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Carlotta Meo Colombo

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"Organization". A Multi Facet Concept

Carlotta Meo Colombo †
PhD in "Economia Aziendale"
Doctoral School of Social Sciences
Department of Economics and Business Sciences
University of Pavia, Italy

Piero Mella (Coordinator)
Professor. Department of Economics and Management.
University of Pavia, Italy

Author Contributions.

The paper fully reports the ideas that Carlotta Meo Colombo expressed in Chapter 1 of her Doctoral Thesis (2012). Piero Mella revised the graphic structure and the layout content of this paper, without adding anything to the original but simply eliminating some reference parts to subsequent chapters.

Correspondence to:

Piero Mella
University of Pavia, Department of Economics and Management
Via S. Felice 5,
27100 Pavia, Italy
piero.mella@unipv.it

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† *To the memory of Carlotta, who died in a car accident on January 11, 2015.*

ABSTRACT

The study of organizations implies the observation of entities that reveal many diverse possible characteristics, and the definition of an "organization" should help us to understand its specific features, since many authors have tried to provide their own definition. As Baum and Rowley have suggested, although we could construct a mental model of an organization, it is difficult to give a single formal definition of one (2005). The aim of this paper is to provide a reasoned review of many different perspectives about organizations, a full analysis, a structure of investigation of organizations, and, lastly, to present which perspective is useful as a key to interpreting future developments. Considering these various perspectives on the definition of an organization, we present a framework based on Scott's (1998) three definitions of organizations as rational, natural, and open systems.

(1) Organizations can be conceived of as *rational social systems* since they are built to achieve goals and show a high formalization of internal social structures.

(2) Organizations can also be viewed as *natural social systems* where participants share a common interest, while participating in informal collective activities.

(3) Lastly, organizations are *open systems* because they are embedded in an environment in which they behave and set goals.

The paper concludes the analysis of the three different perspectives, developing a matrix that creates a "landscape" of analysis, according to the matching of the different perspectives presented.

Lo studio delle organizzazioni implica l'osservazione di entità che mostrano molte diverse caratteristiche possibili e la definizione dovrebbe aiutarci a comprendere le caratteristiche specifiche di esse poiché molti autori hanno cercato di fornire una propria definizione; come suggerito da Baum e Rowley, sebbene si possa costruire un modello mentale di un'organizzazione, è difficile darne un'unica definizione formale (2005). Lo scopo di questo lavoro è fornire una rassegna ragionata di molte prospettive diverse sulle organizzazioni, fornire un'analisi completa e fornire una struttura di indagine e, infine, presentare quale prospettiva sarà utile, come chiave di lettura, per sviluppi futuri. Abbracciando il loro punto di vista e riteniamo utile presentare un framework basato su tre definizioni suggerite da Scott (1998) sulle organizzazioni come sistemi razionali, naturali e aperti. (1) Le organizzazioni possono essere concepite come sistemi sociali razionali in quanto sono costruite per raggiungere obiettivi e mostrano un'elevata formalizzazione delle strutture sociali interne. (2) Le organizzazioni possono anche essere viste come sistemi sociali naturali in cui i partecipanti condividono un interesse comune, mentre si comportano in attività collettive informali. (3) Infine, le organizzazioni sono sistemi aperti, perché sono inserite in un ambiente in cui si comportano e fissano obiettivi. Il contributo conclude l'analisi delle tre diverse prospettive sviluppando una matrice nella quale si creano "paesaggi" di analisi, secondo l'accostamento delle diverse prospettive presentate.

Keywords: organization, rational system perspective, natural system perspective, formal and informal structures, open system perspective.

1 – Introduction. A system perspective

The study of organizations implies the observation of entities that show many diverse possible characteristics, and a definition should help us to understand their specific features, since many authors have tried to provide their own definition. As Baum and Rowley have suggested, although we could construct a mental model of an organization, it is difficult to give a single formal definition of one (2005). The aim of this paper is to provide a reasoned review of many different perspectives about organizations, a full analysis, a structure of investigation, and, lastly, to present which perspective is useful as a key for the interpretation of future developments.

Organizations are social systems that form when a group of individuals (the personnel structure) accept, based on their own motivations, being bound by stable, horizontal, and vertical structural relations (the organizational relations), thus becoming organs, or components of organs – specialized according to their functioning, function, functionality, and spatial-temporal placement – within a larger structure, in order to achieve a common goal that cannot be attained by the single individuals or by their subsystems. For Maturana and Varela, the organization of a "machine" is independent of the properties of its components.

> The organization of a machine (or system) does not specify the properties of the components that bring about the machine as a concrete system; it only specifies the relations that these must generate in order to create the machine or the system as a unit. Thus the organization of a machine is independent of the properties of its components, which can be anything [so long as they are compatible], and a given machine can be realized in many different ways from many different types of components. In other words, even though a given machine can be realized by many different structures, in order for it to constitute a concrete entity, its effective components must be defined in that space and have the properties that permit them to generate the relations that define it (1980, pp. 77-78).

Therefore, with regard to its intrinsic structure an organization is an organized social system composed of individuals linked by stable organizational relations – the organization, in other words – that specify, for each structural element, the following four components:

(i) a precise spatial and temporal placement (topology)

(ii) a specialized function in relation to the entire structure

(iii) a specific functionality that delimits the admissible interactions with the other elements

(iv) a set of functioning standards.

From this perspective, structural elements have no behavior or autonomous significance except in relation to the higher organizational level; they are organs of the system linked to the organization and to the functionality of all the elements of the organization.

The components of a social organization are at the same time individuals and organs, all interconnected by defined interactions, by network relations, or by tree structures. The horizontal and vertical interaction of the element-organs produce emerging properties (a macro structure, a macro dynamic, a macro function, the achievement of a common, institutional goal) that refer to the system and not to its constituent parts or its partial subsystems. Individuals are not supposed to achieve the results (objectives, purpose, etc.), the organization as a whole is. Individuals contribute to the overall result – each through their own organized behavior (specialized for function, functionality, topology, and functioning) – but no one, individually, obtains the result that the organization can obtain. In this sense, organizations differ from social collectivities in which there are no stable, organized relations between the component elements, which are all at the same level without being necessarily interconnected.

The concept of an organization as a cooperative system of people communicating with each

other to achieve objectives for the organization's viability has been studied and re-proposed by Simon's decision-making theory (1959, 1976, 1979).

2 – Three main approaches: (1) A rational system perspective

Having defined the "technical concept" of organization as a social system consisting of organs that act in a coordinated (organizational constraints), cooperative (the same objectives) way, we believe it is necessary to present some significant definitions that consider organizations from different points of view.

According to Barnard:

> Formal organization is a kind of cooperation among men that is conscious, deliberate, purposeful (1938, p. 4).

In fact, cooperative behavior is when the subject who performs acts considers the simultaneous behavior of the other individuals with whom the relationship is formed and becomes inter-organizational. Uncoordinated behavior causes damage, often severe, to the macro behavior of the entire organization. All the organizations, therefore, have in place coordinating organs that need to control the micro behaviors of individuals and take action to restore the necessary cooperation.

The concept of organization as a unitary system is well developed by March and Simon:

> Organizations are assemblages of interacting human beings and they are the largest assemblages in our society that have anything resembling a central coordinative system [...] The high specificity of structure and coordination within organizations – as contrasted with the diffuse and variable relations among organizations and among unorganized individuals – marks off the individual organization as a sociological unit comparable in significance to the individual organism in biology (1958, p. 4).

Organizations are systems embedded with an aim, teleologically oriented, as notably argued by many authors. According to Blau and Scott:

> Since the distinctive characteristic of ... organizations is that they have been formally established for the explicit purpose of achieving certain goals, the term 'formal organizations' is used to designate them (1962, p. 3).

According to Etzioni:

> Organizations are social units (or human groupings) deliberately constructed and reconstructed to seek specific goals (1964, p. 3).

The two previous definitions identify the characteristics of the *cooperative behavior* of the individual in the organizational structure. *Cooperative* and *coordinated* behavior is when the individual, while agreeing to join the organization for personal reasons, agrees to participate in the attainment of the common ends (institutional) of the whole structure. To be cooperative, individual behavior must also be *coordinated*. Non-cooperative behavior is *competitive* or antagonistic, and the individual who acts for his own objectives often damages the organization.

From the above definitions it is possible to focus on some main concepts:

a. Organizations are "purposeful" (Scott, 1992, p. 23) since activities and interactions among individuals, inside the organization, attain specific goals. In this sense, the latter are explicit, clearly defined, and allow management to select which is the best unambiguous alternative.

b. Organizations display a high degree of formalization. In fact: "the cooperation among participants is 'conscious' and 'deliberate'; the structure of relations is made explicit and can be 'deliberately constructed and reconstructed'. [...] a structure is formalized to the extent that the rules governing behavior are precisely and explicitly formulated and to the extent that roles and role relations are prescribed independently of the personal attributes of individuals occupying

positions in the structure" (Scott, 1992, p. 23).

c. Collectivities are distinct from organizations since the latter are goal specific and relatively high formalized.

The formalization of organizational relationships is fundamental since this is a way to predict behavior by standardizing and regulating it. Following Scott, it is important to remember that goal specificity and formalization are variables that could change and define different configurations of organizations (Scott, 1992). According to Simon:

> [distinctive characteristic of ... organizations is that this, in turn, allows] … stable expectations to be formed by each member of the group as to the behavior of the other members under specified conditions. Such stable expectations are an essential precondition to a rational consideration of the consequences of action in a social group (Simon, 1976, p. 100).

Formalization could also be viewed as a means to express and highlight the structure of relationships inside the organization and the organizational roles. Following Gouldner:

> Fundamentally, the rational model implies a 'mechanical' model, in that it views the organization as a structure of manipulable parts, each of which is separately modifiable with a view to enhancing the efficiency of the whole. Individual organizational elements are seen as subject to successful and planned modification, enactable by deliberate decision (1959, p. 405).

Therefore, organizations are instruments to achieve goals and improve performance (Scott, 1992). Through organizational "formalized structures" it is possible to better define the roles and relationships among participants, an aspect which greatly influences the effectiveness of controlling behavior (Zucker, 1977). Organizational functioning is thus seen as a way to build a sort of independence from the individuals' feelings. As Merton argued:

> Formality facilitates the interaction of the occupants of offices despite their (possibly hostile) private attitude toward one another" (1957, p. 195).

The "rational view" sees organizations as closed systems, in the sense that their behavior is completely determined by the interaction of their subsystems in order to interact with the environment and guarantee predetermined, regular, and constant outputs. Large capitalistic firms are a strong example of tight "bureaucratic organizations" (Weber, 1958) based on the principle of division of labor and division of tasks based on competences. This perspective interprets an organization as a set of interdependent parts that attain specific goals, performing in an efficient and effective way. The objective of the rational perspective is to elaborate a series of rules or principles that can direct the behavior of organizational subjects. The term "rational", in this context, means technical or functional rationality (Mannheim, 1950) and refers to the way in which actions are directed to pursue predetermined goals with maximum efficiency. Thus, "rationality" refers to the transformation of input (actions) into output (goals): that is, rationality refers to goal pursuing and not to goal setting.

"Goals" are "desired outputs and outcomes" (Mella, 2012). Output is a good, an activity, services provided by an organization. Outputs are directly observable and measurable (quantitatively and qualitatively) and are defined as the result/effect of outputs in relation to a system of goals (policy) typical of an organization and its environment (stakeholders). Their specificity provides unambiguous criteria to be used in selecting among a set of alternatives. Economists would analyze this concept by arguing that goals are translated into preference (or utility) functions in order to set the relationship between alternatives and consequences, thereby defining a "policy" (Mella, 2012). Rational action is, therefore, different from the "emotional" behavior, which is determined by mood or habitual behavior.

Organizations may be interpreted as *technical*, *functional,* and *instrumental* means, thanks to

which it is possible to achieve specific economic goals. Organizations are "goal specific" and directed by formal structures, rules, and roles with the aim of enhancing efficiency. The "organizational machine" behaves as expected, and all individual behaviors are under control and coordinated to ensure the collective objective is achieved with the least amount of energy. This means achieving the expected result in the most economic way possible. Control and coordination are central issues in this perspective and, therefore, foster reliability in organizational functioning.

The *rational view* dominated organizational analysis for many years. In fact, in North America, Taylor proposed the concept of "scientific management" based on the rationalization of activities of managers and workers on the basis of an analytical "regimen of science" (Baum and Rowley, 2005). Taylor's effort (1911) gave the impetus to scientific management. His works, and those of his followers (i.e., Frank and Giblreth, Gantt, Bedeaux) were involved in understanding how to produce the maximum output efficiently: that is, with the minimum input of resources. Not only were workers' tasks influenced and changed by this new management approach, but also the role of managers was transformed. Indeed, Taylor suggested substituting "managers' activities" with "scientific procedures":

> The man at the head of the business under scientific management is governed by rules and laws which have been developed through hundreds of experiments just as much as the workman is, and the standards which have been developed are equitable (Taylor, 1947, p. 189).

Rationalization and science advocacy were keywords in the context of business management and the study of organizations. Scientifically driven procedures were allowing managers to efficiently perform those tasks they were best suited for, and in return they were receiving high salaries. In fact, according to Bell:

> … once work was scientifically plotted, Taylor felt, there could be no disputes about how hard one should work or the pay one should receive for labor. 'As reasonably might we insist on bargaining about the time and place on the rising and setting sun', he once said" (Bell, 1960, p. 228).

In Europe, Max Weber and Robert Michels started analyzing the ascendance of "bureaucracy" as a means to organize normative and hierarchic commands. Fayol (1949) advocated the development of "universal administration principles". Universal principles would provide the specialization, grouping, and coordination of work activities. As noted by Massie (1965) and Tausky (1970), two principles highlighted Fayol's approach: *coordination* and *specialization*. The former refers to the linkage between people inside the organization and the structure of control relations, while the latter is related to decisions regarding how to distribute tasks among organizational positions and how these activities could be grouped into departments. Fayol's administrative theorists tried to identify outstanding features of organizational structure, suggesting that all organizations embed common structural characteristics.

One of the strongest criticisms of this approach was provided by Simon (1945, 1976), who stated:

> … an indictment of much current writing about administrative matters [...] (1976, p. 36) and, after having analysed all principles about administrative issues, he pointed out that some principles are simple and "conceal fundamental ambiguities (1976, p. 21).

Some authors believe the most influential contribution to the theoretical foundations of the "rational system perspective" was given by the Carnegie School led by Simon, March, and Cyert (Baum and Rawley, 2005), which introduced concepts such as goals and constraints, formalized structure, bounded rationality, information processing, decision-making, political coalitions, and performance programs. From the "rational system perspective", the concept of structure is aimed

at creating a means to manage organizations efficiently and, as Weber might say, disciplining participants' performances. Gouldner noted that

> … the focus is on the legally prescribed structures – i.e. the formally 'blue-printed' patterns – since these are more largely subject to deliberate inspection and rational manipulation" (1959, p. 404-405).

It is useful to note that Taylor and Simon were operating mainly at the social level, focusing on individuals and how they perform and make decisions. Fayol and Weber instead were more focused on structural level, trying to provide conceptualizations about organizational forms. Brunnson (1985) argues that the "rational system model" is such only when attention is focused on the action of deciding, and therefore it is viewed as an outcome. He believes that if we instead analyze the outcome not as a decision but as a goal implementing a series of actions, an "irrational" decision-making process will result. This irrational process will lead to better results (Brunsson, 1985).

We have highlighted how, from this perspective, the "concept of rationality" resides in the organizational structure. That is to say, the focus is on rules which ensure all individuals perform in determined ways to achieve goals. Scott (1992) noted that:

> ... because of its emphasis on the characteristics of structure rather than the characteristics of participants, Bennis (1959) has dubbed the rational system perspective one of the 'organization without people' (Bennis, 1966, p. 49).

In fact, except for Weber, early rational system theorists did not consider the social aspect and how it influences organizational structure and performance. The concept of behavior is not significantly focused on in this perspective since "structure is celebrated and action is ignored" (Scott, 1992, p. 51).

3 – Three main approaches: (2) A natural system perspective

This perspective basis its analysis on the "organization itself", emphasizing the organization as a collectivity first of all, and not only a means to achieve specific goals. As notably argued by Blau (1956), the administration of a social organization grounded only on technical criteria of rationality is irrational since it under-evaluates non-rational features of social conduct.

One of the most important themes analyzed by theorists of the "natural system perspective" is goal complexity, since a major emphasis is on the behavior of and interconnections between rules and behavioral structures of organizations.
In fact, Scott states that:

> … whereas the rational system perspective stresses the importance of structure over the characteristics of participants, the natural system perspective reverses these priorities – so much so that Bennis labels this orientation as one of 'people without organizations' (1992, p. 73).

Goal complexity resides in the difficulty of achieving "stated" goals, and this aspect gives rise to "real" goals, which are the ones pursued by the organization not only as a static and defined machine to reach goals but as one made up of social groups trying to adapt and survive in particular circumstances. Going further, it is plausible to point out how stated goals are never the only ones behind participants' behavior. In fact, as argued by Gross (1968), Perrow (1970, p. 135), and Scott (1992, 1995), all organizations need to follow or "maintain" other goals in addition to their "output" goals. Organizations should spend their time not only on producing goods or services but also maintaining themselves. This aspect of self-maintenance, although in a different context, would later be developed by Maturana and Varela in their principal works (1980, 1988).

Natural system theorists study the behavioral structure and stress the examination of what the organization achieves rather than what it plans. This perspective presents a belief in which

organizations consist not only of rules and formal structures but also of "heads and hearts" (Scott, 1992, p. 54): people enter an organization to provide their work, having a substratum of their own ideas and principles.

This aspect leads to the creation of an "informal structure", i.e., the "social structure" of an organization. Dalton (1959) studied this phenomenon and discovered that even managers were not immune to creating informal structures within an organization. Quoting Scott:

> … natural system analysts insist that highly centralized and formalized structures are doomed to be ineffective and irrational in that they waste the organization's most precious resource: the intelligence and initiative of its participants (1992, p. 55).

In this context, the term "irrational" ought to be considered as a lack of "head and hearts". The natural system perspective is, indeed, associated to the theme of functional analysis. In fact, many theorists have embraced a functional model of analysis; that is to say, an organization has certain needs that must be satisfied if the system is to survive.

In effect, the "functional model" sees the realization of goals as one of the organizational functions. The organization is conceived of as a social unit characterized by different functions of its individuals and capable of achieving goals. All organizational functions increase the organization's effectiveness (Etzioni, 1960). As Scott argues (1992), it is difficult to always delineate essential needs in terms of survival of the system. For further analysis about the functional model, see Blau (1955, pp.1-20), Nagel (1961, pp. 515-540), and Hempel (1959).

Mayo (1945) discovered the "Hawthorne effect", which confirmed the natural system perspective, i. e., that workers are no longer rational economic agents but complex actors with their own values and beliefs, driven by feelings rather than facts. They are individuals that behave as members of social groups they feel they belong to. Examples of this school of thought is the Human Relations School, involved in studying the social effects on organizational structure and how differences such as race (Collins, 1946), class (Warner and Low, 1947), and cultural background (Dalton, 1950) influenced work allocation and organizational behavior (Scott, 1992).

As noted above, organizations are made up of people sharing different interests. Barnard (1938) stressed that organizations are "cooperative systems". This means that organizations are made up of individuals who want to contribute, and to do so in a sufficient way (a sufficient quantity of contribution to maintain the organization's viability), and who are guided by a common purpose. In fact, Barnard stated that "*the inculcation of belief in the real existence of a common purpose is an essential executive function*" (Barnard, 1938, p. 87).

Human relation theorists overlooked the environment and concentrated on internal organization, treating the organization as a closed system, not in the sense of the autopoietic view but in the sense of seeing participants as the main actors in all organizational processes. Barnard took more account of the external environment than did the human relation group. In fact, he stated that:

> … the individual participates in many cooperative groups simultaneously, so that his involvement in any single organization is both partial and intermittent (Barnard, 1938, p. 87-88).

By contrast, Selznick (1948) considers the environment in his analysis about organizations, attempting to define the organization as a "system in relation to an environment". Organizational structure is seen as adapting to internal features (participants' commitments) and the external environment.

Selznick's "institutional approach" is well described by the author when he says that

> an 'institution' is more nearly a natural product of social needs and pressures – a responsive, adaptive organism (1957, p. 17).

The "natural system perspective" views an organization as being characterized by an

"informal structure" that adapts to its environment and whose goal is not fully set but emerges over time through the adaptation process (Baums and Rawley, 2005). What makes the system "natural" is the continuous sense of adaptation. What is stressed under this perspective is the role of informal structures versus formal ones and the relationships that emerge among individuals working to achieve the organizational goals.

Even though this view suggests a more organic view of the organization as opposed to the machine-like one of rational perspectives, the latter is recognized as fundamental since the natural system emerges thanks to the existence of the rational one.

Since the late 1930s, some authors such as Barnard, Mayo, Roethlisberger, and Dickson have written about the interaction between formal and informal structures. According to their point of view, formal structures are associated with effectiveness while informal ones with emotions and spontaneity (human side). Baum and Rowley (2005) wrote:

> One can say that informal relationships in the organization are what 'get the things done' and constitute the centre of the political life in the firms (p. 12).

The work by Selznick focused on the concept that organizations, over time, start focusing on an objective and evolve from their original objective, acquiring a life of their own. Consequently, a firm will develop (Selznick, 1957) a distinguishing personality and capability beyond the technical requirement of the task it performs. Selznick called this process of change a process of institutionalization.

A rather intuitive model, which became widespread in sociological research, was provided by Parsons (1951, 1953, 1960, 1966). In particular, the works of Parsons on "structural functionalism" (1951) influenced the theoretical developments of the "open system perspective" (section 4). Parsons gave a final contribution to this stream of organizational theory, elaborating a general analytical model to identify a set of functional needs that all social systems must satisfy to survive.

The model was named AGIL, combining the initials of four survival functions: Adaptation (capability to interact with the environment), Goal attainment (ability to set goals which direct organizational moves), Integration (between organizational norms and values), and Latency (preservation of the mainstay norms and values over time).

Parsons analyzed and developed a model to understand the organization's needs in order to survive (1960), distinguishing three levels of organizational structure: *technical* system, *managerial* system, and *institutional* system. For further analysis, see Parsons (1951, 1960, 1966), Parsons, Bales and Shils (1953), Georgopoulos (1972) and Lyden (1975).

4 – Three Main Approaches: (3) An open system perspective

One of the major contributors to this perspective is Ludwig von Bertalanffy (1956, 1968), who was apprehensive about science compartmentalization. In fact, he wrote:

> The physicist, the biologist, the psychologist and the social scientist are, so to speak, encapsulated in a private universe, and it is difficult to get word from one cocoon to another (Bertalanffy, 1956, p.1).

Bertalanffy and his followers believed that many of the entities studied by scientists have a common feature: they are systems (Miller, 1978). It is difficult to provide a complete view about the notion of system. However, according to Bertalanffy (1956), systems are combinations of interrelated parts, and the relations between parts make them interdependent. These relations vary from one type of system to another, i.e., from mechanical systems to organic ones (Boulding, 1956). Wiener, the father of cybernetics, argued that:

> organization we must be considered as something in which there is an interdependence between the several organized parts but in which this interdependence has degrees" (1956, p. 322).

"Mechanic systems" are characterized by having a rigid and constrained structure of relations among parts, while organic systems have less constrained relationships and give rise to possible flexible responses by the system.

The organizations we consider, and the connection among their interacting parts, are not "mechanic" but "social", not "hard" but "soft", so that, in fact, following Ashby (1968) and Buckley (1967), they seem like loosely coupled systems. This perspective sees organizations as cybernetic systems, that is, systems capable of self-regulation (Boulding, 1956) thanks to a program in the sense of Beninger (1986), who defines programs as "*any prearranged information that guides subsequent behavior*" (p. 39). For more than forty years, the literature on organizations and firms considered as "cybernetic systems" has been rich in authors who favor this interpretation (Kast-Rosenzweig, 1972; Beer, 1981; Jackson, 1993) as well as in texts that affirm the difficulty, if not the impossibility, of considering organizations as cybernetic systems (Tannenbaum, 1972, Sutherland, 1975, Morgan, 1982).

There is no doubt that organizations can survive for a long period of time in a dynamic environment only if they possess internal regulation mechanisms that maintain their processes over time even when these are "disturbed" by external factors. For this reason, even without recourse to the metaphor of mechanistic organization, which is in contrast to the organic one (Burns and Stalker, 1961), and recalling Norbert Wiener's statement that Cybernetics is the science of the study, design, and simulation of "*control and communication in the animal and the machine*" (Wiener, 1948), we hold that "organizations", due to their intrinsic nature as "self-regulating systems", can in fact be observed as cybernetic systems (Ericson, 1972) that are "self-controlled" to remain vital and carry out the processes for which they were created.

To extend and generalize the system vision, Mella (2012) considers the organizations-firms as Control Systems, in which the individuals form the organizational structure and are an integral part of the "multi-level control systems", pre-ordered to reach goals through strategies and policies.

One of the typical features of "open systems theory" is the concept of a system made up of different levels. This is related to the view of organizations as hierarchical systems and implies that organizations are made up of subsystems and that systems are themselves contained within supra-systems (Scott, 1992). The cybernetic model gives the impression of being highly responsive to all types of changes. However, one of the main advances made by "open system theory" is the recognition that social systems contain elements that are weakly connected to other elements (Ashby, 1968; Glassman, 1973), which could be a source for the adaptation of the organization's behavior (Weick, 1976; Orton and Weick, 1990).

The loose coupling perspective has been deepened by Cyert and March (1963) and Pfeffer and Salancik (1978), who write:

> … the organization is a coalition of groups and interests, each attempting to obtain something from the collectivity by interacting with others, and each with its own preferences and objectives (p. 36).

An "open system" is such when its self-maintenance depends on its through-output of resources from the environment. This process of environmental exchanges is essential to the organization's viability (Buckley, 1967). We must clarify that this condition does not mean an organization has no boundaries. Following Scott,

> … general systems theorists elaborate the distinction between closed and open systems by employing the concept of entropy: the energy that cannot be turned into work. According to the second law of thermodynamics, all systems spontaneously move toward a state of increasing entropy - a random arrangement of their elements, a dissolution of their differentiated structures, a state of maximum disorder. Open systems, because they are capable of importing energy from their environment, can experience negative entropy, or negentropy. By acquiring inputs of greater complexity than their outputs, open systems

> restore their own energy and repair breakdowns in their organization. Bertalanffy concludes, 'Hence, such systems can maintain themselves at a high level, and even evolve toward an increase of order and complexity' (1992, pp. 83-84).

If in the first two (rational and natural) perspectives, organizational boundaries are separated and well defined, in this third approach such boundaries become less evident. The view of organizations as open systems focuses on the relationship and interdependencies between organizations and environments (Baum and Rowley, 2005). As we have mentioned, the theoretical framework takes the basis from general systems theory and cybernetics from the mid-1950s to the late 1970s.

The source of viability, self-maintenance, diversity, and variety is the environment, and open systems are subject to what is called the "law of limited variety":

> … a system will exhibit no more variety than the variety to which it has been exposed in its environment (Pondy and Mitroff, 1979, p. 9).

This is not in contrast with the law of necessary variety, formulated by Ross Ashby (1957) "for control systems", according to which the "variety" of a control system's admissible states must be greater than or equal to the "variety" of the disturbances of the reality. If the control system cannot take on the states of the reality to control, then the control must necessarily fail as soon as the real states can no longer be represented by the system. This quite obvious consideration represents a cardinal principle of organizations conceived of as control systems.

Baum and Rowley (2005) suggest that

> … open systems models conceive organizations as both systems of internal relationships and as inhabitants of a larger system encompassing the environments in which they operate and on which they depend for resources. Organizations are conceived of as a through-output model, obtaining resources from the environment, processing them and distributing the output back to the environment (p. 16).

In this view, organizations are seen as "adaptive systems", interconnected to an environment whose demand they influence. Early works on open systems focused on the development of contingency theory (Lawrence and Lorsch, 1967; Galbraith, 1973). "Contingency theory" refers to optimal directions taken by an organization, as influenced not only by external environment but also by the internal organizational situation.

Another important approach from the open system perspective concerned systems design, thanks to which theorists looked to general systems theory as a source of inspiration to improve and design organizations (determining work flows, control systems, planning techniques) in order to enhance certain functions (Beer, 1964; Carzo and Yanouzas, 1967; Khandwalla, 1977; Swinth, 1974; Mintzberg, 1979).

A third theoretical approach was the one developed by Karl Weick in the late 1970s as an alternative to the natural-open view of the system. Organizational activities focus on determining informational triggers from the environment. Rather than studying how an organization is created, the focus is on "organizing" and on the shift from structure to processes. The focus is, therefore, on the ability of the organization to interpret what happens in its environment and to act accordingly.

Weick (1979a, b) believes organizational activities are: enactment (organizational members' capability to influence their environment), selection, and maintenance (recognition of the role of human cognition, interpretation, and meaning creation in the viability and survival of the organization). It is possible to find some common elements in Mella and Demartini's model of organization (2011), according to which "the organization is a system of efficient transformation" that

> … becomes, to all respects, an economic cognitive intelligent and rational agent which develops ability to control its structure, its own processes and its own dynamics towards in

> order to achieve increasingly higher levels of efficiency … (Demartini &Mella, 2011, p. 37).

The economic agent is the organization-enterprise that designs and runs its own trajectory in a production, economic, and financial space.

The agent is *cognitively intelligent* precisely because the organization develops a cognitive activity designed to give meaning to environmental stimuli, translate these into information, and, through programming, structure them into knowledge, configuring a proactive and reactive behavior to develop long-term economic processes that adapt to the changing environment, while maintaining its own identity, in a durable autopoietic process.

> A cognitive system is a system whose organization defines a domain of interactions in which it can act with relevance to the maintenance of itself, and the process of cognition is the actual (inductive) acting or behaving in this domain (Maturana and Varela, 1980, p. 12).

The agent is *rational* in the sense that the cognitive activity must serve to maximize the efficiency of vital transformations, seeking the maximum production performance, economic and financial (Mella, 2010, p. 25).

For this reason, organizations may be seen as "exploratory agents" (Kauffman, Levin, 1987; March, 1991, Lewin, Long, Carroll, 1999) who seek, in their environment, areas connoted by attractiveness (Drucker, 1989; Scott, Bruce, 1994; Gephart, Victoria, Marsick, Van Buren and Spiro, 1996). Organizations try to "reach" areas of greater attractiveness (i.e., favorable conditions for the increase of financial and economic efficiency embedded in the ease of new business, higher sales volumes, more favorable expectations about prices and costs of supply, increased productivity, etc.) (Airoldi, Brunetti, Coda, 1989; Mella and Demartini, 2011). By doing this, the organization continuously tries to achieve "business excellence" (Airoldi, Brunetti, Coda, 1989, p. 523).

Regarding the "open system perspective", it is important to mention "Greiner's model" (Greiner, 1972), which states that every organization has an ideal structure that we systematically find in each organization-enterprise. The model presents the general rules that should guide the "changes in the organizational structure" in relation to the *age* of the firm and its *size*. It is interesting to understand how periods of "evolution" – during which the organizational rules are relatively stable – are interrupted by "revolutions", periods of serious disorder in the functioning of the organization. According to Greiner, as the firm passes through the various *growth* phases, each period of evolution generates its own revolution. The firm's transition from one growth phase to another depends on how management resolves the crisis points by means of periods of revolution that are adequately managed and purposeful.

5 – Matching the perspectives: creation of the landscape.

The three perspectives presented above – organizations as *rational*, *natural*, and open *systems* – must be considered as paradigms (Kuhn, 1962), since they function as conceptual frameworks within different theories.

We will proceed to analyze the two dimensions of *natural* and *rational* systems in relation to *open* and *closed* concepts about systems, as shown in Figure 1. A short literature review will clarify the main contents of each Landscape shown in Figure 1.

Landscape 1 – closed rational system (1900-1930)

The major contributors to this model are "Taylor's scientific management" (1911), "Simon's decision making" (1945), "Weber's bureaucratic theory" (1978), and "Fayol's administrative theory" (1949). Simon's later work (March and Simon, 1958) is closer to Landscape 3.

Thompson (1967) says in speaking about Taylor:

> … scientific management achieves conceptual closure of the organization by assuming that goals are known, tasks are repetitive, output of the production process somehow disappears, and resources in uniform qualities are available (p. 5).

Speaking about Weber's model of bureaucracy (1978), Thompson notes:

> … bureaucratic theory also employs the closed system of logic. Weber saw three holes through which empirical reality might penetrate the logic, but in outlining his 'pure type' he quickly plugged these holes. Policymakers, somewhere above the bureaucracy, could alter the goals, but the implications of this are set aside. Human components might be more complicated than the model describes. [...] bureaucratic theory takes note of outsiders – clientele- but nullifies their effects by depersonalizing and categorizing clients (p. 6).

These statements clearly denies the uncertainty related to the external environment of an organization.

	CLOSED	OPEN
RATIONAL	*LANDSCAPE 1* It refers to closeness related to rational systems. Dominated the field up to the late 1930s.	*LANDSCAPE 3* Combination of openness to rational systems. Dominated the field into the 1970s.
NATURAL	*LANDSCAPE 2* It refers to closeness related to natural systems. Dominated the field from 1930 until 1960.	*LANDSCAPE 4* Combination of openness to natural systems. Dominated the field from the late 1970s.

Fig. 1 – The Matrix of Landscapes of analysis: combining the perspectives (Author's analysis of Scott, 1992 and Baum and Rawley, 2005)

Landscape 2: closed natural system (1930-1960)

Human relation theorists deeply influenced organizational analysis and produced a long path of sociological research on organizations: for example, Barnard's "cooperative system model" (1938), Mayo (1945), Whyte (1946, 1948, 1959), Katz et al. (1951), Roy (1952), and Dalton (1959). Barnard's model (1938) focused on internal structures even if he did not deny external influences from the environment (Scott, 1995).

Landscape 3: open rational system (1960-1970)

The major contributors we must mention are March and Simon's "bounded rationality" (1958), Alchian and Demsetz's "agency theory" (1972), Lawrence and Lorsch's "contingency theory" (1967), Udy (1959), Blau (1970), Turner et al. (1969) on "comparative structure", and Williamson's (1975) and Ouchi's (1980) "transaction costs theory".

Thanks to March and Simon's work (1958), organizations are seen as more open to their environment, and for this reason, along with "performance programs" considered as "routines" there is a new approach to organizations that implies defining a "problem solving response". This aspect requires decision makers to have more discretion in deciding how to manage problems when facing uncertainty. Decision making is embedded in the concept of "satisfying" (March and Simon, 1958), that is, deciding if it is necessary to evaluate different alternatives. The decision maker must stop looking for a solution not when the *optimal* solution is achieved

but the *satisfying* one.

"Agency theory", one of the most important topics for economists, has been dealt with my a number of authors, among whom Alchian & Demsetz (1972) and Jensen & Meckling (1976). Williamson (1985) considers agency theory as one of the two major branches of the

> … new institutional economics, the other dealing with transaction costs. Both emphasize efficiency maximizing explanations of social arrangement, but agency theory focuses on ex anti (before the fact) 'incentive alignments'. (Williamson, p.26).

Lawrence and Lorsch (1967) combine the openness concept of the organization, which *operates* in its environment, with rationality, which influences the way in which organizations *adapt* to a changing environment. This matching of two dimensions also appears in Thompson's approach (1967), which recognizes the importance of the environment for the firm's performance.

Comparative structural analysts consider organizations as rational designers of their structure, while engaged in planning and managing to maintain viability.

Williamson (1975, 1985), basing his works on Coase (1937) and Commons (1925), focused on the "costs of entering a transaction", i.e., he shifts attention away from technical production and moves it towards governance structures. Organizations are *open* since they answer environmental triggers, and *rational* since they economize on the costs on starting new transactions.

Landscape 4: an open natural system (1970-and later)

There are many theorists of model 4: to name but a few, Weick's *cognitive processes* (1979a,b), Strauss et al.'s negotiated order (1963), Miller and Rice's socio-technical systems (1967), Hickson et al.'s (1971) and Child's strategic contingencies (1972), Hannan and Freeman's (1977) and Aldrich's population ecology (1979), Pfeffer and Salancik's resource dependence (1978), Baverman's (1972) and Edwards' (1979) Marxist theory, Selznick's (1949), Meyer and Rowan's (1977), and Di Maggio and Powell's (1983, 1991) institutional theory, and Foucault's (1977) and Cooper and Burrell's (1988) postmodernism.

Weick (1979b) presents the *cognitive processes* an organization develops during its lifetime. Unlike Simon, he speaks about trial and error, chance, superstitious learning, and backward-looking sense-making (Scott, 1992). Strauss et al. (1963) and Strauss (1978) see *negotiations*, involved in rules and roles, as transcending the organizational boundaries. Goffman (1974) introduced the concept of frames (a set of background rules that actors impose to solve specific situations). For a deeper analysis, see Zimmerman and Wieder (1970), Maines (1977), and Burrell and Morgan (1979).

The concept of *learning*, employed by March and colleagues, referred to processes and not to improving performance. The learning is "organizational" since it is built on the organization's routines. In fact, we read:

> Organizations are seen as learning by encoding inferences from history into routine that guide behavior. The generic term 'routines' includes the forms, rules, procedures, conventions, strategies, and technologies around which organizations are constructed and through which they operate... Routines are independent of the individual actors who execute them and are capable of surviving considerable turnover in individual actors (Levitt and March, 1988, p. 320).

Miller and Rice (1967) expanded the concept of *survival* to a specific social and economic context. They analyzed organizations as made up of building blocks that are composed of semiautonomous, self-regulating (as cybernetic systems) groups which are functionally interdependent. Child (1972) and Hickson et al. (1971) base their study on the concept that "strategies are constrained" and not determined by technical and environmental contexts. They do not stress the importance of rationality (the organization is governed by environmental

constraints) but deepen the analysis of "variation of goals" and the "role of power" in determining which interests are more important to satisfy in making decisions.

"Population ecology" originated with Darwin and influenced the works of Hawley (1950), Campbell (1969), Hannan and Freeman (1977), and Aldrich (1979). The central argument is the environment and how it selects organizations for survival on the basis of the fit between organizational forms and environmental characteristics.

> The bottom line is survival. The ability to perpetuate one's form is the hallmark of successful adaptation" (Scott, 1992, p. 114).

The "resource dependency perspective" focuses on the concept that it is not possible to understand the structure (that develops a behavior) without knowing and understanding the context in which an organization acts. Therefore, there is more need to acquire resources to survive, which creates dependence among organizations and external units. Good and wise managers acquire the necessary resources without creating too strong dependencies (Aldrich and Pfeffer, 1976).

The "Marxist approach" developed as a sort of critique to the rationalist view since organizations are not seen as rational systems but as "power systems" that are held and governed to maximize and control profits. Baverman (1972) speaks about work force, and Edwards (1979) and Marglin (1974) analyze the appropriation of surplus value. For a wider review of theorists who link Marx's works to the Marxist approach to organizations, see Burrell and Morgan (1979).

"Institutional theory" can be found in the work of Berger and Luckmann (1967), which argues that social reality is a human construction, created thanks to interactions among people. Actions are repeated and classified with similar meaning, and this process is called institutionalization. Much of the work on this perspective had been conducted within organizational settings. For further readings, see Bittner (1967), Cicourel (1968), Zimmerman (1970), and Meyer and Rowan (1977).

This perspective emphasizes organizations as open systems, since they are influenced by environmental triggers, and as natural rather than rational systems, because performance is driven by social and cultural pressures according to conventional beliefs (Zucker, 1988; DiMaggio and Powell, 1991).

The principal contributors to the "post-modernist approach" were Foucault (1977) and Lyotard (1984). Similar perspectives can be found in Marcuse (1964), Habermas (1971), Derrida, (1976), and Moi (1985). The assumption of an "out there" that could be objectively analyzed is dismissed, and the possibility of defining the universal law of actions is denied.

> Rationality and rationalization are really processes that seek to hide the contradictions at the hearth of human existence (Cooper and Burrell, 1988, p. 99).

Actions developed by organizations are reactive; in fact:

> Organizational activity in general and policy-making in particular is primarily triggered by situational factors which constitute a pressure to act, rather than being generated by deliberations on how certain abstract values can be achieved (Mayntz, 1976, p. 119, italics of the author).

In conclusion, my analysis of different perspectives allowed a "landscape" of analysis to be developed that includes not only old approaches but also contemporary ones, which can be useful for future studies. The aim is to provide a general matrix framework which will help in understanding and further developing theoretical improvements. Building a matrix of organizational landscape interpretations is a starting point for future theoretical developments, providing a basis to understand where it is possible to give contributions and fill in the existing literature. The matrix, which involves four dimensions (landscapes), is characterized and defined by contributions in the literature, offering room to researchers in organizational theory.

5 –Conclusions

The work aims at presenting a review of organizational perspectives to provide a useful definition to guide the reader in appraising the views set forth. Organizations are seen as organized social systems made up of individuals linked by stable organizational relations based on a spatial and temporal placement (topology), a specialized function in relation to the entire structure, a specific functionality that delimits the admissible interactions with the other elements, and a set of functional standards.

According to the literature review, the paper analyses the rational, natural, and open system perspectives of organizations. The *rational view* sees organizations as *closed systems*: their behavior is completely determined by the interaction of their subsystems with the environment to guarantee regular and constant outputs. Organizations are sets of interdependent parts aimed at attaining specific goals and performing efficiently and effectively. The concept of rationality resides in the organizational structure since the focus is on rules that ensure all individuals perform in specific ways to achieve goals.

The *natural system approach* sees organizations as composed not only of rules and formal structures but also of "heads and hearts". People enter an organization to provide their work, bringing with them their cognitive frames, i.e., their own ideas and principles.

The third approach analyzed, *organizations as open systems*, constitutes the premise to extend and generalize the *cybernetic vision*, typical of this approach, which considers the organization-firm as a Control System in which the individuals form the organizational structure and are an integral part of the "chain of control", all for the purpose of reaching goals through strategies and policies.

Organizations can also be viewed as open systems in the sense that their self-maintenance depends on their through-output of resources from the environment. This process of environmental exchanges is essential to the organization's viability. From this perspective, organizations are seen as exploratory agents that try, in their environment, to continuously achieve "business excellence".

The three perspectives reviewed – organizations as *rational*, *natural,* and *open* systems – should be considered as paradigms since they function as conceptual frameworks within different theories. The analysis ends by presenting a matrix in which "landscapes" of analysis are created, according to the matching of the different perspectives presented, which are helpful in understanding where it is possible to provide theoretical and practical contributions and fill in gaps in the existing literature.

The paper presents two evident limitations, which constitute stimuli for further investigations into the nature of organizations. The first limit is that the paper does not consider in sufficient detail the *cognitive approach* to organizations. Each organization, considered as a unitary agent, can be considered as a *cognitive system* since, through its management, it consumes value for the reproduction of value in order to survive in the environment, thereby maintaining its identity and revealing a "teleonomic project", or "objective of survival". This recalls the structure of an organization as a "viable system" in the sense of Beer (1979, 1981, 1989), where the organization can communicate with the economic and non-economic environment and tends to endure for a long time through continual adaptation, even in the presence of external disturbances.

The second limitation of the paper is that it does not deepen the view of the organization as a *cognitive, viable,* and *control system*: that is to say, as a unit that is equipped with internal control systems for people, activities, and processes aimed ultimately at checking the results that guarantee survival. In this sense, organizations can be conceived of as "autopoietic systems" (Mella, 2010). These systemic perspectives would require further research.

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