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## AN INTERDISCIPLINARY EVOLUTION: A LITERATURE STUDY ON THE INTEGRATED MEANINGS OF HOMEOSTASIS AND AUTOPOIESIS IN ORGANIZATIONS

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ARTICLE INFO	ABSTRACT
<p><i>Article history</i> Received:2025-06-26 Received in revised form:2025-07-02 Accepted:2025-08-20 Available online 2025-12-25</p> <hr/> <p><i>Keywords:</i> homeostasis, autopoiesis, organizations, self-organization</p> <p>JEL classification: M0, M1</p>	<p>This study is based on a literature review on the integrated meanings of homeostasis and autopoiesis in organizations. Thus, with an interdisciplinary approach, the process of evolution of the related concepts into the discipline of organization was tried to be described. In this direction, documents in the literature were systematically utilised. Systematic literature review was chosen because it is an appropriate approach to link the studies in the existing literature and to extract and evaluate the evidence related to the research topic from the existing literature. The evidence obtained was used to construct the introduction, theoretical background, findings and evaluations, and conclusion. In particular, the findings were evaluated under the following headings: the role of homeostasis and autopoiesis in the evolution of the part, the evolution towards social systems theory, and the integrated evolution towards organizations. Humberto Maturana and Francisco Veralla's theory is considered to offer new perspectives on organizational self-management and the environment.</p>

### 1.Introduction

One of the fundamental questions in the scientific study of complex systems concerns control, given the inherently limited predictability of systems. It is necessary to predict the future of systems and their environment and to be able to take action before a disturbance occurs that could damage or destroy the system. Depending on the predictability of a system, different control approaches are required. The less predictable a situation is, the more adaptive the system should be, i.e. feedback control will be more appropriate. Measures of predictability and complexity are needed to decide on different control approaches (Gershenson, 2015: 867). It

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would be appropriate to say that two concepts such as *homeostasis* and *autopoiesis* also lead to thoughts in complexity analyses. For instance, the meaning of complexity is still unclear, as is the question of what constitutes complexity theory and complexity science. The concept of complexity has fundamentally changed the understanding of biomedicine, environment, technology, society, economy and education. In the mid-20th century, cybernetics, general systems theory, chaos theory, etc. advanced the development of complexity theory. However, complexity, synergy, self-organization, complex adaptive theory, non-linearity, complementarity, Morin's complex thinking, autopoiesis, etc. draw on many scientific and philosophical ideas. It is fair to say that thanks to interdisciplinary convergence and evolution, people's view of the world and science has changed significantly (Kesić, 2024: 56). Traditionally, science has been reductionist. However, complexity arises when components are difficult to separate due to the interactions involved. Nevertheless, these interactions are important as they generate new knowledge that determines the future of systems (Fernández et al., 2014: 19). In other words, it is necessary to rely on the thesis that there can be an interdisciplinary evolution in concepts. Therefore, the subject of this study is to draw a theoretical framework of the evolution of two concepts such as autopoiesis and homeostasis towards the discipline of organization.

## 2.Theoretical Background

Claude Walter Bradford was the first to point out that living organisms are not only a vehicle for transporting nutrients to cells, but that the condition for free and independent life is the '*constancy of the milieu intérieur*' (Selye, 1973: 441; Kotas and Medzhitov, 2015: 816; Libretti and Puckett, 2023). Homeostasis is a fundamental concept necessary to understand many regulatory mechanisms in physiology (Modell et al., 2015: 259). However, the concept of *homeostasis* was derived by Cannon in 1926 to define and extend Bernard's concept of '*milieu intérieur*' (Kotas and Medzhitov, 2015: 816; Davies, 2016: 1-2; Libretti and Puckett, 2023). The concept became popularised in *The Wisdom of the Body* (1932) (Torday, 2015: 575). On the other hand, Cannon combined the Ancient Greek concepts of ὁμος (hómos-similar) and ἵστημι (histēmi-immobile)/ *stasis* (from στάσις), and introduced the concept of *homeostasis* (Davies, 2016: 1-2).

On the other hand, it is also necessary to refer to *autopoiesis*, which is another concept at the centre of this study. *Autopoiesis* has a certain cultural history. Although the concept was developed by Humberto Maturana and Francisco Varela in the 1960s, it started to be used in the sense of *self-generating* in 1971 (Luisi, 2003: 49-50). In other words, *autopoiesis* means self-generation and aims to provide a universal criterion of life only in terms of the characteristic organization of living systems. According to this view, any system that exhibits autopoietic organization qualifies as a living system. According to Maturana and Varela, *the concept of autopoiesis is necessary and sufficient to characterise the organization of living systems. Autopoiesis theory therefore follows a relationalist (or formalist) paradigm in explaining life. Life is assumed to consist of certain relations between material components. Thus, it is impossible to define and determine it independently of these components and relations. While the actual material basis of a given autopoietic system may have an impact on how autopoiesis is realised, it is argued that organization, self-structure and life are fundamentally the same in material instances* (Meincke, 2019: 5).

## 3.Methodology

In order to evaluate the integrated meanings of the two concepts of homeostasis and autopoiesis in organizations through an interdisciplinary evolution, documents from the literature were

systematically used. The systematic literature review used in this study was chosen because it is an appropriate approach to link the studies in the existing literature and to extract and evaluate the evidence related to the research topic from the existing literature. In other words, in this study, systematic literature review constituted the basic structure of the methodology as it was considered to be very useful in evaluating the existing evidence by combining it (Schiffiling and Piecyk, 2014: 201).

#### **4. Findings and Evaluations**

In the following section, the role of the concepts of *homeostasis* and *autopoiesis*, which are the focal concepts in evolution, the findings obtained from the literature on *evolution towards social systems theory* and some evaluations based on the findings are given.

##### **4.1. The Role of Homeostasis and Autopoiesis Concepts in Evolution**

Cannon tried to explain the concept of *homeostasis* and equilibrium by referring to the constant conditions maintained in the body. However, this concept gained a precise meaning when applied to relatively simple physical and chemical states in closed systems where known forces are balanced (Davies, 2016: 1-2). Cannon needed the concept of *homeostasis* to express the way in which a number of separate physiological systems can work together to restore stability following disruption. Therefore, he used the concept of homeostasis to describe the systematic, integrated response to emergencies regulated by the autonomic sympathetic nervous system and in response to a perceived threat (Cummins, 2024: 3165-3168). Since Cannon's work, the concept of homeostasis, which he defined as coordinated physiological processes that maintain most of the steady states in the organism, has been a major force in the development of views of physiological regulation and control. Homeostatic structure has significantly shaped many psychological concepts and theories of the twentieth century, including models of reinforcement, motivation, perception, personality, and psychosomatic disorders (Berntson et al., 2017: 401-426).

The concept and/or idea of *homeostasis* does not refer to the stagnation of something fixed and immobile, but to a state that can change but is relatively constant (Davies, 2016: 1-2). According to the concept, a highly developed life-existence is an open system with many relationships (Cannon, 1929: 400). Homeostasis is a fundamental feature of biological systems (Chovatiya & Medzhitov, 2014: 281). In other words, homeostasis also includes a reference to the organism being an open system (Lloyd et al., 2001: 133). In this direction, *homeostasis* is defined as a property of a system in which variables are regulated and internal conditions remain constant and relatively stable, emphasising that it is a process that maintains the stability of the internal environment of the organism in response to fluctuations in external environmental conditions (Torday, 2015: 575). On the other hand, homeostasis is traditionally considered as a synchronic servo-mechanism that maintains the status quo for organismal physiology. However, from the perspective of developmental physiology, homeostasis is a robust, dynamic, intergenerational, diachronic mechanism for maintaining, sustaining and modifying physiological structure and function (Torday, 2015: 573). In this direction, it is observed that the concept of *homeostasis* is based on some ideas. These ideas include the continuity in an open system represented by the body, the need for mechanisms to maintain this continuity, steady-state conditions, the fact that every tendency towards change automatically requires the encounter with factors that resist change, the regulatory system that determines the homeostatic state, consisting of a series of cooperating mechanisms acting simultaneously or successively, and that homeostasis does not occur by chance, but is the result of organised self-management (Davies, 2016: 1-2). It is also

observed that the concept of *homeostasis* has been a pioneer in the derivation of some concepts. For instance, *homeodynamics* (Lloyd et al., 2001: 133) and *homeosis* (Torday, 2015: 575) are referred to. In this direction, there are some explanations in the literature for the concept of *homeodynamics*. The concept of homeodynamics offers a new and all-encompassing concept that departs from the classical homeostatic thinking that emphasises the stability of the internal environment against deterioration. Indeed, biological systems are homeodynamic because of their ability to dynamically self-organise when they lose their stability (Lloyd et al., 2001: 133). In the literature, it is observed that the concept of *homeosis*, which is more dynamic than the concepts listed in the following time period, is also preferred. Although the concept was initially used to express the processes in living organisms, it is frequently applied to autonomous control systems ranging from cruise control to celestial bodies and engineering disciplines (Torday, 2015: 575; Modell et al., 2015: 259).

The concept of *autopoiesis* is derived from the Greek words auto-, 'self' and poiesi~L, 'to do'. It was coined to articulate the self-producing organization specific to living things (Fleischaker, 1988: 37). The concept is concerned with the question 'what is life?' and seeks to define a common denominator beyond the diversity of all living organisms, which distinguishes the living from the non-living. *Autopoiesis* is not concerned with the origin of life, i.e. the transition from non-living to living and artificial life. Instead, it is concerned with the direct observation of how existing cells function and with various life-related processes such as interaction with the environment, evolution and cognition (Zeleny, 1981: 4; Mingers, 1994: 1). In other words, a conception of life that has played a direct (albeit minor) role in research on the origins of life has been Maturana and Varela's concept of *autopoiesis*. To make a general assessment, autopoiesis belongs to the class of limited metabolism conceptions of life in general. However, it is formulated at a much more abstract level of description. Maturana and Varela have only tried to emphasise universal principles which they consider to be of a fundamentally organizational nature. In particular, an autopoietic (*literally* self-creating) system is a network of processes with the dual characteristics of self-generation and self-individuation. Self-generation means that the process network produces components whose interactions produce and maintain the same process network that produces them. Self-individuation means that the system creates and maintains its boundary as a fundamental part of its functioning. In Maturana and Varela's concept, a living system is an autopoietic system operating in the physical world (Beer, 2020: 6). The first period marked by the concept of autopoiesis lasts from the early 1970s to the early 1980s and uses formal recursive mathematics to address synchronic emergence, i.e. the focused behaviour of an organic system achieved through constraining the behaviour of system components. This can be seen as the question of the relationship between synchronic emergence, the part and the whole. The second period is based on the concept of enaction and covers the late 1980s and early 1990s. In this period, differential equations are used to model dynamical systems and diachronic emergence, i.e. the generation of new functional structures, is dealt with (Protevi, 2009: 2-3).

The concept of autopoiesis was introduced into the literature by Maturana and Varela as the name of a particular definition of system that they claimed was necessary and sufficient to describe and also to explain the living (Swenson, 1992: 207-228). In other words, autopoiesis is a concept used to refer to a form of system organization in which the system as a whole produces and modifies its own components and continuously separates itself from its surrounding environment (McMullin, 1997: 2). The concept has been widely used in the literature for

spontaneous order production or self-organization in general, whether living or non-living (Swenson, 1992: 207-228). However, Maturana and Varela went further and argued that living systems are cognitive systems and that living as a process is a process of cognition. Therefore, if these authors are right, *autopoiesis* unifies life and mind by determining that it is necessary and sufficient for both life and mind (Kirchhoff, 2018: 2520). *Autopoiesis* theory also addresses the potential to provide an alternative unifying framework for the study of organizations as systems and organizational phenomena as emergent phenomena (Magalhães and Sanchez, 2009). In their theory of *autopoiesis*, Maturana and Varela attempted to explain the 'necessary and sufficient condition of life' and this aroused considerable interest (Zolo, 1990: 61-80). However, it should be noted that the *autopoietic* system theory developed by Maturana and Varela has been criticised as unscientific (Scheper and Scheper, 1996: 1-12). Nevertheless, Varela's work in particular laid the foundation for a significant achievement in 20th century biology and biophilosophy. After his first collaboration with Maturana in the field of neo-cybernetics, Varela made fundamental contributions to immunology (network theory), artificial life (cellular automata), cognitive science (enaction), philosophy of mind (neurophenomenology), brain studies (brain network) and East-West dialogue (Mind and Life conferences) (Protevi, 2009: 1).

#### **4.2. Evolution towards Social Systems Theory**

Maturana and Varela developed a theory to explain the characteristics of living systems. They argued that living systems have an *autopoiesis* (self-generating) organization (Maturana, 1980: 45-79; Varela, 1981: 14-24; Fleischaker, 1988: 37; Mingers, 1989: 159-180; Varela, 1992: 4-14; Varela, 1996: 407-416; McMullin and Varela, 1997: 38-39). Through the concept of *autopoiesis*, which constitutes the core of the theory, it is necessary to make an assessment that the theory has evolved into mechanistic assumptions. For instance, the theory proposes a distinction between two valid types of scientific discourse: operational and functional/symbolic. Operational discourse belongs to the domain of physical processes at work in the living system (e.g. descriptions of physico-chemical or neural processes). Explanations on the functional/symbolic are also statements formulated by an external observer with relational knowledge of interaction and historical contexts (e.g. explanations of behaviour in terms of evolutionary advantages). This distinction leads to the boldest conclusions of the theory and allows for the justification of *autopoiesis* (Di Paolo, 2005: 434). Maturana and Varela, who were influential in the origin of the concept, focused on the idea that life is a certain kind of self-organization, which, although it has found a place in the physical domain, does not mean that every living being must have some kind of material basis. Rather, it has been argued that it means that metabolism is a fundamental feature of life (Boden, 2000: 118).

Maturana and Varela have argued that the minimum definition of a living being can be based on a single property, which they call *autopoiesis*. This claim contrasts sharply with other definitions based on a combination of several properties. This is because *autopoiesis* has a relational property (also called systematic, functionalist, formalist or universalist). Its relational character is due to the fact that it directly depends on *the nature of the components of entities* with other properties (type, intrinsic properties) and *the relations* between the components. Therefore, the concept links relational concepts with more general fields of research that try to describe various types of systems. For example, tectology, general systems theory, cybernetic relational biology, information theory and complex systems, systems biology and synthetic biology (Razeto-Barry, 2012: 543-544). To grasp the meaning of *autopoiesis*, it is necessary to trace its origins back to developments in social systems theory. Apart from the fields of social science, which, supported

by their procedural uniqueness, maintain the view that social systems are composed of social systems and/or interdependent decision-making units, the main tendency of systems theory thinking has been towards open systems. Such a tendency has formed the main basis for the view of systems as structures that adapt to their environment, influence it through their actions and decisions, and are even influenced by it (King, 1993: 219). Moreover, *autopoiesis* can be applied to systems such as societies and organizations. This reinforces the concept as an important theory with far-reaching implications for both science and society (Mingers, 1989: 159-180). In line with these findings, *autopoiesis* is a theoretical approach to the functioning of social systems and their relations with each other and with the general social environment, and many critics have tended to see the concept as synonymous with autonomy (King, 1993: 219). However, the criteria for autonomy are not only different, but also in a sequential order. It should be noted that this means that science must be a self-organizing system before it can become an autopoietic system (Stichweh, 1990: 195). Proponents of the theory have also not clarified the criticism of the arbitrary interchangeability of the terms self-referential, self-generative and autopoietic (King, 1993: 219). Nevertheless, *since the concept of autopoiesis refers to the fact that it does not produce anything else but only reproduces itself, it should not be confused with concepts such as biopoiesis, heteropoiesis and allopoiesis, which characterise different aspects of production processes such as self-organization, renewal, creation, production, maintenance, continuation, etc. (Zeleny, 1981: 4).*

As can be understood from the evaluations made in this section, the basic view of *autopoiesis* is based on a general understanding of system. A living being sustains its own life as a totality, not by its parts, but by the network of relations between its parts. On the other hand, a living being can change both the organization and the structure of a given system. However, this can have very different consequences for the system. As long as the organizational roles are fulfilled, the identity of the system does not change. However, the fact that different components can assume different roles within a given organizational model means that the organization can remain stable within a certain range of structural changes. If structural changes accumulate to such an extent that organizational roles are violated, the organizational structure changes and the specific system will lose its identity. In this case, if the accumulated structural changes support any system organization, the new system will necessarily be organised differently. In other words, its identity will belong to a different class. Therefore, since the organization defines the system as a functional whole, any change in the organization will necessarily lead to a change in the system identity (Zeleny, 1981: 3; Fleischaker, 1988: 37-38).

It is also necessary to refer to the concept of *boundary*, which has an important place in the concept of *autopoiesis* within the scope of the evaluations made on the system, provided that the general evaluations made so far remain within the limits. It would be appropriate to emphasise what the concept of boundary means as follows. Within the boundary of a cell, many reactions and accordingly many chemical transformations take place. Despite all these chemical processes, the cell always remains itself and preserves its identity (Luisi, 2003: 49-50; Thompson, 2004: 387). However, the importance of the spatial boundary *in autopoiesis* has been exaggerated. This boundary has the important task of distinguishing a living system as a spatial whole. However, it should not be considered to play an additional role such as limiting the processes that make up the *autopoietic* system (Virgo et al., 2009: 240). In this respect, it is also necessary to refer to *autopoietic* systems. Such systems are units defined as production networks of their components. These systems, through their interactions, repeatedly create and realise the network that

produces them and form the boundaries of the network in the area where they exist, as components participating in the realisation of the network. It should be emphasised once again, then, that autopoietic systems are not only self-organizing systems. For instance, they not only produce and eventually modify their own structures, but also apply their own references to the production of other components. It should be emphasised that this approach is a decisive conceptual innovation. At least for the system itself, even the final components, which are not decomposable, are produced by the system itself. Thus, everything that is used as a unit by the system is produced as a unit by the system itself. This also applies to elements, processes, boundaries, other structures and the unity of the system itself. Autopoietic systems of course exist within an environment. They cannot exist on their own. Social systems also use communication as a special way of reproducing themselves. The elements of these systems are communications that are reproduced again and again by a communication network and cannot exist outside the network. Communication is not living, conscious units and actions. It requires a synthesis of three choices, including knowledge, expression and understanding (including misunderstanding). This synthesis is produced by the communication network, not by some kind of inner force of consciousness or the intrinsic quality of knowledge. Communication is not produced by language. Structuralists have never been able to show how a structure can produce an event. At this point, the theory of *autopoiesis* offers a decisive advance (Luhmann, 2008: 85-86).

However, while this model can be applied in the biological domain, conceptual obstacles have been encountered in the extension studies specific to the social domain. This is because Maturana has not made a sufficiently consistent application. He understood the components of social systems biologically (individuals, persons, etc.) and the relations between them socially (language). This consideration can be found in the work of Niklas Luhmann, who recognised that the components of social systems are not persons, individuals, actors or subjects, but communicative acts themselves. Such an assessment thus refers to the use of the concept of *autopoiesis* as a tool of social analysis (Bednarz Jr, 1988: 57-64). Although the theory of autopoietic systems was initially formulated to explain the phenomenon of life from an operational and temporal perspective, sociologist Niklas Luhmann later incorporated it into his theory of social systems (Cadenas and Arnold-Cathalifaud, 2015: 169-176). When abstracted from its biological connotations, the concept of *autopoiesis* leads to a sharp distinction between different types of autopoietic organization, namely life, consciousness and communication. According to Luhmann, the relationship between social systems and people cannot be adequately analysed without taking into account that they are environments for each other. If this theoretical background is accepted, the concepts and theory of socialisation need to be revised. Luhmann addresses problems with classical concepts such as internalisation, indoctrination or consensual socialisation. After a historical overview of social systems research and general systems theory, it is indicated how communications trigger further communications and how social systems realise *autopoiesis* (Vanderstraeten, 2000: 581-598). On the other hand, in Luhmann's social theory, *autopoiesis* is the repetitive work of human self-construction, in which social and cultural forms are sustained against the background of constant dissolution and destruction. In this sense, *autopoiesis* is the self-constitution and reproduction of the human body by adapting the raw material of the world to the needs of the body and its organs. Human production thus presents the world to the human body and its parts, as we see in the supermarket, which brings the world's products together in a single space for our visual and manual convenience, and in home television, which literally brings the world's distant events to us. Human systems and institutions can thus be seen as means of fitting the materials of the world to the human mind

and body and ensuring their continued existence as meaningful forms. Significantly, however, the production of being depends on absence and decay. Absence must be seen as an important force in human production (Cooper, 2006: 59-81).

In order to support the understanding of social systems as autopoietic systems in terms of a society, it is necessary to distinguish two levels, namely the structural level and the cultural level, with reference to modern society. The dominant value pattern of modern society is the cultural pattern of instrumental activism. What is valued in modern society is not passive compliance with the imperatives of the environment, but increasing freedom of action within the environment and ultimately control over it. At the structural level, new patterns of social differentiation have emerged. Again, the pattern that characterises modern society is functional differentiation. This is because functional subsystems impose their own particular perspective on the environment. The environment is perceived through different lenses (political, legal, economic, educational and/or scientific). Of course, these different perceptions cannot be compared with each other. Society cannot control its overall impact on the environment. Its structural and cultural characteristics limit its sensitivity to the environment (Vanderstraeten, 2005: 471-481). The evaluation of autopoietic systems comes to the fore in this situation. This is because autopoietic systems are guided by simple sets of rules that direct the behaviour of components in a given environment. These rules are capable of producing much more complex systemic structures than we can achieve by direct arrangement of components, i.e. by the method of system analysis and design. The study of autopoietic systems shows that the traditional emphasis on the internal qualities of system components is misplaced (Zeleny, 1977: 13-28). In other words, in a modern society, such systems consist of social systems that exhibit organizational closure and self-referentiality. This necessitates an assessment that it can partially explain the widely perceived (in societies/environment) regulatory-oriented failure (Dunsire, 1996: 299-334).

## 5. Conclusion: Integrated Evolution Towards Organizations

*Autopoiesis* theory also has the potential to provide a unifying framework for the study of organizational phenomena in the 21st century. For instance, although organizational studies have not been devoid of new paradigms and approaches recently, such as postmodernism, phenomenology, ethnomethodology, reflexivity and critical theory, it can be argued that organizational literature has expanded in ways that make it increasingly difficult to understand, especially for beginners (Magalhães and Sanchez, 2010: 3-25). *Autopoiesis*, which refers to *self-organization*, has therefore become a popular concept in recent studies on business (Whitaker, 1995). An emerging *mode of organization* has therefore started to shift thinking from the traditional vertical command hierarchy to the horizontal patterns of market-oriented networks. This organizational mode is characterised by *self-management*, *autonomy* and *self-sustainability*, which are prerequisites for a successful and self-sustaining organization. *Self-sustaining systems* must be *autopoietic*, i.e. self-generating. They must be capable of not only producing something else, but also of producing themselves. Employees, managers and community stakeholders strive to create a *self-sustaining* organizational environment by pursuing decision autonomy, self-management and shared participatory ownership. Like biological amoebas, they must adapt to constantly changing conditions in terms of size, shape, function and interaction (Zeleny, 1997: 251-262).

Considering that socio-technical systems consist of two components, social and technical, the application of the concept of autopoiesis to such systems requires the reproduction of both components. Moreover, considering that each component can be divided into two parts according to the classical socio-technical system matrix, applying the concept of autopoiesis would mean reproducing people, structure, tasks and technology. When applying the concept of autopoiesis to a socio-technical system such as an organization, two questions need to be answered: what is reproduced (the concrete elements of the socio-technical system, i.e. the structure of the system) and how (the network of processes involved in reproduction)? On the other hand, at the beginning of Maturana and Varela, "Autopoietic machines are homeostatic machines", establishing the connection between homeostasis and autopoiesis. Therefore, it will also be necessary to address the question of how autopoietic activities help homeostasis, in other words, how they help the system to adapt to changes inside and outside the system while maintaining its identity (Bider et al., 2020: 22).

This study attempts to describe *the evolution of autopoiesis theory* and related concepts towards their integrated meaning in organizations on the basis of the evaluation of literature findings. The concept of *autopoiesis* has been a respected part of the artificial life tradition (Virgo et al., 2009: 240). On the other hand, ideas *from autopoiesis theory* formed part of the foundations of the field of artificial life and have been widely quoted ever since. However, the concept of autopoiesis has been treated as having different and in many cases incompatible meanings for different authors throughout its existence. An important part of the maturation of this topic will be to determine more precisely whether the alternative interpretations are compatible with each other and, if so, what constitutes the theory. On the other hand, it is the physical boundary of the *autopoietic* system, which is generated by the system and makes a significant contribution to the operation of the system, and the so-called operational boundaries, which determine which processes the system is part of. The theory of autopoiesis (a biological model of a living system) encourages creative thinking about possible implications and applications (Virgo et al., 2009: 240). In autopoietic system theory, the system/environment distinction plays a critical role. The system emerges as a result of differentiating itself from the environment. Therefore, the system and the environment are formed mutually (Anil and Kaplan, 2007: 228). On the other hand, it is also stated that the source of the problems that organizations have to deal with are the changes in the environment. However, Maturana and Varela opposed this basic idea with the theory they developed. This approach opposes the distinction made between a system and its environment and offers new perspectives in understanding the processes that enable living systems to change. According to them, all living systems are organizationally closed and autonomous systems of interaction, which only consider themselves as a source of reference. According to them, through this closed system of relations, it is meant to be explained that organizations have the ability to produce themselves (Balyer, 2014: 608). Nevertheless, it should be noted that the criticism reached in the literature is that it is dangerous to apply a natural scientific model to social sciences. Nevertheless, the theory can offer new perspectives on self-management of organizations. For instance, the theory offers a fundamentally different perspective on the relationship between the organization and the environment. It would be appropriate to evaluate that it is interesting enough to be considered from the point of view of organizations (Kickert, 1993: 261-278).

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