“Ambidexterity: a possible balance to manage complexity”

AUTHORS	Massimo Franco http://orcid.org/0000-0003-4555-1458 http://www.researcherid.com/rid/J-7483-2015 Alberto Cerimele

ARTICLE INFO	Massimo Franco and Alberto Cerimele (2018). Ambidexterity: a possible balance to manage complexity. *Knowledge and Performance Management*, *2*(1), 1-12. doi:10.21511/kpm.02(1).2018.01
DOI	http://dx.doi.org/10.21511/kpm.02(1).2018.01
RELEASED ON	Monday, 29 January 2018
RECEIVED ON	Thursday, 13 July 2017
ACCEPTED ON	Wednesday, 16 August 2017

JOURNAL	"Knowledge and Performance Management"
ISSN PRINT	2543-5507
ISSN ONLINE	2616-3829
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	Sp. z o.o. Kozmenko Science Publishing

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
51	0	0

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10, Sumy, 40022, Ukraine

www.businessperspectives.org

Massimo Franco (Italy), **Alberto Cerimele** (Italy)

AMBIDEXTERITY: A POSSIBLE BALANCE TO MANAGE COMPLEXITY

Abstract

The present article originates from the effort to answer the following question: is it possible for an organizational structure to steer between organizational routines and Black Swans? (Taleb, 2007). Unexpected, unique and low-frequency events are "unknown variable" that, despite the planning and precautions deployed, catch an organization off-guard, and might have catastrophic consequences. Unexpected events impact organizations, undermining the knowledge and redefining the list of competences that an organization needs in order to be competitive. The main goal of the present article is to shed light on the role and the challenges that firms undertake in their defining moments of adaptation of their organizational assets – the structure –. The rational pattern of adaptation is exemplified by the use of ambidextrous organizational structures, which focus on activities that can be defined as exploration and exploitation. Within the analysis of "the science of complexity", parallels, paradoxes and metaphors representing a synthesis of a largely shared doctrine will be investigated: firms need to utilize known variables, or sometimes unknown ones, that are inevitably complex, in order to find the right fit, react swiftly to change, successfully compete, and obtain results.

Keywords organization, structure, complexity, routine, black swan, ambidexterity

JEL Classification D21, M54, L21

Received on: 13th of July, 2017
Accepted on: 16th of August, 2017

Massimo Franco, leads the "Organizational Studies" and "Human Resource Management Group", Department of Economics, University of Molise, Italy.

Alberto Cerimele, Ph.D., Department of Economics, University of Molise, Italy.

INTRODUCTION

Oxymoron. Organizations are like an oxymoron. The quest for a logical and constant trait of union reflecting the meaning of both organizational coordination and order is unlikely, if not impossible.

Organizations steer between constant elements and variable ones, until they find a sound balance. "A multitude of souls or worlds" (Bonazzi, 2008) appears to be the framework within which firms operate to find the right organization: people and environments interact to the reaching of the right balance, which is serviceable to the goals in turn envisioned for a firm.

Any dissertation about organizational innovation cannot be untied from an elaboration on innovation of human resource management. In fact, a good business idea is always associated with a good human resource idea (Costa & Giannecchini, 2013).

Likewise, it is redundant to reckon on the effectiveness of business organizations when the conditions that the external environment imposes, which can influence the organization itself, are not in turn accounted for (Pennings, 1992).

Strategy and structure mutually affect each other, and are both influenced by the environment in an intertwined relationship, in a way to

shift from a circular mode to a contextual one, in which other elements capable of influencing processes, aside from the element of environment, come into play (Costa, 2013). First and foremost, one of the main purposes of management has become assuring and fostering both communication and cooperation among those elements, only apparently distant.

The complex structure of the domains in which organizations are grounded leads to frequently using the expression "dynamicity of the organizational phenomenon", that is the inherent reaction to both change and complexity.

Inevitably, such an analysis embraces the logic of open systems affecting organizations: the "multitude of souls or worlds" characterizing "the premise" to the organization provides the firm with both incentives and hurdles.

In this framework, organizational theory has mostly offered arguments on how to account for organizations that are – for the great part – based on recurring elements of uniformity, on the one hand, and on reiterations-repetitions, on the other hand.

However, even though observing a recurring fact, describing it and drafting conclusions can be considered a rational process, it prevents from grasping the core substance of the analysis of those organizations that are defined as dynamic. The occurrence of a fact, the use of the organizational institutional knowledge, the inherent knowledge of phenomena, the reduction of reality into models, do not automatically allow to grasp the myriad nuances underlying the inter-connections that constitute the organizational phenomenon, i.e. the afore mentioned "multitude of souls and worlds".

The use of what management academics define as "organizational routines", however, has an eminent benefit: it can be detected in any organization, and, furthermore, it can be interpreted as a possible synthesis between organizational precepts and behavioral patterns (Becker, 2004).

An even more strenuous task, therefore, is the definition and the analysis of the complex of forces affecting the organizational modes, whether they are internal or external, constructive or destructive, regular or exceptional.

Likewise, the organizational structure may sway between organizational routines and "Black Swans" (Taleb, 2007).

The unexpected, unique or low-frequency events represent "unknown variables" that, despite the planning and precaution deployed, take the organizations by surprise and may bring about catastrophic consequences (Green, 2011). The "unexpected" (Weick & Sutcliffe, 2007) impacts the organizations, jeopardizing their institutional knowledge, redefining the competences and both the general and specific goals of the organizations.

Firms must tend to develop the ability to effectively employ the existing resources and activities; similarly, they must undertake new paths in order to prevent unconceivable events from undermining their competitive advantages.

Despite the fact that precious little has been theorized on the issue – it has been ill understood from an operational standpoint, and also been under conceptualized – the so-called organizational ambidexterity (Tushman M. L. & O'Reilly C. A., 1996; Birkinshaw J. & Gibson C., 2004; Raisch S. & Birkinshaw J., 2008)[1] is – or is to be – the ultimate organizational goal. Innate and rooted ambidexterity is to be in the

1 Cf. paragraph "Ambidextrous organizations between routine and black swans".

competences of the human resources enlivening the organizations. Ambidexterity, at the same time, is to be refined in the organizational processes.

Through this approach, organizations acquire non-stop information and energy, releasing, at the same time, entropy[2], not letting this force compile internally and implode, in the same way that characterizes closed systems (Nonaka, 1988).

The fundamental concepts whereby the analysis will be developed are inspired by the general framework of complexity. Capturing its essence, avoiding to recollect it into its extreme, namely chaos, is the only way to understand the pillars of the science of the firm organization.

Parallels and examples will be analyzed within the framework of organizational routines and unexpected supervening events, such as Black Swans. These foundational concepts will serve, then, to describe the need of firms to build their structure around the idea of ambidexterity, in order to turn both expected and unexpected events into opportunities.

The description of the complexity of the organizational phenomenon, the discussion on the extreme examples of organizational routines, on the management of black Swans and ambidextrous organizations, has been performed through reviewing the major contributions in terms of syntheses and theoretical arguments by the leading experts on the present issues, among which are Pascale, Millemann, Gioja, Morgan, Mainzer and Weber, Taleb, Zamarian, Hodgson, Duncan, O'Reilly, Tushman, Catino.

Furthermore, another method to identify the central idea of the present research has been the so-called "Conceptual Generalization" (Adriaessen & Johannessen, 2015).

This method entails employing – together with the writers' investigation – the scientific results of other researches in the same field, in order to draw a model, or in other terms an outline, to apply to the present investigation theme (Adriaessen & Johannessen, 2015).

This method has allowed to highlight the technical and scientific facets of the present issue, and it has served the ultimate analytical goal of highlighting the connections amongst organizations, organizational routines, unknown events, complex organizational systems and ambidextrous systems.

1. THE COMPLEXITY IN THE ORGANIZATION

In the firm rhetoric, the concept of context, in its dynamic, open and active meaning, influences the *modus operandi* of both the organizations and of the different players that interact with the former by means of exchanges. Change appears to be the sole constant rule in this multi-factor game, the sole rule of engagement of a context in which firms, product/service placement, the terms of engagement among firms are constantly changing. Adding more variables to an already fluid system, such as the organizational one, multiplies the interconnections, augments the interactions and the complexity, inducing the system players to cope with a consequential and frightening increase in unpredictability (Albino, Carbonara, & Giannoccaro, 2005).

It is not difficult to argue that the firm cycle, especially in phase of its structuring, is knowingly immersed in a daily continuous interpretation of complex facts, which complexity comes from the occurrence of – more or less – periodical events, which are connected to chance or to "off-kilter" states (Miglietta, 2010).

2 In physics, entropy is a function of state interpreted as a measure of the disorder of a system. In business organization, this concept is therefore meant as the force that opposes the achievement of objectives when precise organizational, decision-making and rational processes fail. Accumulating entropy, in fact, means inexorably tending towards disorganization.

Organizations by way of their very nature act in a non-linear fashion (Depew & Weber, 1995) and tend to increase both their force and entropy of their internal structures.

This unaware non-linear behavior exemplifies the concept of complexity, which can be included in a body of doctrinal organizational theories of difficult clarification, including the theory of algorithmic complexity, the epistemology of complexity, the complex adaptable systems, the theory of computational complexity and, in general, the systemic complexity.

All of the above methodologies borrow methods and terminology from physics, which has been defined as "science of complexity", whose goal is the investigation of complexity in its acceptation as "emergency", i.e. as a phenomenon that emerges spontaneously and incontrovertibly in relation to the interaction of multiple dynamic variables (De Toni & Bernardi, 2008).

The term "complex" comes from the Latin word "*complexus*", and implies something entangled, composed of a multitude of parts that are intertwined and dependent on one another (Baccarani, 2010). This definition shows the meaning of the interdependency relations of complex systems – tending to reach harmony (Baccarani, 1991) – and adaptive ones, where adaptive means evolutional dynamism, necessary to position these systems in turbulent environments. The ultimate goal of the complexity management models is the tendency to elasticity as a method to absorb complexity in and of itself (Pascale, Millemann, & Gioja, 2000). Here lies the innovative aspect of the present approach: the tendency to absorb complexity in order to use it for the organization's benefit contrasts the classic organizational tenets of those models that deem complexity negative.

An organization characterized by dynamism and adaptability entails continuous processes of organizational change, until the ultimate goal of self-organization is achieved.

Self-organization consists of the spontaneous creation of "new structures and new behavioral patterns in open systems distant from equilibrium, characterized by internal rings of retroaction and described mathematically by non-linear equations" (Faggioni & Simone, 2009, p. 17). This model, which is typical of social paradigms, reflects the input of each individual to absorb complexity by means of ongoing bottom-up processes stemming from interaction untied from a centralized form of control; in this model, managers have strong leadership skills and foster the creation of the appropriate conditions enabling the release of energy to the exterior. However, not only managers play a key role, but also all the other organizational elements will have to coexist with each other, fostering the sharing of both culture and languages, in order to generate the basis to manage complexity within a self-motivation framework (De Toni, 2010).

Self-organization becomes the capability of reacting without resorting to hierarchies or to coordination mechanisms, the tendency to collaborate among groups and the general commitment towards a positive evolution of both behaviors and interactions (Vicari, 1998), as opposed to what might be identified as a *lasses-faire* management.

The main features that any organization is to encompass in order to rationally manage complexity are, as a consequence, the interconnection, meaning the tendency to linking people and groups of people, the redundancy, meaning the capacity of people to perform multiple tasks and become interchangeable, the sharing, not only of knowledge and information, but also of best practices, and finally the reconfiguration, meaning the capacity of adaptation and co-evolution between organizations and environment (De Toni, 2010).

The above shows the nexus between complexity and organization.

Any managerial change performed to face an emerging threat, to adapt to a new standard, or to exploit better emerging conditions is nothing but a practice of managing complexity. Any organizational configuration based on institutional myths (Meyer & Rowan, 1990) entails facing complexity in order to turn it into an opportunity. The training of human resources in order for them to use a new technology means to react to an environmental change characterized by growing complexity. However, at the same time the creation of a share

of intangible and implied competences means to adapt and approach a type of effort qualitatively relevant, in which repetition/reproduction is a virtue (Zamarian, 2002).

A good manager is that who will unveil the causes of unpredictability, who will deploy actions directed to the pursuit of harmony, who will manage the behavioral variables of those individuals of which organizations are composed. These actions will reflect the prime need to manage both complexity and complex systems.

Firms, encompassing both people and structures, lurk among organizational routines, known action and Black Swans, namely unpredictable, low-frequency, and surprising events (Frigotto & Narduzzo, 2016), seeking to absorb and utilize complexity.

2. AMBIDEXTROUS ORGANIZATIONS BETWEEN ROUTINE AND BLACK SWANS

How do firms operate? How should they operate? What is the best fit?

The answers to the above questions are not at all certain. In the last decades, organizational theory has more frequently tried to reconcile these open issues by resorting to the practice of paradoxes, in order to highlight the theoretical disputes affecting organizational science (Smith & Lewis, 2011). In a global, dynamic and competitive world the tension to contradiction exponentially increases; thus, using the paradox as an interpretation tool equals to try and account for complex, contradictory, diverse and divergent facts.

Comparing conceptually opposed elements, such as the contrast between dynamism and stability of an organization, does not amount to a mere theoretical endeavor, but serves as an effort to rationally recollect varied phenomena into a rational synthesis.

The context in which firms operate is characterized by a relentless exchange of information, which increases constantly and exponentially; on the one hand, firm struggle with new environmental changes and institutional pressure, whereas on the other hand they are driven by the need to reconcile the drive to innovation and research into the preservation of that technical institutional knowledge, which is likely to ingenerate solid performance.

The above dualistic paradox has been defined as organizational ambidexterity, meaning the capacity of firms to conjugate their own competences, the repetitive working activity – the so-called "exploitation", together with the capability to scan in every direction in order to find new paths, new competences, and new opportunities, the so-called "exploration" (Benner & Tushman, 2003).

The expression "organizational ambidexterity" was firstly used between the 1970's and the 1980's by Duncan (1976) and conveyed the competences of "alignment", the firm's undertaking to repay for its assets through the existing working mechanisms, the so-called, and "adaptation", the strive for innovation and new opportunities.

Therefore, the question to be answered is as follows: is the current task of firms the development of new competences to constantly adapt to the unstable market conditions? The meaning of "competence" is not only contingent reparation, but also preparation.

In order to answer the above question, it is useful to broadly analyze the aforementioned two attitudes of firms, alignment and adaptation.

Organizational routines are more associated with the alignment function, whereas the ability to recognize and manage the Black Swans, the unusual, unknown and ungovernable events, pertains more to the adaptation function.

Although these functions are paradoxical and extreme, they reflect the need to identify the core substance of organizational management, recollecting aspects that bear little connection with each other, yet they are very emblematic of the processes at hand.

Organizational routines and Black Swans management are extreme conducts of firms, the repre-

sent in turn the thesis and the antithesis of organizational model, and imply different competences and know-hows. However, can they be regarded as simultaneous?

Although the concept was introduced by Stene (1940) and has been expanded copiously by several authors, among which March, Simon, Cyret and Thompson in the 1950's and 1960's, Nelson and Winter offered the pioneering tools to define organizational routines in 1982, through their "*An evolutionary theory of economic change*". They developed an evolutionary account on economics, suitable to explain both organizational and economic changes (Becker, 2004).

Routines play a key role to explain the functioning of organizations, of economics and of the changes of their players. Management academics agree in assigning organizational routines a leading role in developing a sustainable competitive advantage, in light of the knowledge that they convey in a unmatched and inimitable fashion (Zamarian, 2010).

Defining the concept of routine is difficult, and many attempts have already been made. The common trait of all the major routine definitions is the analysis of the origin of the routines themselves, namely the close-knit relationship between knowledge and creation of worth for the firm. In this context, routines have been generally defined as the mass of behaviors that activates by virtue of different inducements. Routines are often reflective of a type knowledge that can hardly be debunked, or of the organizational memory and culture that is conveyed through granting validity to solutions adopted during the firm's life cycle.

This concept is naturally paralleled with the claim that are the foundational basis of organizational behavior. It is possible, therefore, to analyze how routines compile, are transferred and applied[3].

In this account, organizational routines are identified as ordinary responses to external stimuluses (Gersick & Hackman, 1990). Routines prevent from elaborating new solutions to problems, and reduce the effort to tackle new arising issues in order to pursue a goal. This approach reflects one of the eminent traits of routines: they are considered as sources of inertia, as rigid and mechanical organizational features, even though these are not negative qualities *tout court*. In order for a routine to prove as stable and to emerge, it has to show stability in preemptively shaping a behavior.

Another account of routine – intimately close, but abstractly distant from the first one – is the recollection of it into the notions of flexibility and change. Meta-routines, namely those routines to proactively change routines, is not the issue in this stance (Total Quality Management is an eminent example of meta-routine). Routines are generated and utilized insofar as they are capable of producing a change, namely only whether the changes and environmental transformations that they produce are sudden and manifest. This process is innate and intrinsic in the routine itself and unfold itself during crises or during those phases of the organizational cycles that are not entirely defined.

Thus, routines are identified as a type of structure – namely an abstract idea – and as a type of agency, namely a performance and the capacity of individuals to investigate past events and practices, to envision the future and to respond to the current environmental challenges (Emirbayers & Mishce, 1998).

A possible origin of proactive organizational routines might be the preparation for a black swan: organizations are to be prepared to tackle emergencies, which, nowadays, is a common trait of firms, and requires proneness to flexibility and readiness to change. Describing organizational routines as sources of –potential- change and flexibility is the only – paradoxical – way to rationalize those events whose occurrence must be preferably regarded as a source of strength, and not as a threat.

In his successful 2007 essay titled "The Black Swan. The impact of the highly improbable", Taleb defines Black Swans as "[…] What we call here a Black Swan (and capitalize it) is an event with the following three attributes. First, it is an outlier, as it lies outside the realm of regular expectations, because

3 At least two more conceptions of routine can be brought. The first, positivist – in the sense of positum – reported by Cyret and March sees in the routines a set of rules that determine behaviors. A further approach uses the concept of meta-routine, or the routine idea designed with the deliberate purpose of improving existing practices by generating new routines.

nothing in the past can convincingly point to its possibility. Second, it carries an extreme impact. Third, in spite of its outlier status, human nature makes us concoct explanations for its occurrence after the fact, making it explainable and predictable. I stop and summarize the triplet: rarity, extreme impact, and retrospective (though not prospective) predictability" (Taleb, 2007, XVIII). The main features of a rare event are a) the fact that it exceeds normal expectations, b) that it has an extreme impact, and c) that can be understood only after its occurrence.

The Carnegie School has studied organizations from the standpoint of the decision-making process: what becomes relevant is the very acknowledgment and management of Black Swans (Frigotto & Narduzzo, 2016). A key role in this theory is played by the failure to recognize hints, weak signs, anomalies and future threats that might lead to a Black Swan (Repur, 2009).

This failure shows the little predisposition of an organization to invest in those resources that would allow to identify novelties (Ocasio, 1997), namely the codification and translation of information coming from the environment, and the criticism of the environment and of the events. Every organization incorporates competences and capabilities that are prone to being developed and adapted. The capacity to observe weak signals, translate them and prevent a crisis is embodied in the organization and, as such, it can be developed and adapted. Development and adaptation are time-consuming processes. Identifying rare and unexpected situations is a soft skill that is at odds with some organizational limits – rational, decisional and operational – which affect the entire management chain of Black Swans.

There are several constraints that impair the ability of an operator to identify a Black Swan. First, it can be maintained that any individual who is making an economic decision is to be confronted with the operational limits connected to the capacity to rationally evaluate resources and to use the organizational institutional knowledge in a way to operate efficiently.

Second, the individual will suffer from an attention deficit if he is served with flows of important information, because he will be ill equipped to select the useful – yet weak – pieces of information that organizational environment offers to fathom a Black Swam.

Third, the individual will have to manage a variety of priorities simultaneously.

The above aspects are deemed pivotal by the organizational literature, together with other, more acknowledged, behavioral patterns. First of all, people tend not to share ill-defined problems if they are at the same time tackling more clear-cut issues. Likewise, the tend to make mistakes when they are bound by time and result constraints. These approaches, which Turner and Pidgeon (1997), as regards the theme of communication, and Weick (1995), as regards the theme of the limits, have expanded, highlight the innate tendency of individuals to simplify reality, and to react in a uniform fashion, with a view to move onto the next task on their agenda (Frigotto & Narduzzo, 2016). The inertia that comes from using this approach implies that there is a split between the moments in which attention is paid to the new and unexpected events, from the ones in which organizational routines are deployed as a symptom of security and repetition. Focusing on learning and consolidating new experiences limits the accruing of competences that the concept of preparedness generally entails. If focusing on the new occurrences and on learning from experience becomes repetitive this approach becomes a category and a symptom of shortsightedness.

Practically, the management of emergencies, in the early stage of recognizing a new occurrence, calls for a system to categorize a particular case, and to coordinate and communicate. Furthermore, it is possible to investigate the environment through stimuluses, in order to understand its reactions.

The debate around the organizational needs from an operational standpoint is colorful and diverse: the above examples only prompt reflection on the complexity deriving from managing non-codified variables. It is paramount to part ways from the traditional account of these phenomena as static and still, in order to grasp the true identity of them. Every organization has a history determining its footprint, its *modus operandi*, its memory

(Langenmayr F., 2016) and its actions. The use of the past on part of both the managers and the organizations is a proactive way to consider history, a way to create an identity and a way to behave in time, shaping both the present behaviors and the future ones (Wadhwani & Bucheli, 2014).

Organizations find their own external legitimacy in what they express and represent. The cultural inversion, from a cultural and organizational standpoint, refers to the negative idea of static, which completely differs from the healthy concepts of new routines and management of Balck Swans. Acknowledging the new, avoiding inertia, managing black swans, using routine systems and absorbing complexity are paradoxical actions that only ambidextrous organizations, namely cultural high-profile systems (Grandori, 1995, p. 317) may accomplish in a rational fashion.

Organizational ambidexterity consists of simultaneously implementing capabilities directed to capitalizing on existing activities and of exploring new paths, in order to avoid that unexpected events might cancel the organization's competitive advantage (O'Reilly & Tushman, 2013). Ambidextrous companies appear to pursue paradoxical goals (Krtmann, 2011); however, according to the modern doctrine (O'Reilly & Tushman, 2013), such an organizational posture is general followed by an increase in sales, by creating innovation and, in general, by the survival of the firm. Academia has built several layers, differences and prevailing behaviors around the conceptual and cultural idea of ambidexterity.

In particular, a firm is ambidextrous in a successive way insofar as it is likely to quickly modify its structure, in a swift way and alongside a strategy, swaying between rigid and flexible systems. Next to this idea, the concept of structural ambidexterity has been outlined, which is typical of those organizations pursuing both stability and innovation objectives at the same time. In this organizations, the units performing ambidextrous functions are separate, but communicate swiftly thanks to the organizational core values, the strong leadership of managers and thanks to strong integration mechanisms.

Another account of ambidexterity is the contextual one, which refers to the individual's behavior and consists of the behavioral capacity of an individual to take initiative (Gibson and Birnikshaw, 2004), to cooperate, communicate and autonomously multitask (Simsek, 2009)[4].

This is the concept of ambidexterity that most resembles the idea of systemic flexibility needed to manage the unexpected by utilizing organizational institutional knowledge.

The different accounts of ambidexterity can be divided based on the different type of ambidexterity that they intend to pursue. The main differences lay in the idea of structural and contextual ambidexterity (Gibson & Birnikshaw, 2004). In particular, it is possible to argue that contextually ambidextrous organizations have individuals – not groups – involved in the activities of exploration and exploitation.

Compared to the structural ambidextrous companies, the decisions of the contextually ambidextrous ones are taken at an operational level, whereas the managerial role focuses on the organizational context. Furthermore, the mapping and creation of staff competences is paramount, in that in contextually ambidextrous organizations people work with extreme flexibility, using general competences. Therefore, the tendency to ambidexterity emerges at the very early stage of personnel selection, not only in the following phases of personnel managing and training.

Here lies the eminent difference between average isomorphic management, aimed at giving legitimacy to a context, and the effective use of management in order to face complexity and to exploit the opportunities offered by the contextual ambidexterity logic.

Human resources give organizations the impulse to become ambidextrous, from managerial to operational roles (Tushman, Smith, & Bins, 2011).

The goal of this approach is to lead firms to overcome the engineering concepts of "job design"

4 To these prevalent forms of ambidexterity at least one more can be produced: the innovative ambidexterity. This form of ambidexterity is based on the contemporary ability of organizations to pursue incremental innovations and discontinuous innovations. For this reason, it is not necessarily linked to a task but it is certainly compatible with teamwork, individual intuition, work based on goals and to the ability to recognize opportunities (Simsek, 2009).

and to adhere to firm management concepts based on knowledge and on knowledge workers, meaning not only workers undertaking immaterial tasks, but also workers capable of using their own knowledge – old and new – in various sectors, and of reacting to the rare and unexpected events.

CONCLUSION

The above analysis shows, first of all, how organizations have the power to remain in balance thanks to retroaction systems, even though they keep exchanging with the external environment. The concept of homeostasis (Vicari, 2003) reflects the logic of ongoing and inevitable interaction of firms with external systems. The latter are open and often affect organizations in a way to force them to adapt to maintain or expand market shares, and gain a competitive advantage, which can stem from variables imposed by the external circumstances, that are not seen as impediments. Furthermore, organizations tend to naturally maintain the status quo, as it is perceived as safer and less difficult to manage.

Likewise, the analysis of external/exogenous variances reflects the need to take into account all the environmental variances, in order to react in a swift and simple way.

Every organization is to find the right fit to manage the uncertainty caused by external pressure, and to protect the inner core of it, namely the technical core that represents the basis of the organization (Thompson, 1967). This principle – which departs from the idea of controlling uncertainty as a type of organizational rationale – is connected to the management and use of complexity. Obtaining a fair profit, in this setting, becomes of less importance, and stands as a consequence of actions aimed at understanding and managing uncertainty. Extreme flexibility and proneness to re-organizing the firm becomes the sole valid fit for an organization.

Whenever an organization informs itself to preexisting contexts, it will be lacking the dynamic force that is the core substance of any organizational phenomenon. Organizations do not adhere to static and preemptive models. Criticism to the static organizational models comes from the axiom that ideas are not just disseminated by way of dissemination (Czarniawska & Jeoges, 1995). This concept – which comes from medical science – appears to have precious little in common with sociological analysis. Ideas are best disseminated through "translation": an idea is transmitted and travels thanks to individuals who end up "translating" it. Translation is the result of a process of interpretation, reformulation and linking to other ideas containing the framework; it is what happens in those systems that are open to different variables (Bonazzi, 2008, p. 475).

Organizations are inspired by what institutional context dictate; however, they cannot disregard the interpretation of phenomena and the appropriation of such phenomena by means of processes arising out of culture, knowledge, values, perceptions and degree of aperture to the exterior. The higher the degree of managerial intelligence (Baccarani, 2010, p. 107)[5] is, the higher the capability of firms to govern the microcosm of threats/opportunities coming from the exteriors that surrounds the firm.

Sometimes not only the institutional context is the cause of the firm's organizational isomorphism (Powell & DiMaggio, 1983). Trends, even though they are far from institutional logic, may have the same impact as law reforming, which is impossible to disregard (Czarniawska & Jeoges, 1995); it can so happen that trends influence the institutional choice and, conversely, that a new piece of legislation lays the foundation for a new managerial model. The idea of intimate relationship between firm and environment is not univocal: firm and environment evolve together and co-determine each other by means of inevitable exchanges.

5 "Managerial intelligence is the cognitive, emotional, and social ability with which management aims to ensure the governance of an increasingly complex corporate system".

In this context, the adaptation is intended as a natural reaction to different needs: institutions will be tasked to listen to the firms' needs, and the firms will evolve based on the environmental variables that in turn will occur. Within this framework, change is not a negative constraint, but as a source of opportunities for those entrepreneurs leading flexible organizations, who are ready and capable of taking advantage of them.

Organizational routine, management of Black Swans and organizational ambidexterity are all paradigms of the rational response to the complexity of reality, and are emblematic of the type of organization characterizing complex systems. Even though the favor for ambidextrous systems is not backed up by scientific evidence, the push to ambidexterity, and in particular to contextual ambidexterity, is an opportunity for those organizations that face opposite forces. Contextual ambidexterity mediates the forces of turbulent markets and drives people to training, to requalification and to the development of those soft skills that literature reveres and has not entirely defined and codified yet.

The metaphor of organizations and people compared to Janus (O'Reilly & Tushman, 2004), the Roman God portrayed as having two faces, one looking and the past and the other one looking at the future) fully describes the ambidexterity phenomenon. The face to the past, which encompasses what has already happened, is the son of Mnemosine (the personification of memory), the Titan Zeus[6] loved, mother of the Muses and personification of the human relationship with the past and the existence in time (Olik, Vinitzky-Seroussi, & Levi, 2011). The face to the future is the result of change and adaptation, of the respect of the concept of "truth", of "non-forgetfulness", of the need to adhere to the logic imposed by progress, which firms cannot overlook.

"[…] while for premodern society "the future is something that just happens," which individuals can only influence in a limited manner, in modern society, the future is something that must be accurately deliberated, influenced, and ideally planned. This is even truer with regard to organizations and management. The philosopher Alfred North Whitehead, in a famous lecture at Harvard Business School in 1931, identified in the activity of prediction a crucial element in the sphere of economic thinking. Anticipating many of the next few decades' themes of organizational theory, Whitehead stated that economic organizations needed to foster prediction in order to deal with the inexorable changes generated by the modern age (Whitehead 1967)" (Catino, 2013).

With the above quotation, Catino (2013) affirms the concept that in modern societies future can be pondered, shaped and planned. Economic organizations need to promote the practice of prediction to tackle the changes generated by modern age; ambidextrous thinking stresses on this very concept, in order to protect the technical core of a firm and, at the same time, to explore new paths, train people, and develop ideas to rapidly address change, and absorb, not demote, complexity.

REFERENCES

1. Adriaenssen, D., & Johannessen, J-A. (2015). Conceptual generalization: methodological reflections in social science a systemic viewpoint. *Kybernetes, 44*(4), 588-605.
2. Albino, V., Carbonara, N., & Giannoccaro, I. (2005). *Organizzazioni e complessità. Muoversi tra ordine e caos per affrontare il cambiamento*. Milano: Franco Angeli.
3. Baccarani, C. (2010). Complessità e intelligenza manageriale. *Sinergie Italian Journal of Management, 81*(10), 97-111.
4. Baccarani, C. (1991). Qualità e governo dell'impresa. *Singergie Italian Journal of Management, 7,* 37-56.
5. Becker, M. C. (2004). Organizational routine: a review of the literature. *Industrial and Corporate Change, 13*(3), 643-677. https://doi.org/10.1093/icc/dth026
6. Benner, M., & Tushman, M. (2003). Exploitation, exploration

6 The communion and the use of figures belonging to two distinct mythologies, the Greek and the Roman ones, though "non-Orthodox", are intended to represent a further source of reflection.

and process management: The productivity dilemma revisited. *Academy of Management Review, 28*(2), 238-256.

7. Bonazzi, G. (2008). *Storia del pensiero organizzativo* (14th ed.). Milano: Franco Angeli.
8. Costa, G., & Giannecchini, M. (2013). *Risorse Umane. Persone, relazioni e valore*. Terza Edizione, Milano: McGraw-Hill.
9. Czarniawska, B., & Joerges, B. (1995). *Venti di cambiamento organizzativo: come le idee si trasformano in oggetti e azioni*, in Bacharach, S., & Gagliardi P. (1995). *Il pensiero organizzativo europeo*. Milano: Guerini Editore.
10. Daft, R. L. (2010). *Organizzazione Aziendale*, (4th ed.). Milano: Apogeo, Milano.
11. De Toni, A. F. (2010). Teoria della complessità e implicazioni manageriali: verso l'auto-organizzazione. *Sinergie Italian Journal of Management, 81*(10), 77-96.
12. De Toni, A. F., & Bernardi, E. (2009). *Il pianeta degli agenti. Teoria e simulazione ad agenti per cogliere l'economia complessa.* Torino: Utet Università.
13. Depew, D. J., & Weber, B. H. (1995). *Darwinism Evolving: Systems Dynamics and the Geneaology of Natural Selection*. Cambridge: MIT Press, Cambridge.
14. Duncan, R. (1976). The ambidextrous organization: Designing dual structures for innovation, In R. H. Killman, L. R. Pondy, & D. Sleven (Eds.). *The management of organization, 1,* 167-188.
15. Emirbayers, M., & Mishce, A. (1998). What is an agency? *American Journal of Sociology, 103*(4), 962-1023.
16. Faggioni, F., & Simone, C. (2009). Le declinazioni della complessità. Ordine, caos e sistemi complessi. *Sinergie Italian Journal of Management, 79*(09) 3-45.
17. Frigotto, M. L., & Narduzzo, A. (2016). Sbiancare il cigno nero? Strategie e competenze manageriali per riconoscere il nuovo. *Sinergie Italian Journal of Management, 34*(99), 345-363.
18. Gersick, C. J., & Hackman, J. R. (1990). Habitual routines in task-performaning groups. *Organizational Behavior and Human Decision processes, 47,* 65-97.
19. Gharajedaghi, J. (1999). *Systems Thinking: Managing Chaos and Complexity*. Boston: Butterworth-Heineman.
20. Gibson, C. B., & Birnikshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal, 47*(2), 209-226. https://doi.org/10.2307/20159573
21. Grandori, A. (1995). *Organizzazione delle attività economiche*. Bologna: Il Mulino.
22. Hannan, M. T., & Freeman, J. R. (1983). Structural inertia and organizational change. *American Sociology Review, 29,* 149-164, 1983.
23. Kortmann, S. (2012). *The relationship between organizational structure and organizational ambidexterity: A comparison between manufacturing and service firms.* Springer Science & Business Media.
24. Langenmayr, F. (2016). *Organizational memory as a function. The construction of past, present and future in organisations.* Springer Fachmedien Wiesbaden.
25. Meyer, J., & Rowan, B. (1990). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology, 83,* 1990.
26. Mainzer, K. (1997). *Thinking in Complexity: The Complex Dynamics of Matter, Mind and Mankind* (3d ed.). New York: Springer-Verlag.
27. Miglietta, A. (2010). Nuove visioni dell'impresa dopo la grande crisi: prime riflessioni. *Sinergie Italian Journal of Management, 81*(10), 31-49.
28. Nonaka, I. (1988). Creating Organizational Order out of Chaos: Self-Renewal in Japanese Firms. *California Management Review, 30*(3), 57-73.
29. O'Reilly, C. A., & Tushman, M. L. (2013). Organizational ambidexterity: Past, present, and future. *The Academy of Management Perspectives, 27*(4), 324-338. https://doi.org/10.5465/amp.2013.0025
30. O'Reilly, C. A., & Tushman, M. L. (2004). The ambidextrous organization. *Harvard business review, 82*(4), 74-81.
31. Ocasio, W. (1997). Toward and attention-based view of the firm. *Strategic Management Journal, 18*(1), 187-206.
32. Olik, J. K., Vinitzky-Seroussi, V., & Levy, D. (2011). *The collective memory reader*. New York: Oxford University Press.
33. Pascale, R. T. (1992). *Il management di frontiera. Come le aziende più intelligenti usano conflitti e tensioni per diventare leader*. Milano: Sperling & Kupfer.
34. Pascale, R. T., Millemann, M., & Gioja, L. (2000). *Surfing the edge of chaos. The laws of nature and the new laws of business*. New York: Three Rivers Press.
35. Pennings, J. M. (1992). Structural Contingency Theory: A Reappraisal. *Research in Organizazional Behavior, 14,* 267-390.
36. Powell, W. W., & DiMaggio, P. J (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociologican Review, 48*(2), 147-160.
37. Raisch, S., & Birkinshaw, J. (2008). Organizational ambidexterity: Antecedents, outcomes, and moderators. *Journal of management, 34*(3), 375-409.
38. Repur, C. (2009). Attentional triangulation: learning from unexpected rare crises. *Organizational Science, 20*(5), 876-893.
39. Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: a dynamic equilibrium

model of organizing. *Academy of Management Review, 36*(2), 381-403.

40. Taleb, N. N. (2007). *The black swan. The impact of the highly improbable.* New York: Random House.
41. Thompson, J. D. (1967). *Organization in action: social science bases of administrative theory*. New York: McGraw-Hill.
42. Turner, B. A, & Pidgeon, N. (1997). *Man-Made disasters*. Boston: Butterworth-Heinemann.
43. Tushman, M. L., Smith, W. K., & Binns, A. (2011). The ambidextrous CEO. *Harvard Business Review, 89*(6), 74-80.
44. Tushman, M. L., & O'Reilly, C. A. (1996). The ambidextrous organizations: managing evolutionary and revolutionary change. *California management review, 38*(4), 8-30.
45. Vicari, S. (1998). *La creatività dell'impresa. Tra caso e necessità*. Milano: Etas, Milano.
46. Vicari, S., & Troilo, G. (2003). Creatività organizzativa e generazione di conoscenza: il contributo della teoria dei sistemi cognitivi. *Sinergie Italian Journal of Management,* 61-62(03), 189-211.
47. Von Bertanffy, L. V. (1969). *General theory of systems*. N. York, George Braziller. Trad. it. *Teoria generale dei sistemi*. Milano: ISEDI.
48. Wadhwani, R. D., & Bucheli, M. (2014). *The Future of the Past in Management and Organization Studies. Organizations in Time: History, Theory, Methods*. New York: Oxford.
49. Weick, K. E. (1995). *Sensemaking in Organizations*. London: Sage.
50. Weick, K. E., & Sutcliffe, K. M. (2007). *Managing the Unexpected.* San Francisco: Jossey-Bass.
51. Zamarian, M. (2002). *Le routine organizzative. Percorsi di apprendimento e riproduzione.* Torino: Utet Libreria.