

Evolutionary theory framework to understand change in organizational routines

Marco de la teoría evolutiva para entender el cambio en las rutinas organizacionales

Luciano Ferreira da SILVA [1](#); Arnaldo José de Hoyos GUEVARA [2](#); Belmiro do Nascimento JOÃO [3](#); Paulo Sergio Gonçalves de OLIVEIRA [4](#); Karina Ribeiro FERNANDES [5](#)

Recibido: 04/12/16 • Aprobado: 17/12/2016

Content

- [1. Introduction](#)
- [2. Analyses of organizational routines by evolutionary theory](#)
- [3. Conclusions](#)
- [References](#)

ABSTRACT:

This conceptual theoretical article aims to present a framework to analyze aspects related to the change of organizational routines from the perspective of evolutionary theory. Evolutionary Theory was chosen because it presented an alternative to Contingency Theory and Ecology of Organizational Populations because their assumptions do not defend the contingent determinism, or the inertia of the population respectively. As a result, we assume that the routines in the Evolutionary Theory of organizations can be classified into: isomorphic, or emerging. Furthermore, We advocate organizations as living beings try to move away from the initial forms seeking greater ability to survive.

Keywords: Evolutionary Theory, Routines, Organizational Theory, Ecology of Organization.

RESUMEN:

Este artículo teórico conceptual pretende presentar un marco para analizar aspectos relacionados con el cambio de rutinas organizativas desde la perspectiva de la teoría evolutiva. La Teoría Evolutiva fue elegida porque presentó una alternativa a la Teoría de Contingencia y Ecología de las Poblaciones Organizacionales porque sus supuestos no defienden el determinismo contingente, ni la inercia de la población respectivamente. Como resultado, asumimos que las rutinas de la Teoría Evolutiva de las organizaciones pueden ser clasificadas en: isomorfas o emergentes. Además, abogamos por que las organizaciones como seres vivos traten de alejarse de las formas iniciales que buscan una mayor capacidad de sobrevivir.

Palabras clave: Teoría Evolutiva, Rutinas, Teoría Organizacional, Ecología de la Organización

1. Introduction

The world is going through changes described by some as the Fourth Industrial Revolution (Schwab, 2016). Innovations in various areas impact the way we produce and consume, which

also changes the perspective on how to make decisions about resource allocation. The question is no longer whether changes will cause a rupture, but when breaks in the current system will appear. Local and global changes are demanding, require new perspectives, and such changes can have almost instantaneous effects throughout some sectors.

Ideally, a discussion of the relationship between organizational forms should be based in an environment of certainty, while still taking into account a changing environment (Ring, 1997; Nelson & Consoli, 2010; Hodgson, 2010; Knight, 2012). Moreover, the prospect of inertia and isomorphism is only suitable for stable and predictable environments, which is rare for many companies competing in a globalized environment during intense technological change.

Brown, Squire, and Blackmon (2007) describe that the isomorphism of manufacturing methods is labeled many times as best practices, which are based on the use of a specific set of techniques like quality management and continuous improvement, or chain management provision and use of a packaged set of practices across operations function. As Nelson and Dosi (1994) described, a level of efficiency presented by an organization can serve as a benchmark, which other firms may mimic. Nelson and Winter (2005) state that the perfect copy is possible in evolutionary models, and for such a situation, one must simply perform identical routines.

The routines work as institutional memories and can be of two types: technical routines and procedures. The first is related to decisions on how to produce things. The second is related to decisions about daily activities, such as firing or hiring procedures (Nelson & Winter, 2005; Witt, 2008). Routines that govern the behavior at any time are a reflection of that time, but the characteristics of existing routines can be understood as a reference to the evolutionary process by which they have been shaped (Becker, 2004; Nelson & Winter, 2005).

Therefore, the unit of analysis for understanding the allocation of resources is not the firm, but the institutionalized routines and become the main physical evidence of the institutions (Williamson, 2000; Becker, 2004). Additionally, here we do not analyze organizational reality as static, being conducted by a substantive and deterministic rationality. The reality of organizations consists of decisions based on limited rationality to solve the resource allocation problems. Since this occurs in both stable, predictable environments, and unstable, uncertain environments, the results from this process become stochastic.

Thus, we are motivated by the same question that motivated Hannan and Freeman (1977), Carroll (1993), Nelson and Winter (1982), and Hodgson (2010), among other researchers who adopted the sociology of organizations as a research subject and biology as a metaphor. We ask: How do pressures from the external environment interfere with the choice of organization routines? In this same type of research that examines organizational forms and internal and external factors as determinants of survival, we include: Schumpeter (1934), with his work on the economy and society; Simon (1956), on rationality and the structures of the organizations; Hannan and Freeman (1977; 1984), on the Ecology of Organizational Populations; Institutional theory described by Meyer and Rowan (1977), DiMaggio and Powell (1983), and Williamson (2000); in addition to the theory of contingency by Lawrence and Lorsch (1967). These researchers have addressed the need for the company to escape the isomorphism, where possible, and determine a new reality for each organization to adapt its processes and structure to the demands of the external environment. Thus, the use of biological concepts as a metaphor for organizational studies assists in understanding events and discussion as the characteristics of transferability or mutation and extinction of firms (Venkatachalam, 2008; Lejano & Stokols, 2013).

Thus, the proposal of an evolutionary theory of organizations becomes a useful alternative to Contingency Theory and Ecology of Organizational Populations because their assumptions do not defend the contingent determinism, or the inertia of the population respectively.

Evolutionary theory proposes a longitudinal analysis based on the Path Dependence can identify evolving capacities in organizational structures and routines (Dobusch & Kapeller, 2009; Heine & Rindfleisch, 2013; Cecere, 2014).

The paradigm considered in this research study is not functional regarding its rational-instrumental aspect. Although it accepts a certain level of functionalism in its features, the essence of the paradigm is interpretationist because it uses phenomenology to explain evolutionary issues (Burrell & Morgan, 1979). The analysis procedure undertaken in this study provided a critical interpretation of the evolutionary framework understood as a hermeneutical exercise. This approach allowed the use of inter-subjectivity and reflection in building arguments based on the critique of the theoretical approaches used (Weber, 2015).

Therefore, we follow an analysis based on a biological metaphor for the sociology of organizations, which is tautologically an abstraction of the evolutionary assumptions and intentionality of individuals (Powell & Wakeley, 2003; Hodgson & Knudsen, 2012). Note that our goal is to defend an Evolutionary Theory to be applied to an analysis of organizations.

Thus, inertia may lead to entropy and innovation may lead to new routines. These novel combinations may also cause changes in environmental factors, such as the Internet for the company related to the field of telecommunication. Note that this process becomes unpredictable for various reasons such as the subjectivity of the actors involved in the process and rationality limited by the complexity of the environment. This unpredictability causes evolution to be categorized as a stochastic process. On the other hand, intentional inertial pressures as those from regulatory laws imposed by the government, can lead to serious structural problems as seen in Brazil when the market reserve was imposed until 1990.

2. Analyses of organizational routines by evolutionary theory

The survival of the organization does not always depend on the ability to maintain an isomorphic organizational structure (Kim & Mauborgne, 2005; Kim & Mauborgne, 2014; Senge, 2014) since this has the tendency to only be mimicry of effective models. Therefore, change as a longitudinal phenomenon causes research to adopt the evolutionary paradigm, and this facilitates research for the analysis of social reality of contemporary organizations (Carroll, 1993; Dolfsma & Leydesdorff, 2010). It is worth remembering that a theoretical perspective is an abstraction that can lead to insights, if the conditions laid down in the respective model are appropriate. Thus, the use of biological concepts as a metaphor for organizational studies assists in understanding events and discussion as the characteristics of transferability or mutation and extinction of firms.

2.1 Evolutionary theory of organizations

The society is formed by organizations of all kinds, as they are required agents to generate goods and services that meet demands. In addition, internal and external factors create a hive of activity for a variety of companies that aim for the same production processes. In this context, the form of allocation of resources becomes an important issue when dealing with the functioning of public or private organizations. Therefore, administrators of these organizations make decisions, deliberate or not, that impact results as well as the condition of micro- and macro-environmental factors.

An important point in this decision process for allocating resources is the inability to control all the factors of production and consumption. For example, one must take into account that the decision guided by a predictable environment is not accurate. So this limited rationality creates the costly need to adapt to successive eventualities arising from the unpredictability of a process.

Nelson and Winter (2005) call all behaviors that are regular and predictable, routines. So it can be said that the actions of individuals and firms are often guided by relatively simple decisions and procedures. However, these institutionalized routines ensure a situation of predictability as the factors and stakeholders remain in the same conditions.

Several researchers describe the routine as equivalent to the gene, which is the unit of analysis in evolutionary theory (Nelson & Winter, 2005; Hodgson, 2013). When observing the evolution of species, we can use the gene (genetic code) as the unit of analysis (Ridley, 2009). The gene ensures a predisposition for certain characteristics and its development determines the phenotype. Thus, the genotype can be described as the individual alleles assembly (DNA), or the genetic code that establishes a predisposition for some characteristics. Thus, the genetic makeup of an individual or a population is determined by an inherited capacity. This also enables the transmission of characteristics for future generations.

In turn, the resulting phenotype influences and is influenced by environmental conditions, i.e., the environment will influence the development of pre-arranged characteristics (Stuart-Guimaraes, Lacorte & Brasileiro, 2005). So the phenotype is expressing the transferred genetic characteristics, i.e., physical characteristics are exhibited. Therefore, the same genotype can express different phenotypes depending on their interaction with the environment. Based on these ideas we can draw an analysis model for organizations using biological concepts of evolution as a metaphor.

Thus, the firm is not a valid unit of analysis, but only the means of evidence of the routine that is independent of an individual, and the most relevant group or species for research on the surviving institutions (Hodgson, 2003; Becker, 2004). This view is similar to the analysis proposed by Hannan and Freeman (1977) on the theory of Ecology Organizational population.

As can be seen, the routines as the unit of analysis are relevant to organizational studies. However, this research rejects the view that the gene is analogous to the routine. We argue here that the routine is only a physical representation of the underlying genetic predisposition, i.e., the routine is the phenotype. Just as it was pointed out by Stoelhorst (2014). In turn, the gene is directly related to the core business of a population (field of activity). Hodgson & Knudsen (2012) emphasize that "Any infection or contagion immediately affects the phenotype, not the genotype", which is an indication that our idea is tenable, even though the authors used this thought to justify the routine as genotype.

The routines work as institutional memories and can be of two types: technical routines and procedures. The first is related to decisions on how to produce things. The second is related to decisions about daily activities, such as firing or hiring procedures (Nelson & Winter, 2005; Witt, 2008).

Routines that govern the behavior at any time are a reflection of that time, but the characteristics of existing routines can be understood as a reference to the evolutionary process by which they have been shaped (Becker, 2004; Nelson & Winter, 2005). Nevertheless, despite the dominance of certain repertoires of routines, which restrict the behavior of firms, they use only a small fraction of the possible options.

Arrow and Hahn (1971) said that the set of production possibilities is the state description of knowledge of a firm or the possibilities of transforming inputs into goods. Nelson and Winter (2005) defined the production of the firm together as achievable input-output combinations in all possible levels and combinations of activities known by the firm.

As Nelson and Dosi (1994) described, a level of efficiency presented by an organization can serve as a benchmark, which other firms may mimic. Nelson and Winter (2005) state that the perfect copy is possible in evolutionary models, and for such a situation, one must simply perform identical routines. However, these authors also point out that innovation is a change of routine, similar to Schumpeterian innovation vision. Thus, based on the selection and imitation of routines, Evolutionary theory explains the isomorphism or inertia in adopting production practices (Hodgson, 1994; Becker, 2004; Nelson & Winter, 2005; Conceição, 2007; Jiang, Gong, Wang, & Kimble, 2016).

Therefore, the unit of analysis for understanding the allocation of resources is not the firm, but the institutionalized routines and become the main physical evidence of the institutions (Williamson, 2000; Becker, 2004). This is similar to the theory of Ecology of Organizational

Populations, which says that the routines are determined by the species (core business) and the ecosystem in which they are inserted (Hannam & Freeman, 1984). Remember that the orthodox view states that the institutions determine the market routines based on a substantive rationality, which is used to determine balance (Samuels, 1995).

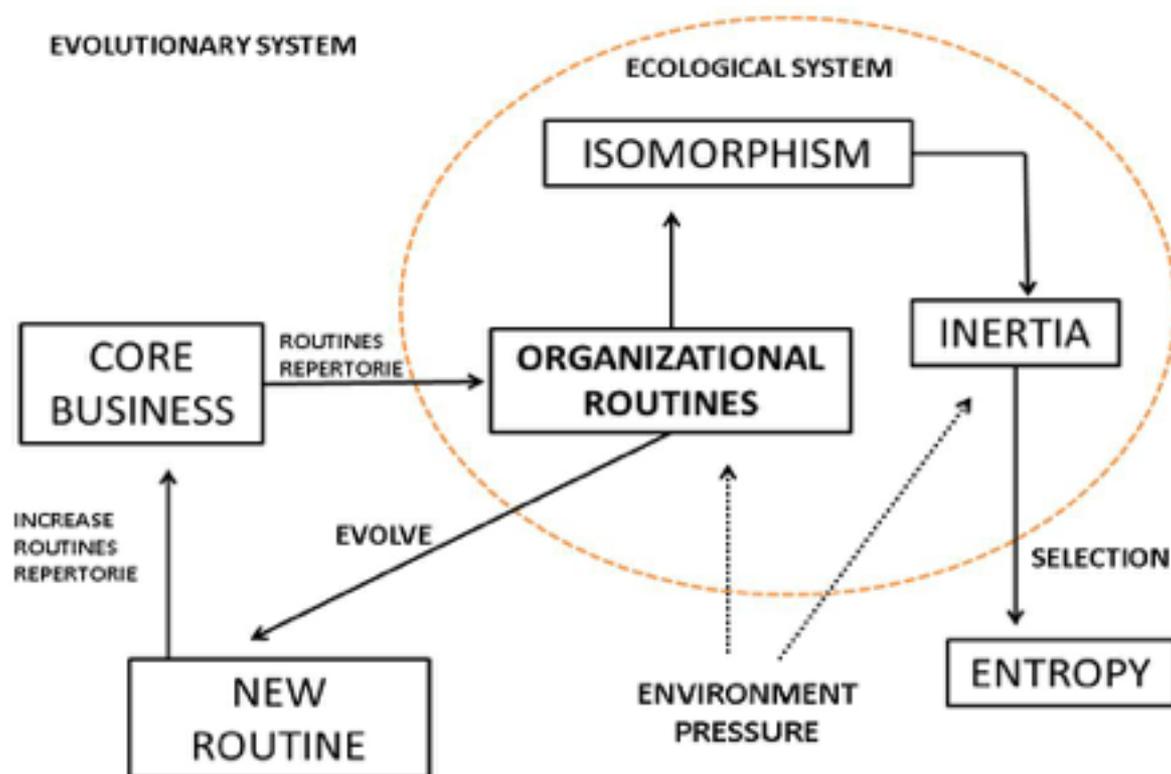
However, the orientation of Evolutionary theory is contrary to the individualistic utilitarianism view that evaluates the social welfare in terms of individual utility. This guidance should be focusing on real human needs and the design of the economy as an open system evolving in time, which is subject to cumulative causation. This causation is studied in evolutionary theory through the concept of Path Dependence (Hodgson, 1994; Cecere *et al.*, 2014.). Thus, it is necessary to assume that the analysis of the routines should take into account that the economic environment involves disputes, antagonisms, conflicts and uncertainties (Alchian, 1950; Williamson, 2000; Knight, 2012).

The concept of Path Dependence is represented by a model of social causality that is dependent on the historical trajectory. Therefore, Path Dependence is presented as an analysis tool for evolutionary researchers. It is used to understand the value of temporal sequences and the development of events and social processes cumulatively (Hall & Taylor, 1996; Cecere, 2014), as this it is a system based on historical causality.

So we adopt the view that substantial changes occur that alter the activities of firms and, consequently, their ability to get results or interact in the market. The firms' adoption of a successful model, institutionalized by environmental conditions or by bargaining power in transactions under a Porterian perspective, is an important action for organizations (Porter, 2008). The practice of copying operational models can generate an isomorphism in organizations and in the form of management (Hannan & Freeman, 1984).

Brown, Squire, and Blackmon (2007) describe that the isomorphism of manufacturing methods is labeled many times as best practices, which are based on the use of a specific set of techniques like quality management and continuous improvement, or chain management provision and use of a packaged set of practices across operations function. In addition, firms have a repertoire of routines – see figure 1, but also the search for new routines, or organizational arrangements, which determines an active role for the administrator in the effectiveness of the organization (Feldman, 2000). This theory agrees with the theory of contingency by Laurence Lorsch (1967), in opposition to the Evolutionary Theory, in which the process is understood as stochastic and not controlled as the contingentualists defend.

Figure 1. Ecological System versus Evolutionary System



Despite the pressures of the external environment on the search for new routines, firms also desire to increase their performance first, which also leads to this search for new routines (Feldman, 2000; Nelson & Winter, 2005). Therefore, to achieve a new level of performance, firms are adopting the above methods to adapt. However, not all are prepared or aware of this change, which leads to organizational inertia and hence the entropy. Hannan and Freeman (1977) argue that this relationship between change and inertia is a selection process that determines the survival of organizations, and the adaptation in view of the theory of Ecology of Organizational Populations is virtually impossible due to a number of forces leading to inertia (Hannan & Freeman, 1984; Amburgey & Rao, 1996; Swaminathan, 1996; Baum, 1999). Therefore, the adaptation of the organization to the environment is limited by inertial pressures, and these pressures can be internal or external (Venkatachalam, 2008).

Aldrich and Pfeffer (1976) outlined the internal pressures as investments in plant, equipment, skilled professionals, and informational asymmetry of decision makers, internal policies, and organizational culture. And, external pressures include legal barriers or fiscal markets, information from the external environment, the organization's legitimacy to the environment, and strategic choices.

This inertia situation can be described as a natural selection. Aldrich and Pfeffer (1976), Nelson and Winter (2005) and Hodgson (2013) exposed the existence of three stages for the selection of organizations such as occurs in the Darwinists theories. The first refers to changes in organizational forms due to environmental pressures. The second stage is the selection in which only some organizational forms fit the environment. The third and final stage is retention of the selected changes, which are then maintained, replicated, and reproduced.

In terms of Evolutionary theory, stages of variation, selection, and retention are the result of strategic choices of organizational agents, and these have a more active role in the provision to determine new models routines (Schumpeter, 1934; Hodgson, 1997; Nelson & Winter, 2002; Witt, 2008).

However, the study of structural inertia becomes a rich source of information for choosing between a model and an adaptive selection (Robalo, 1995; Baum, 1999; Cunha, 1999). The concepts related to selection are opposed to adaptation, which is defended by the theory of Contingency (Laurence & Lorsch, 1967). The latter maintains that the strategy leads to the structure, but the opposite can also happen, due to the fact that the main focus of the Contingency Theory lies in the way the organizational structure is modeled in order to meet the needs of the environment and the resulting tasks.

We emphasize that selection involves the actual loss of organizations and adaptation provides mobility between organizational forms. Starting from the idea that the resources that support an organization are finite, the populations of organizations see their ability to expand limited. In fact, competition for resources is necessary for an organization to survive, and the ability to adapt the structure and routine of the organization will be subject to changes based on systematic selection of the environment (Jarvenpaa & Stoddard, 1998; Safarzyńska, 2013; Jiang, Gong, Wang, & Kimble, 2016). Selecting prospective high adaptability levels arises from specific evolutionary outcomes (Hannan & Freeman, 1977; Carroll, 1993; Hodgson, 2013; Abatecola, 2014). Moreover, we can add to this analysis search engines proposed in Evolutionary Theory of Organizations (Nelson & Winter, 2005; Witt, 2008). One should not forget that organizational skills are directly related to the limited rationality of agents and the organizational structure as a whole (Hannan & Freeman, 1984).

Therefore, we can say that the competition also serves as a mechanism leading to isomorphism, as arises from the intentional adaptation of organizations to common constraints they face or because non-isomorphic are excluded. An example of this can be seen in the franchise segment. Fast food companies keep a standard set of routines that lead to competitive predictability. On the other hand, the organization's survival does not always

depend on the ability to maintain the organizational structure in an isomorphous manner (Kim & Mauborgne, 2005; Kim & Mauborgne, 2014; Senge, 2014). The prospect of inertia and isomorphism is suitable for a stable and predictable environment, which does not happen with many companies competing in a globalized environment marked by intense technological change.

Thus, the proposal of an evolutionary theory of organizations becomes a useful alternative to Contingency Theory and Ecology of Organizational Populations Theory because their assumptions do not defend contingent determinism, or the inertia of the population respectively. Evolutionary Theory proposes a longitudinal analysis based on Path Dependence that can identify evolving capacities in organizational structures and routines (Dobusch & Kapeller, 2009; Safarzyńska, 2013; Heine & Rindfleisch, 2013; Cecere, 2014).

2.2 Evolutionary approach to organizational analysis of routines

In an evolutionist's vision, organisms do not adapt to the environment, they evolve or become extinct (Hannan & Freeman, 1977; Hannan; Freeman, 1984; Nelson & Winter, 2005).

Organizations also have a need for survival, and this struggle takes place in an increasingly complex environment due to various environmental changes arising from technological advances and increased global competition for resources.

The concern about long-term changes can be seen in the description of Schumpeterian competition, where the performance of an organization is often linked to its ability to recombine resources and processes (Schumpeter, 1934; Nelson & Winter, 2002; Hodgson, 2007). The evolutionary perspective was mainly based on the assumptions of economic theorists. However, as an economic agent, general organizations, and private companies in particular, become important objects of study to understand the evolutionary process in society (Ring, 1997; Jarvenpaa & Stoddard, 1998). This is mainly due to irreversible changes caused by the industrialization processes and technological innovations (Nelson & Winter, 2005; Nonaka, Von Krogh & Voelpel, 2006; Abatecola, 2014).

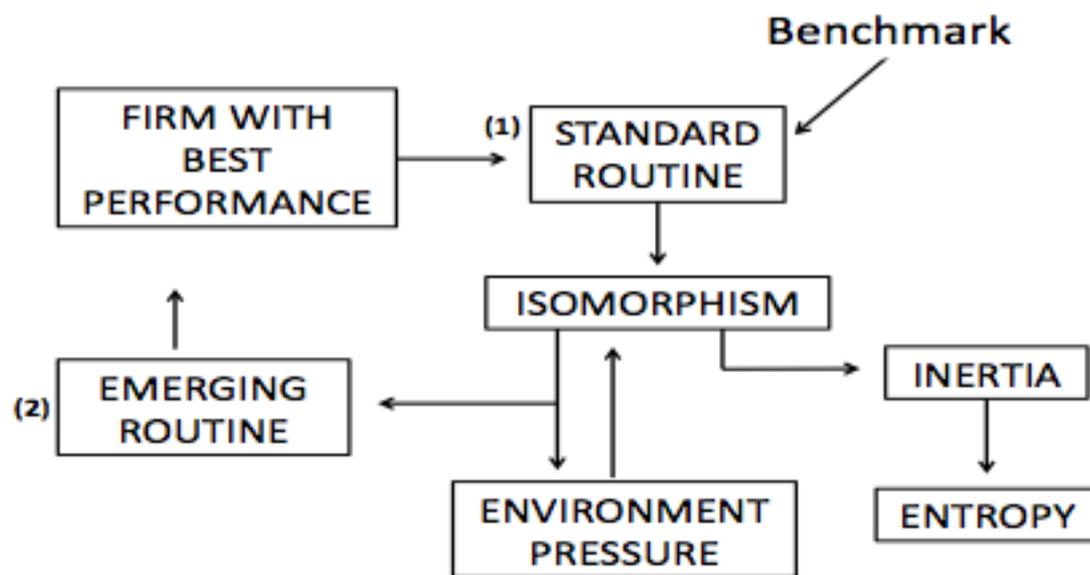
Thus, the routines are inherited by having a better performance in the allocation of resources, and also recognized as important elements in the survival of a population long-term (field of activity). This leads to imitation and incorporation of this routine as a benchmark (isomorphism), and the characteristics of a routine should be understood with reference to the evolutionary process by which it was shaped.

Thus, the central question in Evolutionary Theory is that the environment is a key factor in the survival and evolution of organizations, even though the organizations have the ability to allocate resources in new ways to ensure their survival. New routines can be created from resources and processes recombination, i.e., the emerging routines described in Figure 1. Thus, the availability of resources, other agents, and environmental factors (micro or macro), compete for permanence or exclusion in the routines.

Therefore, organizations present in a given field of activity adopt models that are supposedly successful to establish a benchmark, which, in turn, will determine a substantive rationality of making organizational decisions. However, these same standard routines (1) are decided, and may even be termed isomorphic routines, because, when established as irreplaceable paradigms, they promote a structural inertia, which can lead to entropy and thus be quenched by resistance to change.

Thus, the routines in the Evolutionary Theory of organizations can be classified into: (1) isomorphic, or (2) emerging, as depicted in Figure 2. In the first case they are already institutionalized, serve as a benchmark, and are mimicked by other firms until they can ensure positive results. In the second case, the emerging routines are treated as emergent strategies described by Mintzberg (Mintzberg, Ahlstrand, & Lampel, 2009). Even in the latter case, it can be said that they are formed by new combinations of the same features (Feldman, 2000; Becker, 2004) as those which were described by Schumpeter (1934).

Figure 2. Routines and Environment Pressures



Source: Elaborated by the authors, 2016.

Deliberate routines based on a benchmark system can lead to organizational entropy and ultimate extinction, because the environment in the early twenty-first century is constantly changing. New routines may arise from local or global environmental pressures. Examples of these pressures that can be cited are the lack of resources, such as the water crisis (water) or desertification in some locations, which also impacts on the behavior of individuals.

Thus, adopting the concept of inability to track environmental changes by organizational inertia, which may cause more pressure in the organizational system. Companies that do not fit will be eliminated from the organizational environment. However, not all organizations can survive due to natural selection pressures from the environment, the availability of resources, or even by overpopulation of organizations of the same species that compete for the same resources. This takes into account the current system's entropy, and can occur with organizations that have not been selected for or the entire population. The latter situation may also provide opportunities for organizations that recombine resources and processes to evolve into a new routine - emerging routines of Figure 1 (Kim & Mauborgne, 2005; Kim & Mauborgne, 2014; Senge, 2014).

Thus, inertia may lead to entropy and innovation may lead to new routines. These novel combinations may also cause changes in environmental factors, such as the Internet for the company related to the field of telecommunication. Note that this process becomes unpredictable for various reasons such as the subjectivity of the actors involved in the process and rationality limited by the complexity of the environment. This unpredictability causes evolution to be categorized as a stochastic process. On the other hand, intentional inertial pressures as those from regulatory laws imposed by the government, can lead to serious structural problems as seen in Brazil when the market reserve was imposed until 1990.

Thus, by adopting the Evolutionary Theory to perform organizational analysis, researchers can map the routines within a hive of activity to deduce the core business adopted by the company. This is a useful analysis for both business units or for a population of organizations, because the macro analysis establishes a repertoire of routines for those categorized as the same species. Otherwise, the micro analysis should take into account aspects such as geographical isolation or macro-environmental pressures such as legislation, demographics, and available technology.

3. Conclusions

The competition of the species for survival in an environment causes them to deviate from their original forms, and this event occurs due to mechanisms that may cause the evolution or extinction of a population. Thus, the view that species tend to succumb to inertia is rejected by

Evolutionary Theory of organizations. Moreover, external pressure in a Malthusian vision makes resources increasingly scarce, which is presented as paradoxical as the decision-making of an organizational agent, classified as rational, is provided by a passive wait for extinction. Therefore, the limited rationality and structural inertia create isomorphic organizational models that will be in dissonance with the exogenous demands.

Thus, companies fighting environmental changes cannot prevent micro and macro-environmental factors change. Also, when there are barriers to protection conditions, which are created in Porterian molds (Porter, 2008), protections are established in micro-regions where the company remains competitive and able to allocate resources in a controlled manner. However, this micro-region will be in step with the macro-region, namely the global context. So adoption of isomorphic routines to ensure competitiveness in complex and changing environments becomes counterproductive.

Thus, we can say that the competition often leads to isomorphism, but can also lead to new organizational forms. An awareness of local and global reality requires an interdisciplinary and systemic perspective to analysis to be able to identify and diagnose the factors, shapes, and patterns.

As a result of this research, we argue here that the routines are an important unit of analysis, but the routine is only the physical representation of genetic predisposition, i.e., the phenotype. Therefore, the Evolutionary Theory of organizations includes in its outlook a concern with long-term change processes that institutions are struggling with for survival. For that reason, the range of actions, selection, and integration can be identified and monitored through a longitudinal analysis of isomorphic and emerging routines of a hive of activity based on core business.

To answer the question Why are there so many types of organizations? we advocate organizations as living beings try to move away from the initial forms seeking greater ability to survive. In racing to allocate resources and the logic of the market, we can say that the Evolutionary Theory of organizations does not give an absolute answer regarding the best design of organizational forms. It, instead points out to managers and organizational researchers that there is not just one way of controlling resources that determines the shape of all organizations in all contexts. This view is contrary to contingency determinism and inertia defended by theorists supporting the Ecology of Organizational Populations viewpoint.

Also, remember that the forms and routines are derived from the relationship between environmental pressures by the dispute in obtaining resources. Thus, relations between producers, agents, and consumers will not have a substantive rationality as preached by the Orthodox theories, and the environment becomes more complex and subject to change, establishing a competitive advantage for those able to create new routines and emerging organizational forms.

Limitation of this research can highlight the lack of an empirical study to validate our assumptions. This limitation is also an opportunity and goal in future studies. Thus, to build an analysis using methodologies to understand the Path Dependence of an organization or a population of the same core business organizations can illustrate and classify routines and effective organizational forms. This effective shape of organizations is not based on the orthodox assumptions of balance of maximization of profit.

References

- Abatecola, G. (2014) Untangling self-reinforcing processes in managerial decision making. Co-evolving heuristics? *Management Decision*, 52(5), 934-949.
- Aldrich, H.E., & Pfeffer, J. (1976) Environments of organizations. *Annual Review of Sociology*, n.2, p.79-105.
- Amburgey, T.L., & Rao, H. (1996) Organizational ecology: Past, present, and future directions.

Academy of Management Journal, 39(5), 1265-1286.

Baum, J.A.C. (1999) *Ecologia organizacional*. In: CLEGG, S. R.; HARDY, C.; NORD, Walter R. (Org). *Handbook de estudos organizacionais: modelos de análise e novas questões em estudos organizacionais*. São Paulo: Atlas, p.137-195.

Becker, M.C. (2004) Organizational routines: a review of the literature. *Industrial and corporate change*, 13(4), 643-678.

Carroll, G.R. (1993) A sociological view on why firms differ. *Strategic Management Journal*, 14(4), 237-249.

Cunha, M.P. (1999) Ecologia Organizacional: implicações para a gestão e algumas pistas para a superação de seu caráter anti-management. *Revista de Administração de Empresas*, v. 39, n. 4, out/dez 1999, p. 21-28.

Baum, J., & Powel, W. (1995) Cultivating and Institutional Ecology of Organizations: Comm. *American Sociological Review*, 60 (4), pp. 529-538.

Brown, S., Squire, B., & Blackmon, K. (2007) "The contribution of manufacturing strategy involvement and alignment to world-class manufacturing performance", *International Journal of Operations & Production Management*, Vol. 27 Iss: 3, pp.282 – 302

Burrell, G., & Morgan, G. (1979) *Sociological paradigms and organisational analysis* (Vol. 248). London: Heinemann.

Cacciolatti, L., & Lee, S. H. (2016). Revisiting the relationship between marketing capabilities and firm performance: The moderating role of market orientation, marketing strategy and organisational power. *Journal of Business Research*. 69(12), 5597–5610

Cecere, G., Corrocher, N., Gossart, C., & Ozman, M. (2014) Lock-in and path dependence: an evolutionary approach to eco-innovations. *Journal of Evolutionary Economics*, 24(5), 1037-1065.

Conceição, O.AC. (2007) Além da transação: uma comparação do pensamento dos institucionalistas com os evolucionários e pós-keynesianos. *Revista Economia*, Brasília, v. 8, n. 3.

DiMaggio, P.J., & Powell, W.W. (1983) The iron cage revisited: Institutional isomorphism and collective rationality in organization fields. *American Sociological Review*, 48, 147-160.

Dobusch, L., & Kapeller, J. (2009) "Why is economics not an evolutionary science?" new answers to Veblen's old question. *Journal of Economic Issues*, 43(4), 867-898

Donaldson, L. (1999) *The normal science of structural contingency theory*. *Studying Organizations: Theory and Method*. Thousand Oaks, Calif: Sage, 51-70.

Donaldson, L. (1995) *American anti-management theories of organization: a critique of paradigm proliferation*. Cambridge: Cambridge University Press, 1995.

Feldman, M.S. (2000) Organizational routines as a source of continuous change. *Organization Science*, 11(6), 611-629.

Hall, P.A., & Taylor, R.C.R. (1996) Political science and the three new institutionalisms. *Political Studies*, v. 44, n. 5, p. 936-957.

Hannan, M.T., & Freeman, J. (1977) The population ecology of organizations. *American Journal of Sociology*, p. 929-964.

Hannan, M.T., & Freeman, J. (1984) Structural inertia and organizational change. *American Sociological Review*, p. 149-164.

Heine, K., & Rindfleisch, H. (2013) Organizational decline: A synthesis of insights from organizational ecology, path dependence and the resource-based view. *Journal of Organizational Change Management*, 26(1), 8-28.

Hodgson, G.M. (1994) *The return of institutional economics*. The handbook of economic

sociology, p. 58-76.

Hodgson, G.M. (1997) The evolutionary and non-Darwinian economics of Joseph Schumpeter. *Journal of Evolutionary Economics*, v. 7, n. 2, p. 131-145.

Hodgson G.M, & Knudsen T (2006) Why we need a generalized Darwinism, and why generalized Darwinism is not enough. *Journal Econ Behav Organ*, 61(1):1-19

Hodgson, G.M. (2007) Evolutionary and institutional economics as the new mainstream? *Evolutionary and Institutional Economics Review*, v. 4, n. 1, p. 7-25.

Hodgson, G.M. (2010) Choice, habit and evolution. *Journal of Evolutionary Economics*, 20(1), 1-18.

Hodgson, G.M., & Knudsen, T. (2012) Agreeing on generalised Darwinism: a response to Pavel Pelikan. *Journal of Evolutionary Economics*, 22(1), 9-18.

Hodgson, G.M. (2013) Understanding organizational evolution: Toward a research agenda using generalized Darwinism. *Organization Studies*, 34(7), 973-992.

Lejano, R. P., & Stokols, D. (2013). Social ecology, sustainability, and economics. *Ecological economics*, 89, 1-6.

Jarvenpaa, S. L., & Stoddard, D. B. (1998). Business process redesign: Radical and evolutionary change. *Journal of Business Research*, 41(1), 15-27.

Jiang, S., Gong, L., Wang, H., & Kimble, C. (2016). Institution, strategy, and performance: A co-evolution model in transitional China. *Journal of Business Research*, 69(9), 3352-3360.

Kim, W.C., & Mauborgne, R. (2005). Blue ocean strategy: from theory to practice. *California Management Review*, 47(3), 105-121.

Kim, W.C., & Mauborgne, R. (2014) *Blue Ocean Strategy*, Expanded Edition: How to Create Uncontested Market Space and Make the Competition Irrelevant. Harvard Business Review Press.

Knight, F.H. (2012) *Risk, uncertainty and profit*. Courier Corporation.

Lawrence, P.R., & Lorsch, J.W. (1967) Differentiation and Integration in Complex Organizations. *Administrative Science Quarterly*, 12(1), 1-47.

Meyer, J. W., & Rowan, B. (1977) Institutionalized organizations: Formal structure as myth and ceremony, *American Journal Of Sociology*, 340-363.

Mintzberg, H., Ahlstrand, B., & Lampel, J. (2009) *Safári da estratégia*. São Paulo: Bookman Editora.

Nelson, R.R., & Winter, S.G. (2002) Evolutionary theorizing in economics. *The Journal Of Economic Perspectives*, v. 16, n. 2, p. 23-46.

Nelson, R.R., & Winter, Sidney G. (2005) *Uma teoria evolucionária da mudança econômica*. Campinas: Editora Unicamp.

Nelson, R.R., & Consoli, D. (2010) An evolutionary theory of household consumption behavior. *Journal of Evolutionary Economics*, 20(5), 665-687.

Nelson, R.R. (2013). Demand, supply, and their interaction on markets, as seen from the perspective of evolutionary economic theory. *Journal of Evolutionary Economics*, 23(1), 17-38.

Nonaka, I., Von Krogh, G., & Voelpel, S. (2006). Organizational knowledge creation theory: Evolutionary paths and future advances. *Organization studies*, 27(8), 1179-1208.

North, D.C. (1993) *The new institutional economics and development*, Washington Univesity, St. Louis.

Porter, M.E. (2008) *Competitive strategy: Techniques for analyzing industries and competitors*. Simon and Schuster.

Powell, J. H., & Wakeley, T. M. (2003). Evolutionary concepts and business economics: Towards

a normative approach. *Journal of Business Research*, 56(2), 153-161.

Ridley, M. (2009) *Evolução*. São Paulo: Artmed Editora,.

Ring, I. (1997). Evolutionary strategies in environmental policy. *Ecological Economics*, 23(3), 237-249.

Robalo, A. (1995) Ecologia das Populações organizacionais. *Revista Portuguesa de Gestão*, Lisboa, III-IV, p. 5-1.

Safarzyńska, K. (2013). Evolutionary-economic policies for sustainable consumption. *Ecological Economics*, 90, 187-195.

Salimath, M.S., & Jones, R. (2011) Population ecology theory: Implications for sustainability. *Management Decision*, 49(6), p. 874-910.

Samuels, W.J. (1995) The present state of institutional economics. *Cambridge Journal of Economics*, v. 19, n. 4, p. 569-590.

Senge, P.M. (2014) *The dance of change: The challenges to sustaining momentum in a learning organization*. Crown Business.

Schumpeter, JA (1934) *The theory of economic development*. Harvard UP, MA.

Schwab, K. (2016) *The fourth industrial revolution*. In Geneva: World Economic Forum.

Simon, H.A. (1956) Rational choice and the structure of the environment. *Psychological review*, v. 63, n. 2, p. 129.

Stoelhorst, J. W. (2014). The future of evolutionary economics is in a vision from the past. *Journal of Institutional Economics*, 10(04), 665-682.

Swaminathan, A. (1996) Organizational ecology: Neither straightjacket nor big tent. *Administrative Science Quarterly*, 41(3), p. 543-543.

Venkatachalam, L. (2008). Behavioral economics for environmental policy. *Ecological Economics*, 67(4), 640-645.

Weber, M. (2015) *On the methodology of the social sciences*. Lulu Press, Inc.

Williamson, O.E. (1979) Transaction-cost economics: the governance of contractual relations. *The Journal of Law & Economics*, v. 22, n. 2, p. 233-261.

Williamson, O.E. (2000) The new institutional economics: taking stock, looking ahead. *Journal of Economic Literature*, v. 38, n. 3, p. 595-613.

Witt, U. (2008) What is specific about evolutionary economics? *Journal of Evolutionary Economics*, v. 18, n. 5, p. 547-575.

1. Professor and Researcher at Business Administration Department at Pontifical Catholic University, PUC-SP; and at University Nove de Julho, Brazil. Email: lf_silvabr@yahoo.com.br

2. Professor and Researcher at Business Administration Department at Pontifical Catholic University, PUC-SP, Brazil

3. Professor and Researcher at Business Administration Department at Pontifical Catholic University, PUC-SP, Brazil

4. Professor and Researcher at Business Administration Department at Anhembi Morumbi University, Brazil

5. Professor and Researcher at Business Administration Department at University Nove de Julho, Brazil

Revista ESPACIOS. ISSN 0798 1015
Vol. 38 (Nº 24) Año 2017

[Índice]

[En caso de encontrar algún error en este website favor enviar email a webmaster]