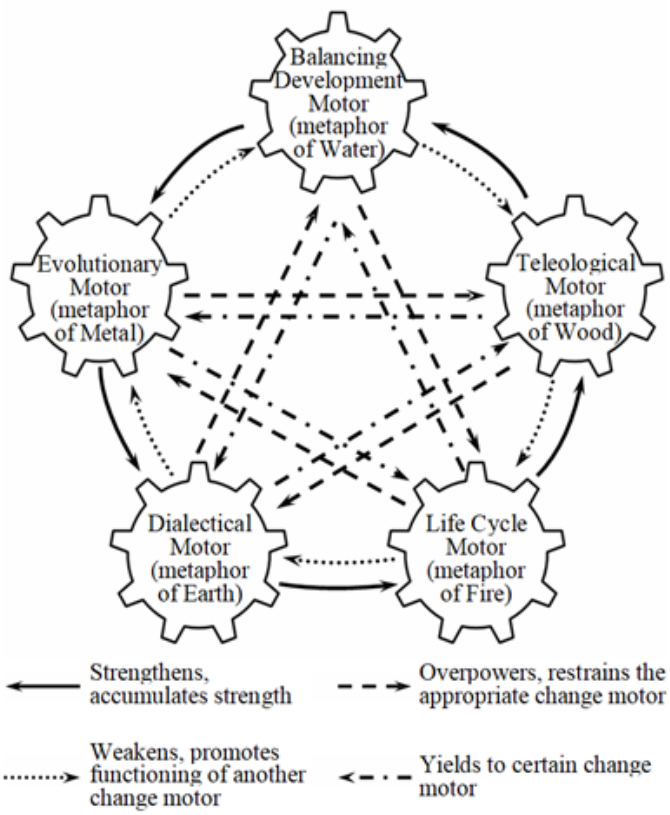

Figure 2: Five Change Motor Model

3 Description of the five change motor model of an organization

3.1 Metaphors of Five Change Motors

By developing Van de Ven's and Poole's conception of four change motors (1995) as well as ideas of cyclicality of changes (Chan, 1963; Graham, 1989; Marshak, 1993; Mou, 2009), this study proposes a model of five change motors of an organization. Firstly, this model implies the addition of the fifth change motor, the balancing development motor, whose generating force is entropy, to four change motors. Secondly, to provide a detailed description of the content of each change motor in this five motor model, the author uses metaphors of agents (Wood, Fire, Earth, Metal, Water) (see Table 1 below), which are paid special attention to in Chinese philosophy regarding public administration and politics (Chan, 1963; Graham, 1986, 1989; Fung, 2009). Thirdly, the author uses interaction logic of these five agents (Chan, 1963; Graham, 1989; Jiuzhang & Lei, 2010; Maciocia, 2015) to describe the process of functioning and interaction of the five change motors. The five change motor model is given in Figure 2.

One of the main ideas of five agent interaction is that they repeatedly generate and change each other in a certain cyclic sequence: "Wood produces Fire, Fire produces Earth, Earth produces Metal, Metal produces Water, and Water produces Wood" (Chan, 1963). The characteristics of the metaphors of five agents are given below in Table 1.

Table 1: Metaphors of Five Change Motors

Motor of Change	Metaphor	Metaphor Characteristics
Teleological motor	Wood	The forces of spring, beginning of development, impetus, driving force, birth. The nature of Wood is "to be crooked and straight" (Chan, 1963). "Wood is the beginning of the cycle of the Five Agents" (Chan, 1963).
Life cycle motor	Fire	The forces of summer, vital force in something or somebody, development, realization. The nature of Fire is "to burn and ascend" (Chan, 1963).
Dialectical motor	Earth	Earth is characterized by its assistance to the other four agents and its "power to transform" (Chan, 1963). Earth occupies the central position among the five agents, from which the other four agents are drawn through binary oppositions. The nature of Earth is "to provide for sowing and reaping" (Chan, 1963).
Evolutionary motor	Metal	The forces of autumn, harvesting, rigidness, severity, rightness, drawing boundaries, punishment for crime, end of development, destruction. The nature of Metal is "to yield and to be modified" (Chan, 1963).
Balancing development motor	Water	The forces of winter, preservation, storage of something or somebody, accumulation of energy, transition of energy, circulation of vital force. Wisdom, purification, deliverance from evil, moral transformation. Risk of development end, decline. Water can nourish the flesh while flowing downwards and humidifying since that is its nature, but it can get turbid, inactive and flow upwards since earth can dam water. Water is the end of the cycle of the five agents.

Metaphor of Wood. In this article the metaphor of Wood is used to describe the teleological motor because it represents the development beginning, impetus, driving force (Chan, 1963; Graham, 1989; Wilhelm & Wilhelm, 1995), and birth (Chan, 1963; Graham, 1989). As "wood is the beginning of the cycle of the Five Agents" (Chan, 1963), so does the functioning of an organization begin with formulating a goal. Wood can be "crooked and straight" (Chan, 1963). As straightening of a crooked wood, when we speak about a person, can mean ethical development (Shun, 2003b) and correction of human nature in the right direction under external influence (Chan, 1963; Graham, 1989), the goals of an organization can be adjusted and specified in the cause of its development (Van de Ven & Poole, 1995).

Metaphor of Fire. Here, the metaphor of Fire is used to describe the life cycle motor. If fire dies away, the vital force disappears, hence fire can mean presence of this force in something or somebody (Chan, 1963), development, realization (Chan, 1963; Graham, 1989), which complies with the essence of an organization's progress through its life cycle from the initial phase to the final one (Van de Ven & Poole, 1995).

Metaphor of Earth. Metaphor of Earth allows revealing the sense of the dialectical motor because it is connected to the emergence of oppositions. Of all the five agents, Earth is the central one (Chan, 1963) from which other four agents are drawn through binary oppositions (Graham, 1989). Besides, as Earth is characterized by its assistance to other four agents (Chan, 1963; Yu Lan, 1966) and its "power to transform" (Chan, 1963), the dialectical motor is characterized by the development of synthesis that represents a new construction (Van de Ven & Poole, 1995).

Metaphor of Metal. Metal is regarded as a metaphor of the evolutionary motor. This metaphor features severity, rightness, setting boundaries, punishment for crime (Graham, 1989), the end of development (Chan, 1963; Yu Lan, 1966), destruction (Chan, 1963; Wilhelm & Wilhelm, 1995), and also harvesting (Graham, 1989; Wilhelm & Wilhelm, 1995). This fits the logic of choosing or denying something (Hannan & Freeman, 1977) as well as retention within the framework of the evolutionary motor (Van de Ven & Poole, 1995).

On the one hand, the nature of Metal, which is "to yield and to be modified" (Chan, 1963) corresponds to the processes of variation and selection within the framework of the evolutionary motor (Van de Ven & Poole, 1995). On the other hand, the metaphor of Metal features rigidness (Graham, 1989) corresponding to organizational inertia that can hinder adaptation of the organization to changes in its external environment (Hannan & Freeman, 1977, 1984; Miller, 1993; Barron et al., 1994).

Metaphor of Water. In this study the metaphor of Water is used to describe the balancing development motor. Water features transition of energy and circulation of vital force (Wilhelm & Wilhelm, 1995). It can nourish the flesh (Graham, 1989; Ames, 2003) while flowing downwards and humidifying, since that is its nature (Chan, 1963). In the same way, the balancing development motor means circulation of energy between order and disorder forces, which maintains the current deep structure of the organization. However, water can get turbid (Chan, 1963), inactive (Wilhelm & Wilhelm, 1995) while flowing, or it can flow upwards since earth may dam water (Graham, 1989), circulation of energy between order and disorder forces can be disrupted.

Water is characterized by preservation and storage of something or somebody (Chan, 1963; Graham, 1989), accumulation of energy (Wilhelm & Wilhelm, 1995), which corresponds to accumulation of energy by order or disorder forces and stopping its circulation between them. Accumulation of energy can result in a radical change (Wilhelm & Wilhelm, 1995).

Furthermore, the metaphor of Water is characterized by wisdom which determines the rules of conduct (Graham, 1989), helps to tell right from wrong (Chan, 1963; Fu, 2003), solve moral problems (Cua, 2003b), deal with dilemmas and difficulties of human life (Cua, 2003a), ensure proper governance (Graham, 1989). These aspects of Water metaphor correspond to the deep structure treated in the balancing development motor as the basis of order. As Water presupposes purification (Chan, 1963; Ames, 2003), deliverance from evils (Chan, 1963; Shun, 2003a), moral transformation (Graham, 1989; An, 2003), start of development on the new basis after difficulties have been overcome (Wilhelm & Wilhelm, 1995), so does the balancing development motor presuppose revision of the current deep structure. Purification of still water by sedimentation means disposal of destructive ideas and emotions, thus creating the backbone of social order and transformational changes (Shun, 2003a).

However, Water can also mean danger, end of development, decline that can be prevented by constant development based on understanding of the essential and dismissal of the inessential (Wilhelm & Wilhelm, 1995). This aspect of Water metaphor illustrates that any success is temporary and, one should keep it in mind, can give way to failure (Liu, 2003).

In addition, this aspect is used to show that deep inertia of the organization results in its untimely adjustment to changes of the external environment (Miller, 1993; Barron et al., 1994), which may threaten its existence. The metaphor of Water can furthermore imply danger because accumulation of Water as vital force accompanies the end of the life cycle of something or somebody. Then this vital force is used anew for the beginning of another life cycle (Wilhelm & Wilhelm, 1995).

3.2 Interaction of Five Change Motors

The logic used in this article to describe interaction of five change motors is the logic of interaction of five agents – Wood, Fire, Earth, Metal, and Water (Chan, 1963; Graham, 1989; Jiuzhang & Lei, 2010; Maciocia, 2015). In accordance with this logic, different change motors dominate at different time periods since every change motor, by analogy with each of the five agents, actualizes the following four functions (see Figure 2 above): (1) "S", "s" — strengthens, accumulates strength, (2) "W", "w" — weakens, promotes functioning of another change motor, (3) "O", "o" — overpowers, restrains the appropriate change motor, (4) "Y", "y" — yields to a certain change motor.

Using the logic of interaction of five agents to describe the functioning of five change motors, let us distinguish the following main stages in the functioning of each change motor: beginning, growth, prosperity, slowdown, and decline (see Figure 3). The impact force dynamics of each change motor on an organization can be represented as a chart including several graphs (see Figure 3) in accordance with which the impact force changes in the interval between 0 and 100%.

It should be noted that the graphs above could be more or less extended along the time axis, but to simplify the example, let us use the same duration for the different stages of impact force changes of the motors mentioned. Still, it does not prevent us from using these graphs to analyze the interaction of the five change motors of an organization since they visually demonstrate the logic of their interaction and allow distinguishing certain key phases. The main phases of each change motor functioning are shown on the example of the teleological motor (see Figure 3 above).

Beginning. At the first phase (s – – Y) as the change motor starts, the force of its impact is increasing, though not intensively. Therefore, the strengthening function is denoted by small letter "s". Functions W and O in this case are not brought into effect as this change motor does not yet have a sufficient influence on change process but is still gaining force.

Growth. The next four phases (S – – Y, S – o y, S w O –, S W O –) pertain to the stage when the influence of the change motor on the organization grows. At this stage S function is implemented to its full extent, which determines fast growth of the force with which the change motor acts on the development of the organization. Gradually, the teleological motor we are studying stops yielding to the evolutionary motor (function Y is first denoted by a capital letter, then by a small letter and finally totally vanishes). On the contrary, the significance of the function of restraint, that is suppression of the appropriate change motor (in this case the dialectical motor), grows but does not

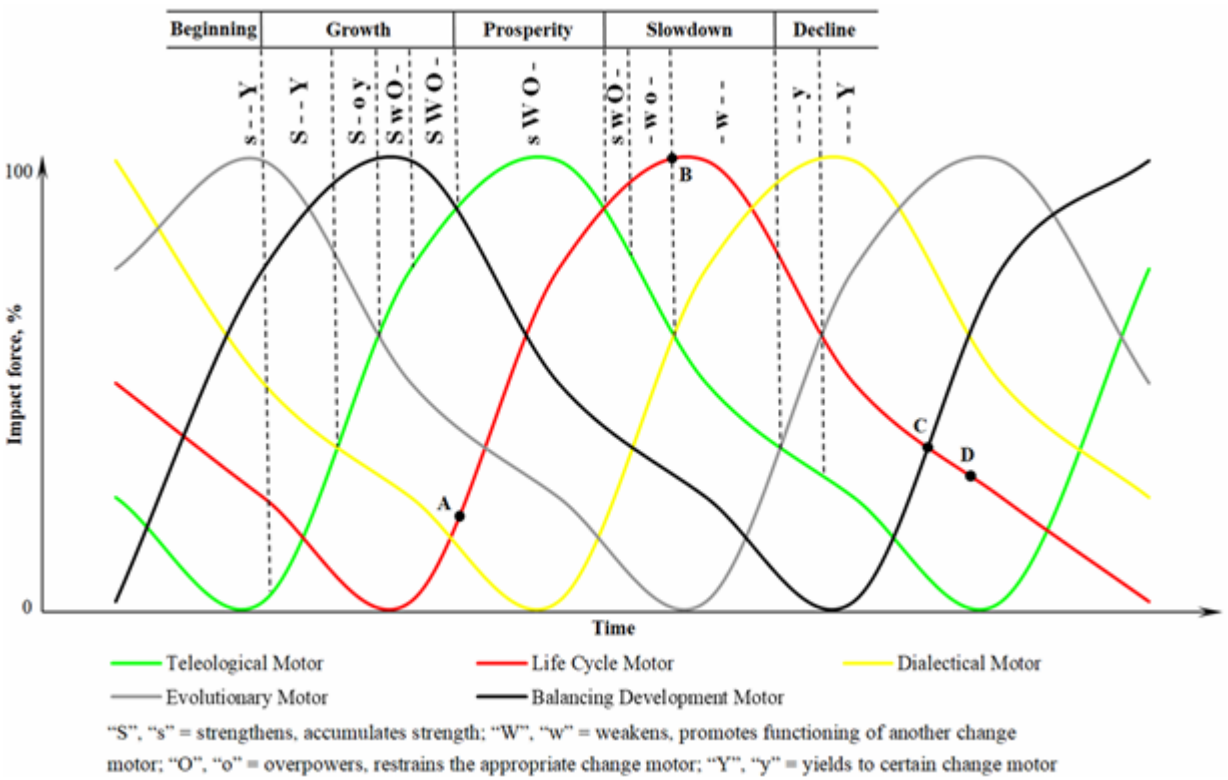

Figure 3: Impact Dynamics of Change Motors

reach its maximum yet. Besides, at this stage W function starts being implemented, which contributes to functioning and increase of the impact force of the life cycle motor.

Prosperity. At prosperity stage which corresponds to the sixth phase of the functioning of the change motor shown in Figure 3 as "s W O –", S function is very low because the force impact of the studied change motor gradually reaches its maximum while the balancing development motor which contributes to teleological motor functioning is at the stage of slowdown. The functions of restraining and weakening are implemented by the teleological motor to their full extent.

Slowdown. Slowdown stage makes up the seventh, eighth, and ninth phases of the functioning of the change motor (i.e., s w O –, – w o –, – w – –). At this stage the teleological motor gradually stops to derive its strength at the expense of the balancing development motor, which starts to be dominated by the dialectical motor. Moreover, eventually W function starts to decay since the life cycle motor enters the stage of prosperity while the impact force of the evolutionary motor that overpowers the teleological motor starts increasing at the stages of beginning and growth. Domination of the teleological motor over the dialectical one decreases and finally vanishes. Nevertheless, Y function is not yet performed at this stage.

Decline. Decline stage makes up phases "– – – y" and "– – – Y". At this stage, the change motor studied performs only the function of subordination to the corresponding change motor. At "– – – Y" phase this function is expressed to its maximum. Then this phase is followed by "s – – Y" phase, i.e. the beginning of the change motor starts anew.

Thus, this study defines the main functions performed by each change motor in the process of interaction with other change motors. Implementation of these functions provides for continuity of the organization change process until the organization succeeds in restarting the life cycle motor by implementing transformational change, which implies creation of a new deep structure and recovering the equilibrium. Recovering the equilibrium means revival of energy circulation between order and disorder forces, i.e. their balanced interaction.

In addition to the main stages and phases of change motor functioning in an organization, certain points in Figure 3 are marked by letters "A", "B", "C", "D" to identify the sections of change motor interaction. These sections demonstrate the most characteristic conditions at which developmental change, transitional change, transformational change (Anderson & Ackerman Anderson, 2010) dominate. Besides, these sections specify conditions of change motor interaction that are the most appropriate for application of this or that logic of change (Ford & Ford, 1994).

Section AB is dominated by transitional change and here the use of formal logic is appropriate since at this period the impact force of the teleological motor exceeds that of the balancing development motor as well as that of the dialectical motor. At this section, the organization is enthusiastically working at transition to the envisioned final state implementing its current deep structure.

Section BD is dominated by developmental change and here the use of dialectics is appropriate since at this period the impact force of the dialectical motor exceeds that of the balancing development motor as well as that of the teleological motor. This section features contradictions between the contents of the current deep structure, the state of the internal environment of the organization and its external environment. Because the organization has achieved significant success in the accomplishment of the envisioned final state, main attention is paid to preservation of its current status by implementing developmental change.

There is point "C" inside section BD to mark transition of the life cycle motor into the decline stage. At section CD, the balancing development motor begins to overpower life cycle motor functioning due to entropy increase. However, transformational changes are scarcely probable at this section because: (1) decline of an organization starts from the blinded stage (Weitzel & Jonsson, 1989), (2) influence of the balancing development motor is not strong enough, (3) impact force of the dialectical motor exceeds that of the balancing development motor.

At section DA, transformational change dominates and the use of trialectics is appropriate since at this section the impact force of the balancing development motor exceeds that of the teleological as well as dialectical motors. At this section, the organization either implements transformational change successfully or collapses.

Using the logic of interaction of five agents (Wood, Fire, Earth, Metal, Water) (Chan, 1963; Graham, 1989; Jiuzhang & Lei, 2010; Maciocia, 2015) to present the process of functioning of five change motors allowed us to describe five combinations of stages with each of the five change motors emerging at the corresponding stage of performance (see Table 2).

The description of combinations of functioning stages of different change motors supplements the contents of five change motor model and can be used (1) to present the development process of an organization, (2) to find out conditions characteristic for implementation of various types of change (Anderson & Ackerman Anderson, 2010), (3) to find out conditions characteristic for the use of certain logic of change (Ford & Ford, 1994), (4) to analyze the interaction of change motors. The analysis of change motor interaction is considered in more detail below.

Table 2: Combination of Different Stages of Change Motor Functioning

Teleological Motor	Life Cycle Motor	Dialectical Motor	Evolutionary Motor	Balancing Development Motor
Prosperity. Active implementation of the teleological cycle (Van de Ven & Poole, 1995), i.e. consistent formulation of goals, implementation of goals, evaluation of the results, and modification of goals to provide transition of the organization to the envisioned final state on the basis of the current (new) deep structure (DS).	**Growth.** The organization tends to bring the work to perfection on the basis of the current (new) DS. Dominance of trialectics and transformational change gives way to the dominance of formal logic and transitional change. Implementation of transitional changes provides for the growth of the organization due to its transition from the current state to a new one.	**End of Decline/Beginning.** Elimination of the current contradictions and the emergence of new contradictions between the contents of the current (new) DS, the condition of the internal environment and/or external environment.	**Decline.** There is retention of the current (new) DS, the formation of which ensured the organization survival.	**Slowdown.** Equilibrium is restored (i.e., circulation of energy between order and disorder forces is resumed). Realization and strengthening of the current (new) DS take place by means of elaborating its facets (e.g., Tushman & Romanelli, 1985).
Slowdown. Considerable success of the organization in achievement of the envisioned final state on the basis of the current DS.	**Prosperity.** Since the organization has achieved the highest level of its development on the basis of the current DS, the impetus to its development weakens. Dominance of transitional change gives way to the dominance of developmental change.	**Growth.** Gradual growth of contradictions. Thesis (i.e., order forces) dominates over antithesis (i.e., disorder forces).	**End of Decline/ Beginning.** Denial does not threaten the organization yet because it is successful. Strengthening of organizational inertia starts to impede the adaptation of the organization.	**Decline.** Current DS is realized and streamlined but order forces begin to dominate over disorder forces.
Decline. Conservation of the current state and enjoying success become the main purpose of the organization members since it has managed to achieve a lot in its progress to the envisioned final state on the basis of the current DS.	**Slowdown.** The efficiency of the organization functioning decreases. Developmental changes dominate.	**Prosperity.** Maximum aggravation of contradictions. Acute struggle between thesis and antithesis.	**Growth.** Threats to organization survival emerge, which resulted from dissatisfaction with its performance on the part of its internal and/or external environment. Variation process is taking place.	**End of Decline/Beginning.** The current DS loses its relevance, deteriorates, begins to collapse. Energy starts to accumulate within disorder forces.
End of Decline/Beginning. The teleological cycle stops since the organization is in disorder and its members are demoralized. However, the craving of the organization members to guarantee its survival starts the cycle anew.	**Decline.** Failure to overcome threats to organization existence by means of developmental change becomes evident. There is conversion to transformational change.	**Slowdown.** Antithesis dominates over thesis. Struggle between order and disorder forces results in the beginning of synthesis formation.	**Prosperity.** Threats to organization survival and necessity for its variability become evident.	**Growth.** Disequilibrium (i.e., disruption of energy circulation between order and disorder forces) manifests itself strongly. The current DS has collapsed. The organization has fallen into disorder because disorder forces fully dominate over order forces.
Growth. Formation of a new DS, which would ensure organization survival, becomes the main goal for its members.	**End of Decline/Beginning.** The organization either collapses or, in case of successful implementation of transformational change, its life cycle restarts on the basis of a new DS.	**Decline.** Either synthesis is achieved (i.e., transformational change of the organization is implemented), or antithesis totally overcomes thesis (i.e. the organization collapses under the influence of disorder forces).	**Slowdown.** There is selection for or selection against the organization.	**Prosperity.** Influence of disorder forces on the organization as well as the amount of entropy approach their maximum. A new DS is formed for organization survival. Otherwise, the organization collapses.

4 Analysis of change motor interaction

The analysis of change motor interaction is a crucial task since it can provide information necessary for carrying out progressive changes in an organization. However, the implementation of such an analysis requires consideration of three important aspects (Van de Ven & Poole, 1995): (1) the influence of change motors can be examined at different levels and for various objects, (2) different change motors can affect an object simultaneously or at varying periods of time, (3) change motors can influence each other.

The method of the analysis of change motor interaction given in this study is based on the advances of Van de Ven and Poole (1995) in the description of four change motors and on the five change motor model given above (see Figures 2 and 3). The advantage of the proposed method is determined by the fact that its application allows taking into account the above mentioned aspects of the analysis of change motor interaction.

The proposed method of the analysis of change motor interaction considers three levels of change motor functioning (Horton et al., 2003; Gray et al., 2015): (1) micro level (individuals, small groups), (2) meso level (organizations), and (3) macro level (industries, institutions).

Considering the use of the proposed method for meso

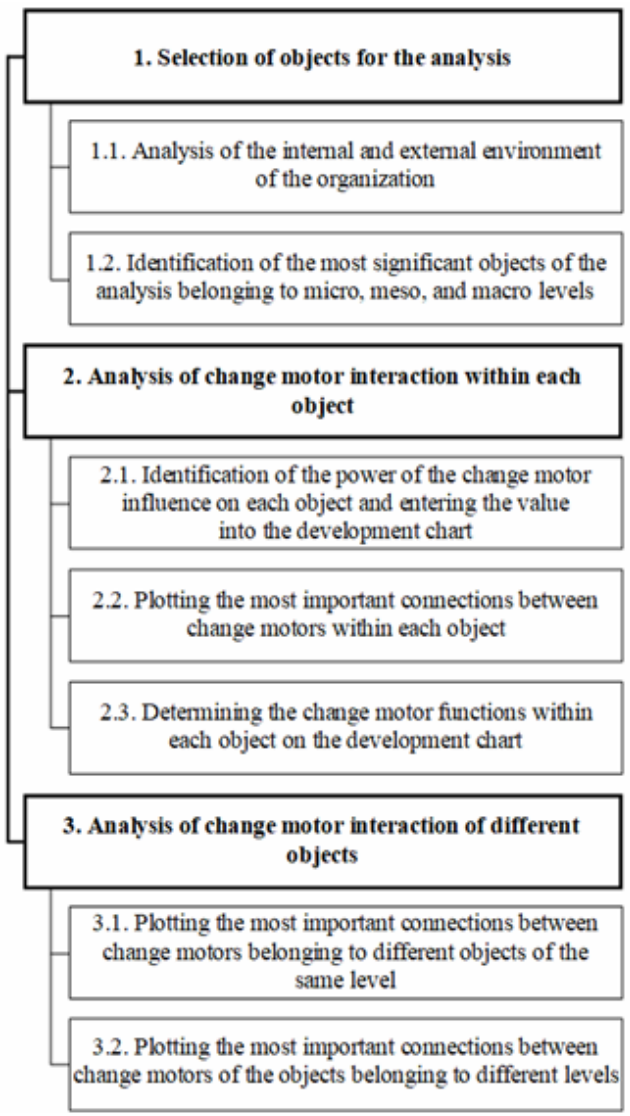

Figure 4: Steps in Plotting the Development Chart of an Organization

level objects, i.e. organizations, it seems viable to distinguish the following general stages of its implementation: (1) plotting the development chart of the organization and objects associated with it at the previous and current periods of time, (2) the analysis of the change motor interaction marked at the development chart during the previous and current periods of time, (3) detection of the problems in the organization's functioning, (4) working out recommendations aimed at ensuring progressive changes in the organization, (5) generation of scenarios for the future development of the organization using the development chart.

Thus, the method suggested is based on plotting the development chart of an organization as well as the objects associated with it. The development chart is the tool of the change motor interaction analysis that enables to identify the interrelations of change motors and their effect on the objects analyzed, whether they belong to micro, meso, or macro levels. The main steps in plotting the development chart of an organization are given in Figure 4.

First step. At the first step, the most important objects for the development of the organization are chosen for the analysis. At this step it is necessary to take into consideration the previous, current, and future time periods because the array of objects relevant for the organizational development may change with time: some objects may disappear, others may appear. The analysis of the future period of time can be useful for generation of the organizational development scenarios.

Second step. At the second step in plotting the development chart of an organization one should determine the impact force of each change motor on the object in question (on a scale of 0% to 100%) using the method of expert evaluations. One plots the most important connections between change motors within each of the objects examined and marks the functions of change motors on the development chart allowing for their interaction using the model of five change motors, which was discussed in the previous part of the article. Change motor functions are denoted on the development chart by small and/or capital letters (S, s; W, w; O, o; Y, y) depending on the degree of implementation of a change motor function.

Third step. The third step in plotting the development chart of an organization includes identification of the most important connections between: (1) change motors belonging to different objects of the same level, (2) change motors of the objects belonging to different levels (see Figure 4 above).

Thus, the implementation of the above-mentioned steps allows plotting the development chart of an organization. An example of a fragment of such a chart is given in Figure 5.

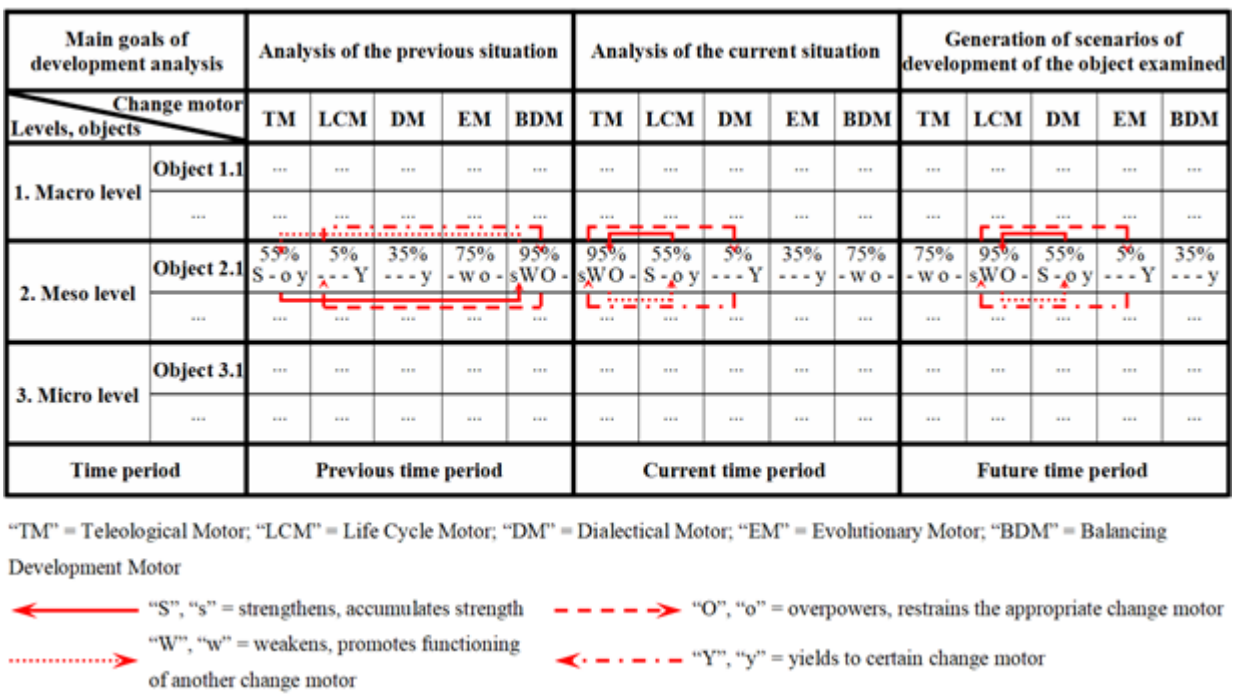

Figure 5: An Example of a Fragment of an Organizational Development Chart

The following situation has been chosen as an example within the fragment of the development chart presented. At the previous time period the life cycle motor of the organization examined (see object 2.1 in Figure 5 above) was at the Decline stage, and the balancing development motor had a profound effect on the organization. At present, the life cycle motor is at the Growth stage. Furthermore, the current period is characterized by strong influence of the teleological motor, which presumes active implementation of the teleological cycle (Van de Ven & Poole, 1995) enabling the transition of the organization to the envisioned final state.

One of the possible scenarios of organizational development in future could be the transition of the life cycle motor of the organization to the Prosperity stage. In this case, the organization would achieve considerable success in accomplishing its envisioned final state.

The described method of the analysis of change motor interaction can be used for obtaining information that will help to ensure progressive changes in an organization.

5 Discussion and conclusion

The aim of this article was to describe the development process of an organization on the basis of change motor functioning. In accordance with this aim, the following results were obtained.

Firstly, the four change motors revealed and described by Van de Ven and Poole (1995) were supplemented by the fifth one that is the balancing development motor. Since its generating force is entropy, its interaction with the other four change motors can help to explain the process of an organization's transition to the decline stage (e.g., Mintzberg, 1984; Levy, 1986; Weitzel & Jonsson, 1989), as well as the process of transformational change (e.g., Cummings & Worley, 2009; Anderson & Ackerman Anderson, 2010) the implementation of which can give an organization a chance to survive.

Secondly, in this article the author proposed a model of five change motors based on their continuous interaction during the life cycle of an organization. This model presents (1) stages of change motor functioning, (2) phases of change motor functioning regarding certain functions performed by each motor, (3) description of the combinations of different stages in change motor functioning.

Besides, this model allowed the author to determine the conditions of change motor interaction that are the most characteristic ones for various types of organization change (Anderson & Ackerman Anderson, 2010) as well as the conditions in which the use of certain logics of organization change is the most reasonable (Ford & Ford, 1994).

Thirdly, a method of change motor interaction analysis was proposed. This method involves plotting the development chart of an organization as well as the objects of the analysis connected with the organization and takes into account different time periods and the interaction of change motors.

The model of five change motors presented in this article can be useful as it provides additional information on the development process of an organization. Besides, this model expands the present day approaches to determining the essence of the various types of change (e.g., Golembiewski et al., 1976; Weick & Quinn, 1999; Anderson & Ackerman Anderson, 2010) since it is based not on the opposition of episodic and continuous changes but on their combination in the process of functioning and interaction of the five change motors.

In addition, the model of five change motors can be used as the basis for empirical research in spheres related to the life cycle of an organization and transformational changes in an organization. Using the method of the analysis of change motor interaction can be helpful for obtaining information that is necessary for launching progressive organizational changes.

Further research on the basis of five change motor model can help to work out mathematical models which will be applied to study dynamic systems (Cheng & Van de Ven, 1996; McGarvey & Hannon, 2004; Basu & Miroshnik, 2015). Therefore, in the further research on change motor interaction it is reasonable to use a Lotka Volterra system for n species (Takeuchi, 1996; Jørgensen & Svirezhev, 2004) since it allows taking into account various types of relationship between them. In this case, the five change motor interaction can be regarded similarly with interaction of five species.

Various types of relations that may be considered within Lotka Volterra system (Takeuchi, 1996; Jørgensen & Svirezhev, 2004) can be distinguished between different change motors. For example, according to the five change motor model, the relations between the teleological and balancing development motors could be regarded as a predator prey type of relationship while the relationship between the balancing development and life cycle motors could be regarded as competition.

Thus, the use of Lotka Volterra system for description of five change motor interaction could characterize the dynamics of impact forces of change motors depending on interaction between them. Yet, this problem requires a detailed and comprehensive research.

The use of the five change motor model presented in this article will provide insight into the development process of an organization as well as contribute to its further theoretical and empirical research.

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Model procesa organizacijskih sprememb

Namen/Cilj: Članek se osredotoča na proces razvoja organizacije, ki temelji na delovanju motorjev sprememb; zato se avtor osredotoča na doseganje treh ciljev. Prvi cilj vključuje dodajanje petega motorju, ki sta ga opisala A. H. Van de Ven in M. S. Poole, in bi ga lahko označili kot ravnovesni razvojni motor. Drugi cilj je oblikovanje modela petih motorjev sprememb, ki temelji na interakciji motorjev v življenjskem ciklu organizacije. Model predstavlja stopnje delovanja motorjev sprememb, opredeli njihove interakcije in kombinacijo različnih stopenj tega delovanja. Tretji cilj vključuje razvoj in opis metode analize sprememb interakcije motorjev.
Metoda: Lewinova teorija polja, teorija točkastega ravnovesja in teorija kompleksnosti so identificirali skupne vidike z metodo primerjalne analize in metodo sinteze, kar je omogočilo identifikacijo razvojnega ravnovesja kot petega motorja sprememb.
Rezultati: Uporabili smo metode metafor in metode konceptualnega modeliranja, da smo razvili model petih motorjev sprememb.
Zaključek: Rezultati omogočajo bolj temeljito razumevanje razvojnega procesa organizacije, saj prispevajo k razlagi, kako organizacija nazaduje v svojem življenjskem ciklu, z upoštevanjem delovanja svojih motorjev sprememb, in še posebej, kako je mogoče to nazadovanje zaustaviti. z izvedbo transformacijske spremembe. Uporaba modela motorja petih sprememb, predstavljenega v tem članku, bo omogočila vpogled v razvojni proces organizacije ter prispevala k njenemu nadaljnjemu teoretičnemu in empiričnemu raziskovanju.

Ključne besede: *Razvojni proces, Proces spreminjanja, Menjava motorja, Teorija upravljanja, Teorija organizacije*