Should the patch really fit the whole?
Valentina Mihaela GHINEA¹ and Mihalache GHINEA²

**Abstract**
Given the existence of countless companies that found their rejections, during the hiring process, on the excuse of not finding the desired match between their values, attitudes, beliefs and so on and the ones of the applicants, the present study aims to highlight the "living organism" which is the organisational culture and the inadequacy of loosing potential good employees on the ground of "not fitting the whole". Being motivated by the desire to explain the complex system which is the organisational culture and the dependency of its current state on all the other parts of the organisation, as well as on its own previous state, the article presents the G.VALI model and its dynamical simulation with the help of TRUE software. By running it, one can also decipher how the organisational culture contributes to or impedes the leadership manifestation, as well as the manner that, consciously or not, the leadership influences the organisational culture.

**Key words:** Leadership, HR Strategy, Organisational Culture, Simulation, System Dynamics

**INTRODUCTION**
Due to the globalization phenomenon which enhances the competition among world wide companies, their current tendency is to hire only the people that perfectly fit their organisational culture. Thus, besides all the tests meant to evaluate the knowledge, abilities, competencies and the list may continue, of the potential future employees, the interview remains a very important tool in assessing the perfect match or unmatch between the values, beliefs and attitudes of the candidate, and the ones of the company. This fact is somehow based on the belief that the appropriate person must occupy the appropriate position, situation in which companies take for granted the stability of the organisational culture, confusing the inertia that gives the false impression of no change over quite a long period of time with no change at all. On the short run, of course, this is an effective HR strategy, especially if it backs up the general strategy of the company because every time there is an interdependency relationship between the general strategy of the company and the HR functional strategy, so that whatever it is requested on one side will definitely find a resolution on the other side (Ghinea, 2010). It is also said that the secret of the achieved competitive advantage relies on the perfect vertical and horizontal integration of the HR strategy (vertical integration – the HR strategy has to be aligned with the general strategy of the company, and the horizontal integration – individual HR strategies should cohere by being linked to each other to provide mutual support) (Armstrong, M., 2001 cited by Ghinea, 2010).

However, relying too much on strategies creation and not enough on their implementation, one can lose sight of the "Chinese drop" effect that even the individual world map (each individual's own representation of the world, relentless of his level of acknowledgement or understanding of the phenomenon) of a fit employee still has over the already existent community, irrespective of the will of the managerial staff. No matter how similar they are, employees are actually individuals with varying goals and needs, different experiences and personal characteristics, whose interactions on the long run definately change the configuration of the current organisational culture. If neglecting this difficulty to perceive reality and taking into consideration only the "absorption" effect of the organisational culture, the company will tend to become rigid and misfit. And if the organisational culture is proved to be a "living organism", why to rely so much on the necessity of the perfect match between the company's current way of being and the potential employee? Well, isn't there the danger for the company of ending up by rejecting valuable people and also losing the chance of controlling the evolution of its organisational culture? If all the small pieces of a system are perfect, it does not necessarily mean that the system as a whole is perfect, because

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¹ Academy of Economic Studies of Bucharest, Faculty of Business Administration (in foreign languages).
E-mail: valentina_ghinea@yahoo.com

² University Politehnica of Bucharest, Faculty of Engineering and Management of Technological Systems.
E-mail: ghinea2003@yahoo.com
the interaction of those pieces and their mutual completion counts most in order for the system to function at its real potential. As the company develops, in order to keep it successful, it needs to make it flexible and adaptive to the market, as well as aware of itself and its employees as people that continuously interact.

Ergo, the present paper aims to analyse the way that even the regular activities pursued by the most "pro employees" companies change in time the organisational culture making some approaches no longer appropriate. This will be undertaken by using system dynamics, whose concepts of structure and dynamic behaviour apply to all systems that change throughout time. Such dynamic systems include the processes of engineering systems, biology, social systems, psychology, ecology, and all those where positive- and negative-feedback processes manifest themselves in growth and regulatory action (Forrester, 1999b). From this point of view, the organisation is seen as a feedback system, meaning that it is also influenced by its own past behaviour.

In this article, a particular simulation model of the evolution of organizational culture is examined. This model is based on the theoretical structure and internal relationships of an organization; it consists of a selection of factors that are believed pertinent to question either the stability or instability over time of the organizational culture. Among the main factors, the conscious or unconscious influence of the leadership style will be considered.

For simulating the dynamics, the model is transposed into the tenet of the TRUE software, which is a systems dynamics simulation software. By running the dynamic model thus obtained will prove that, even if not conspicuously, the organisation periodically needs "fresh air" for maintaining not only its effectiveness, but also the relevance of its organisational culture.

THE ORGANIZATIONAL CULTURE
Meanings and approaches
Whether we want it or not, we all are born within a certain culture, we develop and set ourselves within certain cultural horizons and we all are both creators and receivers of culture, at the same time. Thus, in order to understand ourselves, we have to learn first how to analyze the components of culture: signs, values, and symbols, the way they influence our thinking model and behaviour, and so on.

Metaphors and symbols, stories and myths, ceremonies and rituals, norms and rules of the games, the organization’s philosophy (attitudes and beliefs), declared and undeclared values, as well as the most profound convictions, all these represent elements of the organizational culture. None of these, individually, means organizational culture, but all of them together reflect the concept of organizational culture. This is not something given to an organization, but rather what that organization actually represents.

Speaking of organizational culture, one can firmly state that there is no unique definition. The subject, though, has been and still is studied from a various perspectives, starting from anthropology and organisational sociology to, nowadays, being linked to other subjects that analyze organizational behaviour (such as management and organizational communication). Over time, researchers while trying to explain the meaning of organisational culture, they have used metaphors such as a compass which specifies the direction of the organisation, the glue that holds the organisation together and many others.

There are numerous attempts to define the concept of organizational culture. Thus, Becker and Geer (as cited by Redman & Wilkinson, 2009) bring into discussion a set of common understandings, while Clifford Geertz (renowned symbolist anthropologist), emphasizes in 1973 (The interpretation of culture), the fact that one may speak of a certain pattern of meanings passed on from generation to generation that has taken the shape of symbols, a system of inherited conceptions expressed in symbolic shape and through the means of which people communicate to each other, continuing and developing their own attitudes towards life (Geertz, 1973).

Deal and Kennedy (1982) went further and defined the same organizational culture as a system of expressed informal rules that impose a certain general conduct (Deal & Kennedy, 1982).

A little later, in 1983, revisiting his predecessors Swarty and Jordon, Uttal (as cited by Cooper, 2002) described organizational culture as a set of shared values and beliefs that interact with the organization’s structures and its control system in view of producing norms of conduct.
In 1995, Moorhead and Griffin suggested that an organizational culture represents a set of values that help people in an organization in order to better understand which of their actions are considered acceptable and which are not (Griffin and Moorhead, 2006).

Geert Hofstede need not be forgotten, he defines culture as being a collective mental programming meant to differentiate the members of a group or a certain social category out of the other group members or other social categories (Hofstede, 1991).

Nicolescu and Verboncu’s definition states that an organizational culture consists in the assembly of predominant values, beliefs, aspirations, expectations and behaviours that have been observed during time in each organization, and that directly and indirectly influence the functionality and performance of that organization (Nicolescu and Verboncu, 2001).

Despite the phrasings and rephrasings that lie at the basis of any beginning, one may note that, at present, we are witnessing a frequent return to Schein’s definition (as cited by Reiman & Oedewald, 2002), which gives great importance to the employees’ values and perceptions on the organization (what they think of it), and to the general manner of problem solving within the same organization: a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as a correct way to perceive, think and feel in relation to those problems.

While there obviously are some disagreements regarding the exact nature of the organizational culture, the above definitions also have common features. Consequently, special attention is given to values, beliefs, expectations which are shared within a group and/or organization and that in turn allow the environment to make sense and to induce a certain conduct.

The general conclusion has been reached it is not meaningless to characterize an organization’s culture by simply observing physical elements – the employees’ dress code, the type of furniture, the way paintings and photos on the walls are arranged, the openness and generosity of space, but also by noting communicational elements – the way discussions take place within the organization, the general conduct, the language, the flexibility and capacity to adapt. Also patterns of behaviour exhibited by employees (this might included ceremonial events and written and spoken commands), and the physical manifestations of a company’s behaviour such as written rules, office layout, organizational structure, and dress codes can reveal a company’s culture. The explanation relies on the many aspects of a culture: a) historical (social heritage, tradition passed on to future generations), b) behavioral (shared, learned human behavior, a way of life), c) normative (ideals, values, rules for living), d) functional (the way people solve problems of adapting to the environment and living together), e) mental (a complex of ideas, learned habits for social control), f) structural (patterned and interrelated ideas, symbols or behaviors), and nevertheless g) symbolic (based on arbitrarily assigned meanings shared by an organisation) (Aiman-Smith, 2004). For that, when an organizational culture’s analysis is required, it has to be remembered the multi and interdisciplinary character of this field (psychology, sociology, medicine, history, economy). Actually, this is what it makes so difficult the adoption of a unique definition.

Indisputable is only the fact that an organizational culture is: a) holistic (it represents the result of an integration process); b) connected with the history (it shows the organization’s evolution); c) anthropologically obtained and socially founded (it is created and maintained by the organization’s members).

It is a cumulus of conscious and unconscious elements, which are also rational and irrational, individual and group elements, revealing dynamic connections having a strong impact on the organization’s performances (Brătianu, 2007).

**Modeling the organizational culture**

As it was previously shown, there is no such consideration like a unique definition of the organizational culture concept. In the same manner in which numerous and varied definitions were formulated for the organizational culture, we are witnessing the emergence of a diversified range of classifications designed to emphasize the connection between the type of organizational culture and its manifestations, on the one hand, and the efficacy and efficiency of the organization, on the other hand.
Due to its complexity, organisational culture has been extensively studied over the past few decades. The outcomes have revealed strong connection between the organisational culture and the company's performance. Trying to better understand and explain this relation, specialists arrived to the conclusion that no one can buy the heart of an employee, but having the proper organisational culture generator of motivation and commitment is able to draw consensus among employees. No matter the type of the organisational culture, if it is in harmony with the internal and external environment, it will make employees indentify themselves with their organisation. Strong culture does not necessary bring great advantages as well as weaker cultures do not lead everytime to poor performance. While the first one might be inflexible when it comes about changes, binding people together to form a defensive and/or non-adaptive strategy, the latter one could be formed by very individualistic people less likely to create any kind of collective resistance. This is a good lesson to remember now more then ever because of the very dynamic market economy which can make vulnerable those organisations that are slow in reaction to the external environment changes.

No matter how contradictory it might sound, the most effective culture should be stable and flexible. Stability speaks about unchanged vision, mission and values, while flexibility is related to the company's structure and operations, and its ability to adapt itself both to the internal and external conditions (Khan, et al, 2010). These have been understood and learnt during time, due to academics and practitioners in management science which were keen on defining and measuring the organisational culture dimensions and to relate them to the effectiveness and competitiveness of the organisation. A brief hindsight analysis highlights that there can be noted three distinct categories of interests:

a) there are authors such as the anthropologist Edward B Taylor or the sociologist Max Weber, that focused their research exclusively on finding the key elements composing the organisational culture. Thus, in 1971, Taylor was defining it through the knowledge, beliefs, art, morals, law, custom, and other capabilities and habits acquired by a human as a member of an organisation, while Weber brought to attention the charismatic leadership concept, making sociologists identify other features of organisational culture: norms, folkways, ambiguity, and apparent irrationality (as they are cited by Khan, et al, 2010).

b) another class includes authors that did not limit themselves at explaining the basic elements of the culture, stepping forward to models' creation. Some very well known names can be mentioned here such as Edgar H. Schein's and Rousseau's. Given the generalisation degree, similar to the previous category, they can be used to analyze all kinds of cultures (including corporate and national cultures). Rousseau's model is a multi-layered model structured as concentric rings and divided into outer rings (visible signs of culture) and inner rings (hidden feelings of culture) (O'Reilly et al., 1991).

In what the Schein's model is concerned, this is the first taking into consideration the time dimension as follows: the first two phases of an organisation life time are thought to be born and early growth, both of them being characterised by strong leadership and a results-oriented attitude (organisational culture considered 'the glue' that holds the organisation together), then the third phase, mid-life, that could bring the organisation at an identity crisis (sub-cultures evolve and role dominates), and finally, the maturity when the culture may be a constraint on innovation (Schein, 2004).

Considering that at the basis of the development of any organization lies intention, E. Schein questioned the importance of the vision of the organization's founder. This vision was meant to impose, discretely or not, the values, desires, aspirations, rules and even code of conduct of the founder onto his first employees. Schein is also the person that outlines the slow, but not inexistent, process of continuous transformation that this organisational culture undergoes: initially assimilated by the employees as it is, due to external and internal factors (for example, new employees accept the culture of the organization but they also bring changes to it through their personal style of thinking, conduct etc) it is modified and adapted over time. The swing appears between two stages: the historical organizational culture (initially transmitted by the founder) and the current organizational culture (culture developed over time on the basis of the historical one). These changes and adaptations occur whilst the organization itself tries to guide itself towards attaining an ideal organizational culture (Schein, 2004).

Another familiar model is the S.N. Herman's iceberg (1970) that makes the difference between the visible/formal aspects of an organization (systems, structures, policies, technologies) - the upper half,
the hidden/informal aspects of an organization (attitudes, beliefs, values, and perceptions) - the lowerhalf below the water line.

While some specialists considered the organisation's structure the most relevant feature in organisational culture differentiation (such as Harrison and then Handy), there are also others providing a model based on some dimensions related to organisation's activities (the risk of the activity and the speed of provided feedback, Deal&Kennedy, 1982).

c) there are also authors developing models which intend to assess the *outcomes* of the existent organisational culture (such as the Denison's that searches to determine the level of consistency versus adaptability, and top-down vision (mission) versus bottom-up (involvement), two paradoxes that each company is constantly seeking to balance) (Denison & Mishra, 1995; Mobley et al., 2005), or even models which look for explaining the *relations between the elements of the organisational culture* (such as the one developed by Perfect 10 Corporate Culture).

As it can be seen, Denison's Organisational Culture Model is developed on four dimensions as following:

1. involvement (empowerment, team orientation, capability development),
2. consistency (core values, agreement, coordination & integration),
3. adaptability (creating change, customer focus, organisational learning),
4. mission (vision, strategic direction & intent, goals & objectives).

The instrument that helps in screening the organisational culture is called Organisational Culture Inventory.

Back in 1987, starting from 12 behavioral norms grouped into 3 culture types (constructive cluster based on achievement, self-actualizing, humanistic-encouraging, affiliative, passive or defensive cluster based on approval, conventional, dependent, avoidance, and aggressive / defensive cluster based on oppositional, power, competitive, perfectionist), Robert A Cooke and J.C. Lafferty developed at Human Synergistics International another tool used for organisational consulting and change purposes - Organisational Culture Inventory (OCI) (Balthazard, Cooke, Potter, 2006).

In 1992, Bernard Bass and Bruce Avolio brought into the light a totally different organisational culture model devided into: 1. coasting org. cult., 2. loosely guided org. cult., 3. predominantly to moderatly bureaucratic or internally competitive org. cult., 4. pedestrian org. cult., 5. garbage can org.cult., 6. high contrast org. cult., 7.predominantly and moderately 4 I’s org.cult. They created also an instrument to work with (Organisational Description Questionnaire) in order to better understand an organisation status at a certain point in time (Bass and Avolio, 1992).

In 2009, MacIntosh and Doherty stressed the importance of other 11 dimensions of an organisation: organisational presence, member success, connectedness, formalisation, creativity, sales, organisational integrity, health and fitness, service, work ethic, atmosphere. The result of their researches took the form of CIFO instrument (Culture Index for Fitness Organisations) which basically is meant to emphasize the influence of organisational culture on job satisfaction and employees' intention to leave (Khan et al., 2010).

Year 2011 brought K.S.Cameron and R.E. Quinn's work results: Competing Values Framework model focus on: a) flexibility and discretion vs stability and control, and b) internal focus and integration vs external focus and differentiation of a company. The assessing instrument is Organisational Culture Assessment Instrument (Cameron & Quinn, 2011).

This last category of models tend actually to explain the way that one must address the organizational culture in order to produce lasting and meaningful change, or results, after the case. Some of them sustain the need of changing norms, rituals, values, and assumptions. Some other consider that the key of the progress is focusing on the work processes, decision making models, structures and some other organizational elements. And few speak about the importance of interpersonal relationships and the manner of people interaction, taking the first two categories as outcomes and not causal factors. (Perfect 10 Founder and President, Lynne Ruhl - [http://www.perfect10cc.com/speaking-opportunities.aspx](http://www.perfect10cc.com/speaking-opportunities.aspx))

The last approach highlights the *non static* dimension considered to be an important, although difficult to perceive, feature of the organisational culture. According to the anthropologist Mary Douglas, everyone from within the organisation is constantly creating, affirming and expressing the admonitions, excuses, and moral judgements by which the people mutually coerce one another into conformity (Douglas, 1985).

In this view culture is not imposed from outside but exposed from within, the organisation culture being
the result of the continuing daily conversation and negotiations about values, meanings and proprieties between the members of that organisation and with its environment.
Schein also spoke about organisational culture as a result of people's living and working together for a longer period of time. They soon start sharing the same values and opinions related to the organization that they are part of, judging in similar manner what is good and appropriate for its success. Even unconsciously, they develop some thinking and behavioural models strictly correlated with the experience that has gathered up to that moment within the organization, and with the organization’s strategic objectives as well.
Analyzing the heretofore presented ideas, one observation can be made: two main schools of thought detached. One takes the phenomenological approach and focuses on understanding the concept and defining the meaning of culture (its empirical research defines and measures the organisational culture in a variety of methods: culture strength, traits, congruence, types, shared values, in relation with performance of the company and commitment of the employee). The other one takes the functionalist approach and focuses on the consequences of organisational culture. It takes for granted that the leadership is its main shaper and builder; however, it differentiates between the substantive role (leaders contribute to the substance of an organisation's culture through their actions and behaviors), and symbolic role (people in organisations develop their own implicit theories on causality) of the leadership (Tsui, et al., 2005), the latest one being closer to the anthropological approach which sustains that leaders do not create culture, they are part of that culture). While the first sustains the dependency of the organisational culture on the leader's vision, and his ability of (re)shaping the organisational culture for fitting the market needs, the last one takes into consideration Calder's attribution theory (1977) which speaks about attributing causes to effects (Winkler, 2010), and extends it to the organisation level: in this respect, employees' attributions about their leaders' intentions influence how the members evaluate, interpret, and eventually label the leader's influence attempts as either "true" or "pseudo" transformational leadership (Dasborough and Ashkanasy, 2002).
Next to the two above mentioned perspectives highlighting the strong connection between leadership and the organisational culture, a third one can be noted: contingency perspective which emphasizes the importance of the circumstances, being said that leadership effects occur only under some conditions, during crises or high environmental uncertainty (Drazin and Van de Ven, 2007).
Another important idea that can be emphasized is that all the previous developed models of organisational culture are presenting a static view. Whether if they only define the organisational culture or go further by assessing some of its dimensions, all of them converge toward the same point: creating an image of that organisational culture at a certain point. Seldom the visual models suggests potential evolution, even if there were few specialists literally sustaining the manifestation of the organisational culture as a process (see Schein speaking about behavioural patterns that suffer some changes in time, being "seed" in the new comers, than refined and adapted due to the internal and external environment changes).
By now, there are famous discussions of organisational culture and change that have contrasted mechanistic management theories, stressing hierarchical command and control mechanisms, with more holistic view of the organization as a complex adaptive system, stressing decentralized flexibility and continuous learning (Zimmerman et al., 1998). These sustain the pervasive role of individuals' mental models, descriptive linguistic conventions, and belief systems as they jointly strive to develop successful and responsive business enterprises. However, specific strategies to change organisational cultures in a positive manner are less well documented (Funderburk, 2003)

ORGANIZATIONAL CULTURE SYSTEM DYNAMICS
System dynamics
According to Forrester, "complex systems are counterintuitive. That is, they give indications that suggest corrective action which will often be ineffective or even adverse in its results. Very often one finds that the policies that have been adopted for correcting a difficulty are actually intensifying it rather than producing a solution. Choosing an ineffective or detrimental policy for coping with a complex system is not a matter of random chance. The intuitive processes will select the wrong solution much more often than not. A complex system behaves in many ways quite the opposite of the simple systems from which we have gained our experience" (Fossett, 1999b, p.9).
Hence, the necessity of complex systems modelling appears. This can be made with the help of Cartesian analysis or by using systems dynamics.

Given the globalization phenomenon that brings a continuous diminishing of distances, an increase of data basis and information accessibility, and the ease of travelling anywhere anytime, the level of interaction among all the elements making up the organization is expanding, too, and enhances in this way the unforeseeable factor. This being the frame, extrapolation, as main principle of the Cartesian method, seems not to be suitable anymore, because of the very complex situations faced by modern organizations. Cartesian way of thinking (which is basically a linear one), based on information, analysis, decision, and action becomes insufficient for contemporary situations. The alternative is offered by systems dynamics (the methodology used for understanding the variation over time of a dynamic system, actually, the system behaviour). According to Forrester, "system dynamics is a profesional field that deals with the complexity of systems. System dynamics is the necessary foundation underlying effective thinking about systems. System dynamics deals with how things change through time, which covers most of what most people find important. System dynamics involves interpreting real life systems into computer simulation models that allow one to see how the structure and decision-making policies in a system create its behavior" (Forrester, 1999a, p.1).

Generally speaking, systems, as grouping of interconnected parts (Sherwood, 2002 as cited by Grasl, 2010), can be classified as open systems and feedback systems (Forrester, 1968). An open system is characterized by outputs that respond to inputs, but where outputs are isolated from and have no influence over the inputs, while feedback systems have a closed loop structure that brings results from past action of the system back to control future action, so feedback systems are influenced by their own past behaviour (Forrester, 1968).

In real life, every organization behaves similar to an adaptable complex system, so essentially it is a feedback (self-referencing) system. The idea was cast light on during the Second World War, throughout some complex techniques of operational research development in USA and Great Britain. After their successful implementation during some military broad operations, they still remained known under the name of systemic vision.

Later on, the 50s determined several companies such as Bell Telephone Laboratories and RAND Company to develop and refine an even newer method of approaching the new technologies' projects development, namely systems engineering defined by Hall in 1962 (as cited by International Council on Systems Engineering) and/or systems analysis.

In the same time, while he was studying stocks' management problems within manufacturing companies, Dr. Jay Forrester, professor at Massachusetts Institute of Technology, developed an original method of modelling continuous material's stocks and flows. This method, known as industrial dynamic, was then enlarged to other complex problems able to be seen as stocks and flows of inter-correlated elements, becoming the well-known systems dynamics. It is not a secret that the trendiest world evolution models of the 70s were made by using this method (Meadows et al, 1972; Mesarovic and Pestel, 1975). So that, even at the beginning systems dynamics used to be tied more of management and engineering, gradually it turned itself into a useful tool of analyzing social, economical, physical, chemical, biological, and even ecological systems, becoming also a study discipline at MIT since early 60s.

Within dynamic systems frame, a system is defined as several elements' continuous interaction over time forming a coherent whole. All the interdependency relationships form the system's structure. The expression dynamic speaking about a change over time, a dynamic system is then a system where within it is simulated the change over time of variables under their own interaction influence.

A common feature of all the systems is the fact that the system structure causes in a substantial part its own behaviour; this is one of the aspects emphasized by the system dynamics. The news is that the system dynamics can do even more than highlighting this strong connection: it also enables the analysis of the link set among physical structure of a physical, biological or even literal system and its behaviour. For example, by simply defining the structure of an organization it is possible to pursue the analysis of the system dynamics over time, therefore to identify its probable behaviour.

More than that, the system dynamics can be also used for understanding the way that some structural changes of the system could alter its behaviour as a whole. So that, by intentionally altering the normal state of the system followed by the variation of each set of conditions a time, the analyst actually tests the answer of the system.
As an another advantage of the systems dynamics, using it will provide the user with the ability of observing, understanding and taking in consideration numerous details otherwise ignored when a mental model is to be built (this consists of all the human perceptions and/or mental representations of the interactions from within the system, as well as related to the system behaviour caused by exactly those interactions). Plus the fact that the system dynamics acts as an optimal means of communication when it comes about the majority of academic disciplines; its merit is given by the fact that it leads people to critically think the problem subjected to analysis, and that only because the structure of the system has to be developed before analyzed (Martin, 1997).

Then, given the computer, systems dynamics enables the fast obtaining of feedback, if one needs to test the assumption found at the root of a mental model. If powerful and user-friendly software is available, then all it remains is to simulate the assumption. As a result, nowadays almost anybody could explore the nature, as well as the dynamic behaviour of complex systems, by only starting with a range of initial conditions and assumptions. This new human ability already has a major impact especially over the study of social systems dynamics (McGarvey and Hannon, 2004).

Computer simulation represents broadly the imitation of system behaviour, when calculations made by the computer related to a dynamic model are used. Thus, system dynamics model is a representation of the system structure; once it is built and provided with all the necessary initial conditions, the computer can simulate the behaviour of all variable components over time.

The better imitator of the real life, the better is the model. However, the greatest advantage of the computer simulation is that, while it is impossible to scroll backward and/or fast forward for testing and retesting different premises, a computerized model enables the change of the system structure, as well as the analysis of its behaviour, no matter how different the initial conditions are (similar to flight simulators). Afterall, it is commonly agreed that the importance of the simulation within the decisional processes within an organization is given by its capacity of enabling the manager or the analyst to run some experiments based on the system in order to better understand its behaviour and take more appropriate decisions. Therefore, simulation is an imitation of the way a real process or system works over time; the main reasons for using it generally are: a) the necessity of keep asking the system; b) the necessity of expanding and/or compressing time during the analysis; c) cutting costs.

Besides these, sometimes it is quite difficult to identify the real trend or fluctuations. Exactly for this reason, R. Hanneman stated that, when it comes about majority of dynamics, backwards thinking of the events (from data to theory development) proves to be frequently dangerous because it is possible to face different models belonging to different theories but causing apparent similar results, hence a big risk of confusion arises (Hanneman, 1988).

The best known simulation languages are Dynamo (designed and developed by Jay Forrester and his team from MIT) and STELLA (System Thinking Experiential Learning Laboratory with Animation); regarding the available softwares for systems simulation, the most widespread are PowerSim and ithink (distributed by PowerSim Software and Isee Systems) (Ieftimescu, 2007).

A well-known and highly debated original application of the systems dynamics simulation is the analysis of the growth of urban life growth and decay causality (Urban Growth Model). In his book, J.Forrester, the author of the model, examines the nature of the urban problem, its causes, and possible corrections in terms of interactions between components of the urban system (Forrester, 1999b).

Generally, there are met two fundamental approaches of the systems dynamics:

a) On the one hand, it enables an useful mapping of the dynamic relationships, which is followed by a great variety of methods meant to ease the possible consequences or to help some new theories development (most of the time, these are some sophisticated version of logic programs or cartography concepts: causal diagrams or systemic archetypes used by Peter Senge and Daniel Kim, the QPID diagram developed by Geoff Coyle, John Powell, and Juani Swart at Bath University, all these consisting of behaviour estimation without using simulation).

b) On the other hand, one can simulate the dynamic relationships aiming to extrapolate the consequences of different interventions, studying the necessary time for reaction, the delays and the feedback loops. The best known models are those developed by Jay Forrester and John Sterman. The
common feature of these is the lack of desire in offering the best answer. Simultaneously, the great advantage is they help surpassing the intuition barrier when feedback loops and delays are to be taken into consideration (Williams, Harris, 2005).

As a result of the simulation, plenty of outcomes in various forms are obtained. Frequently, the reports offered by the computer contain tables, statistical data and graphical representations. Generally, numerical results can be graphically presented or at least exported towards other applications able to do it (SPSS, EXCEL, PowerPoint). Occasionally, some facilities of creating animations are available, meaning an accelerated "film" of the system evolution can be included (Ieftimescu, A., 2007).

It is important to mention that, no matter the chosen simulation software, each model has to be simple, even simpler than the studied cause-effect relations. Generally, the model gains complexity only if a real/realistic effect cannot obtained. Being practically impossible to take into considerations all the features of a real system, the model has to incorporate in itself a simplified and outlined reality, focusing more on the study of causality. Even if the initial conditions of the model can be measured or not (situation in which they have to be estimated), neither of them are meant to supply very précised information. Thus, the estimations made can lean on real numerical data as well as on the modelator's intuition thanks to his/her experience in the field (McGarvey and Hannon, 2004).

**The language used in simulating the social systems dynamics**

When building a new theory about social action, practitioners are divided into two categories: a) at one end, there are those sustaining that the most suitable language is that used by the involved "actors" and, as a consequence, they plead for the "everyday language"; the claimed advantage is the greater accuracy of the phenomena's description; b) at the other end, there are the mathematicians sustaining the necessity of the most abstract and general language, even the "mathematical language". Anyway, each particular manner of stating a theory has its own advantages and disadvantages, in the same time; moreover, each of them tends to create some **thinking stereotypes** which affects up to a certain extent the theories typology. Thus, the optimal manner is the combination of the two extreme ways, a hybrid of the everyday and the mathematical languages (Hanneman, 1988).

Obviously, when it is about the social dynamics frame, the everyday language is more frequently used (including here also the specific jargon): "the more time the subjects spent together by directly interactioning, the easier they will identify their common points; the more similar they arrive to consider themselves, the more probable is to experience feelings of mutual attraction; the more increased is the attraction, the more often they will search for methods and opportunities for spending time together."

Not taking into consideration the value of the theory itself, its utterance shows both pluses and minuses:
- the used terminology eases its content understanding without any effort, and communication is rather simple and direct;
- However, a tendency of over generalization exists, the specific conditions that enable the above mentioned relationships are not specified, either the possible limitations or alterations of the described behaviour. Also, it is not clear if the influencing relationships are linear or not, if all the reactions are out of hand or on the contrary they suppose delays and/or gradual manifestation, or if they are unidirectional or bidirectional. Last but not least important, one cannot understand if the system is a self-referencing one (for example, the change of the attraction degree depends or not of the already existent degree of attraction?).

Objectively analysing the situation, one can state the failure of the everyday language in precisely describing the relations between concepts. "A statement of a theory must be specific enough to enable us to create a class of models that have important commonalities of dynamic behaviour and to be specific enough to eliminate from consideration classes of models that do not produce the same basic patterns of behaviour" (Hanneman, 1988, p.23).

At the opposite extreme is mathematics. Some of its advantages are: all the information offered by it is explicit, the used variables are pure abstract symbols, and all the relationships among them are expressed by operators and functions. Related to making statements about **continuous state/continuous time dynamics**, differential equations and calculus proved to be effective. Nowadays, these are rather used in building economic theories, as well as in physics, but nevertheless they are met also in lots of subdisciplines in the social sciences. "The use of differential equations (and their equilibrium form of structural equations and their log-
linear analogues) are commonplace in political science, sociology, history and psychology” (Hanneman, 1988, p.24).

Still, when it is about stating social science theories and processes that highlight the change, some disadvantages also appear. Firstly, the lack of knowledge of the social scientists in the mathematical language makes it inaccessible so than unusable. Secondly, mathematical language is sometimes too powerful for stating some simple phenomena and theories, and not powerful enough in describing complex social systems. It tends to oversimplify and even limit the studied situation, fact that decreases its general utility. Not to mention that it happens that some complex situations' mathematical statement exceeds the capacities of the creator/consumer to understand and explain.

Given so many limitations of both everyday and mathematical languages within the social sciences frame, a hybrid language was created by the social scientists. This is known as "intermediate" or "semi mathematical" language, the best known being DYNAMO, whose initiator is Jay W. Forrester. The general procedure required by this language is: a) the definition of the system's limits; b) listing the elements of the state space and dividing them into subsystems; c) identifying which elements are connected to which others, their connectivity's description, as well as the shape of their relationships; d) defining the relationships dynamics (their time-shape).

As far as the relationships among the elements of the state are concerned, the simple mathematical operations can be used (addition, subtraction, multiplication, division), these being able to reveal the features of both some linear and non-linear relations. Next to them, the trigonometric functions and some statistical ones are also useful (for example, the sigmoid functions type arctangent, \[ \frac{1}{1 + e^{-t}} \] figure 1.a)

Even so, the most frequently used functions which are also specific to the DYNAMO language are the time-shape functions. These are in fact a description of the necessary period of time of registering a variable's change as consequence of another variable's change, as well as of its variation shape through time. Thus, the feedback can be (Hanneman, 1988):
- Constant over time (figure 1.b);
- It shows an immediate response to a stimulus, with an exponential decline thereafter (first-order exponential delays) (figure 1.c);
- The response is initial low, but increasing at a decreasing rate thereafter (second-order delay, figure 1.d)
- It displays an initial "lag" period of little response, followed by a rapid increase and a slow decline (third-order exponential delays) (figure 1.e);
- No response at all for a fixed period, registering then an instantaneous adjustment (lag/high-order exponential delays) (figure 1.f).

As a conclusion, when formalizing a model by using DYNAMO language not the precised function with exact parameters is necessary (although it does not contravene to the social systems dynamics); the understanding and utterance of the shape that the evolution of relationships among variables is far more important. The explanation is given by the difficulty of transposing the evolution of social system variables into the exact mathematical formulas; at their basis lies more or less precised interpreted empirical studies that sometime subsequently prove to be only the exception from the rule.

G.VALI MODEL (GRADUAL VALUE-ADDED LEADERSHIP INTEGRATOR MODEL)

Orientation

Ashby's law of requisite variety (as cited by Grasl, 2010) states that a human being (such as a business manager) trying to control a system (such as a project, organisation or business) must have greater variety (the measure of how complex a system is) than the system he is trying to control. The complexity of a human being manifests itself in the way he observes the system and acts upon this observation. So Ashby's law opens up two pathways into dealing with complex systems:

a) either by reducing the complexity of the system (companies actually try to apply it by hiring only the perfectly fit people, renouncing not only at too intelligent or too stupid candidates, but also at those manifesting different values and consideration relative to the core values of the company itself. Thus, they try to create a standardized employee characterized by some standardized knowledge, abilities as well as thoughts, beliefs, behaviours and thinking patterns);
b) Or by finding new ways of observing the system and then acting.

In practice it is very difficult to reduce the complexity of a system effectively if you do not understand it well so the second strategy offers a cumulated advantage on the long run. An effective method of observing for better understanding the real world's phenomena is dynamic systems modelling, which is actually part of our daily life. We all model dynamic systems every day by creating mental models of the environment, and reorganizing unconsciously and/or unwilling the world based on the cause-effect criterion. These are truly of great importance because of their efficiency when crossing the street or scoring at football. However, they are of little help when it is about understanding the complexity of social, economical or environmental systems. Therefore, a dynamic model of the organizational culture, which is a complex social system, is pertinent. A carefully mapped relationships dynamics will ease the understanding of the possible consequences of the relationships set among various actions of the system's actors.

Thus, the primary aim of this article is to improve the understanding of an organizational behavior complexity by providing a predictive dynamic organisational culture model, G.VALI. It is developed based on a sound literature review, intuition and informal discussions with experienced people trying to balance between detail and generality without losing sight the system behavior. It starts from the consideration that the organizational culture is a dynamic self-referencing and self-generating system (as an adaptive complex social system), whose non-linear evolution is given mainly by the fluctuation of the decision maker's leadership abilities over time. As a consequence, the model deciphers the manner in which an organization change itself no matter how similar are people working there. The significant gain would be that understanding this fact, the number of organizations choosing to implement strategic human resource strategies that heavily rely on recruiting and selection techniques targeted to secure only those individuals which perfectly fit the organizational culture profile will decrease. Unconsciously assuming that the organizational culture is like a static, therefore unchangeable thing, could endanger the achievements of the organization on the long run.

Being about a social system dynamics, the model and implicitly the research are limiting themselves from the very beginning, the most comprehensive model design being practically impossible. Thus, the analysis will be limited to the internal environment of the organization, focused on the interplay between its parts, and its consequences on the organizational culture state. Another limitation of the model is given by the fact that it takes into consideration only the informational flows changes (without a real change of substance), leaving apart the physical flows changes which are by default also part of a social system.

As working hypothesis, it is adopted the theory according to which the employees' overall behaviour and thinking model are the cumulated result of everything they had lived up to that moment. From here, another limitation of the model: it focuses mostly on different types of instructions as they are lying at the basis of their behaviour.

In order to achieve the dynamic simulation of the organizational culture evolution, it was necessary to go through several steps:
- Identifying and describing internal parts' influences on the organizational culture itself;
- Designing a theoretical model of the organizational culture dynamics by using causal loops diagrams, method developed by Peter Senge and Daniel Kim (Senge, 1990). The result of this stage is G.VALI causal loop diagram which is basically a partial, explicit and figurative model; it is also a symbolic, graphical qualitative model presenting a snapshot of the organizational culture's dynamics. The scope of this first step is to understand the possible consequences of the relationships set among various actions of the system's actors.
- Translating the above mentioned model of the organizational culture dynamics into the tenet of software of social systems dynamics simulation (it is about TRUE software developed by Patrick Houel, Strasbourg, France). The result of this stage is G.VALI-TRUE model of the organizational culture which is also a partial, explicit and figurative model; the difference is given by computerized dimension that enables the dynamic perspective of the organizational culture by using the continuous simulation of the predictive model.
- Analyzing the evolution of changes occurred within the model as consequences of intended modification of different variables' values and fluctuating ways;
- Dynamic 3D graphical simulation of the organizational culture dynamics, which is an analogue model. The result is called G.VALI TORNADO model.

What the model intends is not to look for offering a best answer or solution to organisation's problems, but to help the decision-maker to surpass the intuition barrier when it is necessary to take into consideration feedback loops and delays (Williams and Harris, 2005).

**G.VALI dynamic model - snapshot of the organizational culture dynamics**

The model starts with the leadership skills of the person in charge with running the entire organization (10, leadership abilities, in figure 2); consciously or not, these skills generate a certain organizational behaviour, tending to lead the organization towards an equilibrium state. His behaviour, attitudes, values and deepest assumptions, as well as his capacity of developing an attractive vision/mission, and of motivating people are due to his personal formation over the years. The model recognizes the influence of native feeling models, as well as of the culture that the individual has lived in and/or has been living in for a while; however, given the nowadays higher emphasis on instruction methods and also the possibility of actively working on/with them, these latest are considered to be of greater importance in providing the human beings with a mental representation of the world (6, IWM, Individual World Map, in figure 2). Basically, the more accurate is the mental representation of the world, the more flexible in mind and spirit that person will be.

All these assumptions are in strong connection with the scientific literature. The model adopts Schein's perspective which states that at the basis of establishing an organization lays, as a crucial element, the founder's vision (Schein, 1992), but it joins also Landsberg's observation: besides the needed vision, a certain level of enthusiasm, the ability of self-motivation and the motivation of the people around are prerequisites for putting things into motion, thus turning themselves into a viable platform sustaining the leadership skills (Landsberg, 2005).

Either we agree or not, the human behaviour is affected not only by experience but also by the genetic inheritance. There is no doubt that the ways in which people develop are shaped by social experience and circumstances within the context of their inherited genetic potential. The question is just how experience and hereditary potential interact in producing human behaviour (American Association for the Advancement of Science, 1990). Being impossible to quantify it, the genetic potential (5, native feeling models, in figure 2) is considered by the model as having a constant continuous influence. Here we refer to the type of personality, cognitive intelligence and emotional intelligence that the individual is born with, all prior to any cultivation/refining/elevation process, and also the predominant cognitive style: convergent, systematic and vertical thinking or divergent, intuitive and lateral thinking (McKenney, Keen, 1974; Eduard De Bono 1971; Sperry, 1974; Mintzberg, 1990). Although very interesting, these won't make the object of the present study.

Consequently, G.VALI model recognises the relationship of mutual accentuation existing between convergent, systematic and vertical thinking and divergent, intuitive and lateral thinking, with repercussions on the manner in which managers of organizations approach and solve decision-making problems. However, due to the propensity of the native component (difficult to control), the present analysis is limited to the identification of the factors of influence and their avoidance until the point at which they can be moulded through different educational methods and means.

Similar is the situation of the cultural advantage (1 in figure 2, the socio-cultural, economic, political and legislative environment, in which the individual was born, raised and grown-up). This will also be taken as constant (having a rather constant influence over time).

Emphasizing the importance of all kind of instruction forms, G.VALI model is in accordance with Gladwell's studies, as well as the Korzybsky's *General Semantics*, the latest one being formulated in *Science and sanity: An introduction to non-Aristotelian systems and general semantics* published in 1933 (as cited by Cristescu, 2007). The General Semantics recognizes and highlights the powerful impact of the words over the human feelings, mentalities and concepts. Together with the associated behaviours, these words are taught through all forms of instruction: a) the education received from the family (2 in figure 2), b) the
education received from formal environments - school, institutions, etc (3 in figure 2), c) the self-education process (4 in figure 2) (Gladwell, 2009). Regardless of the level of acknowledgment or understanding provided by the innate personae, socio-cultural setting and education, it is every individual's prerogative to illustrate somehow the reality. Curious as it may sound people do not think alike, thus the occurrence of different attitudes towards approaching and solving problems. People think through particular models which can be: innate, formed over time as a result of the education received from the family, from educational institutions, from their auto education - their own efforts of deciphering the unknown and also from social, cultural, political and economic models specific to a particular demographic region and in a particular time span. Thus, it will be obtained each individual's own representation of the world known as Individual World Map whose accuracy is associated more with divergent, intuitive, lateral thinking and right brain function dominance. The cognitive process is only an approximation of the existent informational fields with cognitive elements structured in a model of thinking (Brătianu, 2000). Given the fact that the generally acknowledged influence of the educational system on the individual thinking pattern is materialized into obtaining a stereotype and developing a linear and deterministic thinking pattern, we draw the conclusion that this type of education stimulates convergent, systematic and vertical thinking (O link showing a decrease of the world representation accuracy), leaving to the family and individual the task of deliberately developing divergent, intuitive and lateral thinking (S link denotes higher accuracy providers). Note that the O link represents a negative, indirect influence, making nodes to fluctuate in opposite directions (an increase/decrease of the sending node's value will lead to a decrease/increase of the receiving node's value, and again the influence is not imperative interchangeable), while the S link represents a positive, direct influence, making both the starting and ending nodes to fluctuate in the same direction (an increase/decrease of the first one's value will lead to an increase/decrease of the second one's, this influence not being imperative interchangeable). In theory, the higher the accuracy of the individual reality representation is the higher the level of understanding the world, and thus the better response to external stimuli. Korzybsky is the one that used to state that the general peoples' representation of reality does not portray reality itself ("The map is not the territory").

A high accuracy of IWM (which in essence is a mental model - a mental representation of the social system interactions and the behaviour determined by these interactions) does not necessarily require an above average intelligence coefficient, but it inevitably requires a high emotional quotient (EQ). Although recently conceptualized (Gardner's multiple intelligences in 1983 and D.Goleman’s emotional intelligence in 2001) (as they are cited by Goleman, Boyatzis, McKee, 2001), this type of intelligence and its utility has been known and acknowledged long time ago (see the Bible).

It is generally recognized that if an individual is extremely intelligent, he is not necessarily emotionally intelligent and that by having a very high cognitive intelligence index (IQ), success will not automatically follow. Being brilliant intelligence-wise is in no way equivalent with an ease in building relationships, understanding personal emotions or those of other, the capacity to self-motivate and the ability to motivate others (Carter, 2005). It is also said that an adult scientist with a 130 IQ has equal chances of winning a Nobel Prize as a person with a 180 IQ score. Psychologist Robert Sternberg, when talking about “practical intelligence” admitted that intelligence matters only until a particular stage where other things (of no apparent link to intelligence) start to weigh more: knowing what to say and to whom, knowing when to say it and how to say it in order to get the maximum effect. This means something practical in itself, not only knowledge for the sake of knowledge. It does not necessarily involve the existence of general intelligence (high IQ), the two being orthogonal. IQ is an indicator of innate abilities (the genetical inheritance of IQ is approximately 50%), whilst flair means knowledge (a series of abilities that need to be acquired gradually and that come from outside the mind, from our families themselves) (Gladwell, 2009).

Alongside a better representation of reality we can observe an increase in the capacity of the individual to develop a vision. Actually, a vision is nothing more than a declaration with a general character (in our situation, linked to the existence of an organization), meant to trigger particular emotional feelings which
facilitate following an indicated direction. To back this up is the concept of mission which attempts to materialize the inspirational elements of the vision (like an explanation of what the organization represents, of its ongoing activities as well as its long-term objectives).

As previously mentioned, Landsberg emphasizes that for the development of real leadership, not only is there a need for the capacity to outline a horizon to be reached, but also the need for a capacity to motivate oneself and the others around. The formula proposed by him is found by multiplying the three, situation in which, from the view-point of the model, should be viewed as a metaphorical method of expressing the inter-influence of their existence: if enthusiasm and the capacity to project a certain vision can co-exist independently of the motivational abilities of an individual, the reverse is no longer valid. The capacity to motivate requires certain ability in projecting attractive visions and a dose of enthusiasm necessary for determining change. Therefore, Landsberg is the one describing the motivational process as being comprised of a number of sub processes which begin invariably with the outlining of a vision, and which are continued with boosting and planting confidence, determining action to pass obstacles and with obtaining results.

The simultaneous action of the 3 factors – vision, motivation and enthusiasm – will outline the leadership abilities of the person at hand (10 in figure 2).

Coming back within the organization, the personal manifestation of the decision maker will fluctuate between the maximum level (which is thought to be a transformational leadership occurrence), and the minimum one (lasses-faire leadership style), passing through the medium level associated to the transactional leadership occurrence (Bass and Avolio, 1992).

Empirical studies have shown that an organization is much more competitive when its employees want to attain the organizational objectives, than when it simply enforces some rules, fact that is valid to our day: when someone is asked or obliged to do something, the feeling of constraint will appear; at the opposite side, conviction of the necessity of reaching the same objective will lead to a benevolent increase in the efforts made by that person. At the basis of these motivational concepts lays the fact that, relentless of the native character traits, humans can learn to develop a completely new behavioural set over time if and only if the proper methods are used. Hence, the importance of the leadership abilities of the decision maker is highlighted.

Thus, if the leadership abilities of the person occupying a management position surpass a certain threshold, the model will associate his behaviour to that of a transformational leader, translating it into a greater emphasis on the intrinsic motivation of the subordinates (determining the occurrence of their behaviour on its own, without the purpose of obtaining extrinsic motivation) and a less attention to bringing new technology in to make activity more efficient (Information and Communication Technology, ICT, in general) or to reforming the decisional act (redesigned organizational & functional structure). Contrary to this, a lower level of leadership abilities will place the individual in the transactional leadership situation, concentrated on making the activity as a whole more efficient (planning, organizing, leading and controlling). This will implicitly determine a propensity to be oriented towards investment in new technology (which could bring a plus in efficiency) and towards a reform in the decisional act (figure 2).

With respect to intrinsic motivation, it is believed that it derives in essence either from the individual at hand or from the undergone activity, its long-term effects being positive for behaviour, obtained performance and spirit. Deci states that intrinsic motivation (the perception of personal control in contrast with external control) satisfies the need for competence and autonomy that people are born with (Deci, 1980).

There is a difference between intrinsic motivation and tasks which have the capacity to motivate intrinsically. Herzberg is the person which made the distinction between motivational factors (which lead to intrinsic motivation) like responsibility, determination, accomplishment, diversification and promotion opportunities, and hygienic factors (which only lead to extrinsic motivation). From this perspective, transformational leaders present special abilities, characterized by a high level of consciousness and self-acknowledgement of his/her impact on subordinates, which seeks to accentuate that intrinsic motivation. On the opposite side lays transactional leaders focused on offering extrinsic tasks that intrinsically motivate the most.
Still, for both formal and informal leaders, transactional or transformational ones, their emotional intelligence (defined as self-consciousness, empathy, positioning against others) has a great influence on organization’s performance, new research proving that the emotional state of leaders modifies the emotional state and behaviour of those around him due to the existence of a neurological process named mood contagion. Hence, depressive and rude managers will ultimately create a toxic atmosphere populated only by negativistic persons which cannot easily surpass their condition, whilst a leader that inspires and cultivates a positive vision and know how to intrinsically motivate his subordinates will push his people towards surpassing even the most difficult milestones. This type of leader will determine a climate favourable for sharing information and knowledge, characterized by trust, accountability in risk-taking etc that will lead to a greater level of creativity in an organization (creativity is the capacity of an individual and/or group of individuals to produce new ideas suitable to a specific situation – here, reaching the goals of the organization). On the contrary, a low EQ will gradually introduce a climate of fear and anxiety (favourable on the short term because, when tense, people become more productive but only for a short period of time) (Goleman, Boyatzis, McKee, 2001).

The level of creativity (14 in figure 2) manifested in an organization is not only the result of the intrinsic motivation of employees (11 in figure 2), but also the volume of knowledge and intrinsic awareness that exists in that organization (15 in figure 2). This volume can be, in terms, either increased or decreased through the attention given to the implementation of ICT (information and communication technology, 12 in figure 2). Propensity to concentrate on adopting new technology can leave the human factor in the shadow, thus creating the illusion of a competitive advantage.

The Internet (the central element of ICT) (12 in figure 2) has auto-defined itself not only as an important and indefinable source of explicit knowledge, but also as a transformation facilitator of explicit knowledge into tacit knowledge (via e-mail, videoconferences, etc). Nevertheless, is it also true that in the organizations which tend to over appreciate their possession of information, the following paradox can occur: the existence of an abundance of information and, simultaneously, a decrease in collective creativity (Davenport, Prusak, 2000), something highly damaging according to the words of A.Einstein, "Imagination is more important than knowledge, because knowledge is limited, whereas imagination embraces the entire world", hence the O connection with a double slash crossing, indicating a delay in time (sometimes the feedback or the reaction does not occur immediately, this causing some incorrect responses to actions and errors).

G.VALI model substantiates the influence between the levels of creativity and individualism according to Peter Senge's scientific opinion that knowledge creation appears in teams (...) and that the development of each individual must not be the ultimate goal of the organization which, in a given situation, risks decreasing its level of information and knowledge along with the loss of that particular employee (Senge, 1999 cited by Burgoyne, Hirsh, Williams, 2004). On this ground, between creativity and the level of individualism (16 in figure 2) an inverse correlation with delay in its manifestation is considered, further accompanied by an inverse oscillation of the graphical representations of the level of individualism and the competitive environment.

Shortly leaving aside the superior branch of the model, we will take a closer look at the inferior branch where, as mentioned above, a lower level of leadership abilities attracts efficiency measures for the activity of the organization through investment in technology and remodelling of the decision-making processes (organizational and functional structure, 13 in figure 2).

Any introduction of new technology is meant to modify, to a certain extent, the organizational and functional structure of an organization. Therefore, the redesigned ORG&FUNC structure flow is itself a cumulative action which determines a variation of bureaucracy (20 in figure 2) and the percentage of redesigned business processes (21 in figure 2) (fluctuate in the same direction).

Every time we speak about change, development, innovation, we inevitably are confronted with the fear of the unknown (22 in figure 2), which later on leads to the development of a certain dosage of resistance to change (23 in figure 2). Resistance is the phenomenon which affects the change process, delaying it or slowing down (double slash) its beginning or implementation (enhancing costs) (Ansoff, McDonnell, 1990) and trying to maintain the status quo, equivalent or inertia, avoiding change (Maurer, 1996; Rumelt, 1995; Zaltman and Duncan, 1977).
With these things in mind, the action fear of new tech/processes will record an antagonistic evolution to that of the redesigned business processes, the relationship between them being an inverse one (type O). Fear also influences team work (18 in figure 2) by discouraging it (O type relationship), though exacerbating the resistance to change (S type relationship). The latter slows down the assimilation of the novelty; thus, between the resistance to change and the redesigned business processes, redesigned ORG&FUNC structure, and ICT adoption an inverse relationship is established (type O).

Despite the belief that the change towards which the highest amount of opposition is shown is the one raising the real problems, studies show that almost any change, with the exception of the trivial ones, demands a minimum adaptation effort. Thus, there are a number of theories suggesting that the individual must pass through a series of steps in order for him to accept the novelty. Whether we are speaking about an exterior imposed change or a voluntary one, the main stages that manifest on a psychological level are the same. It is true that most theories have their origin in clinical psychology, thus rather analyzing the major changes occurring in a lifetime to which the individual has to adapt, but these theories are applicable at on an organizational level as well (here being less drastic).

Out of these theories, a special practical use is given by the Hopson model (see figure 3) based on the Kubler-Ross theory (1969) stating that people go through the same process when adapting to change but with their individual rhythm and intensity, this differentiating amongst them. According to him, the model can and should be applied to both negative and positive changes (marriage, the birth of a child etc) (as they are cited by Makin and Cox, 2004). Related to these theories, it seems that the largest drawback of change is its rhythm. If a certain level of stability is not maintained, people will perceive the process as being abrupt, drastically and fast, and in no way gradual so as to offer them the time to accept it. 

Thus, the action flow of changed values, beliefs and behaviours (24 in figure 2) will accumulate with the influence of the resistance to change flow and the bureaucracy flow (O link).

*Insert figure 2 here*

Before, we determined that bureaucracy is a consequence of redesigned ORG&FUNC structure on the one hand and of the number of rules and regulations of the organization on the other (S type relationship). Between team work and rules, code of conduct etc existing in an organization, there apparently is no correlation. But if we consider the fact that the actual formation of a team (irrespective of its nature: functional team, interdisciplinary, interlock etc) implies the completion of several stages (forming, storming, norming and performing), we can draw the conclusion that by putting a greater emphasis on team work will trigger the establishment of new rules of conduct, internal order regulations etc, sometimes, after a larger period of time. Hence, an S type causality relationship with a delay in time exists between team work and the number of rules and regulation (19 in figure 2).

There is no secret that change in an organization, irrespective of its long-term benefits, will never be introduced without an echo: in accordance with personal traits (age, experience, prior studies, activity domain and human typology) employees will present different levels of inertia, in some extreme cases resulting in the actual abandonment of the job. These are up to the overall behaviour of the decision-maker translated into direct and/or indirect influence throughout the cross-interconnection of all the organisational culture features. Their ultimate variation induces the change of the internal environment and climate, fact which in time makes no longer appropriate the existent leadership style and asks for a different person with a different vision or at least different leadership abilities to occupy that position. A compromise solution would be the continuous training and leadership skills enhancement for decision-makers (Gamble, Blackwell, 2001).

Thus, as it can be seen in figure 2, the control/decision structures consider not only the elements that directly and/or indirectly influence each other, but also the current state of the system itself. This is a major characteristic of the self-referencing systems, which, in theory, is followed by the appearance of some:

a) Positive causal loops work as an avalanche: it accelerates the given trend of a process (it will accelerate an ascending trend, while if the trend is descending, it will accelerate the decline). This type of feedback is a reinforcing one; it continuously enlarges the distance between the current and initial state of the system. It is called self-generating behaviour.
b) Negative causal loops intend to reduce the gap between the current state and the desired one. This type of feedback is a balancing one and its result consists of a deceleration of change by pulling back the system towards its initial status. This situation is also known as self-limiting behaviour. Identifying and making distinction between reinforcing causal loops and balancing ones help at finding the right patterns of behaviour of the system (the system archetype). By doing that one can find also the leverage enables efficient changes in the system. As it can be seen in figure 10, the G.VALI CLD model of the organizational culture dynamics includes both types of previous mentioned causal loops:

- **Positive causal loops (positive feedback)** – the easiest to be observed is the one settled among the premises of the training that an individual could undertake during his life, the leadership abilities developed by the same individual as a result of the received education, and the change of values, beliefs, behaviours, etc., within the organization that he works for (as major advantages). Thus, a high level of education will cause a high level of awareness (S link); as a result, the higher the accuracy of the mental model (IWM), the higher the possibility of developing the initial premises meant to reveal his leadership abilities (S link also). This position enables the individual to inspire people from around him and/or to take decisions for increasing the efficiency of activity within the organization. All these run actions will end up with an initial values and behaviours changed over time (the superior branch of the causal loop from within the organization, - S link). By changing the cultural frame, as well as the reality coordinates, it becomes obvious that one has to reconsider the educational system together with the knowledge and the abilities enabled by it, as well (S link). Actually, the individual instruction is his simple way of adapting himself at each time cultural requirements. Thus, the initial behaviour of the system is consolidated (the given trend of the process is reinforced).

**Insert figure 3 here**

- **Negative causal loops (negative feedback)** – the obvious one is settled within the organization among the leadership abilities, his decisions and actions (superior causal loop), and values, beliefs and behaviours changed in time, as a cumulated result of the leadership style (S link). At this point, reconsidering the cultural frame leads to a decrease, weakness or even an inadequacy of the initial leadership abilities (O link). As a consequence, the initial behaviour of the system aims to be balanced. These two causal loops briefly presented above are not the only ones or the most important; they are just the most visible because of their spread. Next to them, some other dynamic influences could be also analyzed, such as:

  - **Balancing causal loop** which starts from leadership abilities that, if not exceeding a certain level (given by the field of activity of the organization and its internal environment), will determine a more managerial approach (focus on the efficiency of the activity); this, in turn, will facilitate the adoption of new technologies and will impose both the review of the organizational and functional structure and the business processes rethinking. In this way, the fear of novelty and resistance to change are also increased, and the pace of new values and behaviours assimilation is decelerated. The loop is ended with a reverse connection (O link), established among new values, attitudes and behaviours assimilation and leadership abilities, which imposes a readjustment of thinking and behaving way of the decision maker to the newer situation.

  - **Balancing causal loop** which, starting from the new technologies adoption meant to increase the efficiency cover of a similar route; the difference is given by the influence of the resistance to change upon the decision of using the above mentioned new technologies. Actually, this situation speaks about those managers that rely much more on the new technologies and internal processes rethinking, next to the development strategies, and too less on the human factor together with its gift of values, attitudes, believes, habits and so on. Despite the general perception, the simple possession of hardware-software equipment and/or the online presence of a company does not mean too much in the absence of a wise management mainly because of the multitude of changes determined by the aforesaid within the organizational culture that could dramatically influence the final output. The explanation consists of the numerous and powerful hidden consequences (which are not every time positive) of the new technologies upon the human factor, and therefore upon the organizational culture. Hence, it is true that the technology and its associated processes can be a powerful integrator by acting on the individual knowledge and producing
organizational knowledge, however the synergy can be also a backwards one, obtained by a mismanagement which will amplify the collective inertia.
- Similar balancing loops are exhibited among business processes rethinking and resistance to change, on the one hand, and organizational restructuring and resistance to change, on the other hand.
- Another balancing loop is displayed among the managerial approach of the decision maker (as triggering factor), organizational restructuring, the change of bureaucratic procedures, and nevertheless all the redefined organizational values, attitudes and behaviours.

As it can be seen, the model includes one reinforcing causal loop, and more balancing ones, proving that the dynamic system is searching for the equilibrium point. In the same time, the system is shown as a self-referencing and self-generating one, its evolution depending not only on its actual state, but also on its previous one (the nature and level of a person’s instruction clearly influence the type and accuracy of his decisions, as well as his overall behaviour; at their turn, all these cause the organizational culture dynamics; in the end, if the cultural landmarks suffer a process of change, all the abilities and knowledge of the individual will be challenged to adapt to the new reality, by one or more methods of instruction).

How G.VALI model works
If wanting to understand a complex system behavior, modeling its dynamics is the first step; then, it is generally recommended its translation into the tenet of a software able to run it (forward and backward, if need it), in order to allow the analyst all the connections influence and their evolution over time. If this is a well-done job, then the appropriate conclusions and recommendations will highlight themselves. Unless it is neglected, this process enables the ever-going enrichment of people knowledge about their environment and lives, as well. So, as Forrester stated, "system dynamics involves interpreting real life systems into computer simulation models that allow one to see how the structure and decision-making policies in a system create its behavior" (Forrester, 1999a, p.1)

Thus, we are going to translate the above explained model of the organizational culture dynamics, G.VALI, into the tenet of software of social systems dynamics simulation, situation that makes important the rigorous specification of the relationship shape set among variables. By simply mentioning the existence of this influence the model won't gain much in clarity (Hanneman, 1988). Therefore, systems dynamics simulation imposes both the design and experimentation of some models within which not only their characteristic flows are well emphasized, but also the relations set among those flows, as well as their impact over the current state of the studied systems (leftimescu, 2007). The result of this stage is G.VALI-TRUE model of the organizational culture which is also a partial, explicit and figurative model; the difference is given by the computerized dimension that enables the dynamic perspective of the organizational culture by using the continuous simulation of the predictive model; basically, the purpose is a better understanding of the model itself.

When continuous simulating, the modelled system is viewed as an assembly of uninterrupted flows made of homogeneous "substances" out of which no individual element with particular characteristics could be isolated. While the state variables are changed function of the time flow, the time itself uniformly evolves, with a constant increment every time.

The main advantage will be given by the possibility of intentional altering some influencing factors. That enables the analysis of changes evolution occurred within the model as consequence of the intended modification of the different variable values and fluctuating ways.

In the end, a dynamic 3D graphical simulation of the organizational culture dynamics will be performed (analogue model called G-VALI organizational culture TORNADO).

By now, one can find a dozen of softwares that, starting from Jay Forrester’s dynamic thinking and the language developed by him, DYNAMO, aim to simulate the social systems dynamics. One of these is called TRUE (Temporal Reasoning Universal Elaboration) and it is designed by Patrick Houel, True-World Strasbourg, France. Basically, TRUE, the system dynamics software, is a tool for modelling, simulating, analyzing and optimizing multidomain dynamics systems such as: a) tracing of financial flows, b) operation and strategic research, decision-making, c) conflict management dependent on scarce resources, d) risk management dependent on Earth resources, e) macro-economics, micro-economics,
econometrics, econophysics, systemic analysis, f) mathematics, traditional physics, numerical and statistical analysis, g) relative mechanic, social mathematics, h) medicine.

The principles of this software are the following: a) transparent and implied mathematical modelling, b) coupled nonlinear differential equations of order n, c) system dynamics modelling in discrete and continuous time (Euler), d) dynamic optimization using retro-calculation functions, e) wysiwyg graphic interface and 3D modeller (Multibody Dynamics Simulation, Multibody system, Procedural animation).

A brief history has as starting point December 2001 when Patrick Houel, a French System Dynamics Software Engineer, founded True-World and began to develop TRUE software on an idea based on the equilibrium theory, Nash equilibrium theory, the conservation of mass, mass balance and the chemical equilibrium. In 2002 TRUE was presented at the Ecole Centrale Paris (ECP) where, after a thorough evaluation, it was classified as being system dynamics software. Between 2003 and 2006, thanks to the collaboration with a consultant supervising PhD students, new features were implemented (vectorizations, dynamic optimisation, 3D rendering with OpenGL, speech synthesis). In present, TRUE has available an English demo version, next to some others in French and Korean (www.true-world.com).

One of the notable advantages offered by TRUE is its graphics; this is thought in such a way that it is easy to handle and offers support in system dynamics understanding. On the other hand, the software enables a great variety of functions and equations, saving time for programming and overcoming a possible lack of knowledge in this field.

In order to translate G.VALI model into the tenet of TRUE software, some steps are to be followed.

The initiation of the computerized modelling requires its chronology setting. This consists of the basic cycle settlement (it can vary from a century, year, month to even a second, but it also can be seen as number of grades, radians, etc), of the number of cycles that have to be covered, as well as of the time unit (it itself can be a century, an year, month, week, etc). It worths to be noted that not all the equations must be performed in each time unit; some of them could be run function of its own cycle so that the model to simultaneously conduct different actions on different scale time. This is possible because each equation as part of a flow has its own temporal parameters (chronology, starting point, period of time, recurrence, type of cycle, etc) (figure 4)

Insert figure 4 here

If a flow has two or even more equations (this being called action), the chronology becomes very important: so that if equations are simultaneous, their chronology will show the same execution level; on the contrary, it has to firstly ensure the execution with the smaller chronology. For example, the leadership ability flow is run before both the ICT adoption and redesigned business processes ones (its chronology is 7, while the others are 8 and 9). The problem appears only when ICT adoption flow 8 and redesigned ORG&FUNC structure flow 9 have to be cumulated in order to obtain redesigned business process flow 8. However, the software enables this kind of action by simply delaying some flows.

As software of social system dynamics simulation, TRUE uses the same basic concepts: stocks, flows, and causal links. There can be met also some specific variations of these, such as the virtual flow and connection, the mirror stock and flow. Generally, a flow links two stocks: the source one and the resulted one. The value computed by their relationship renews their states: by decreasing the first one and by increasing the last one. The difference between a common flow and a virtual one is that the latest does not connect stocks, nor update them.

A stock can be changed several times within the time unit. Unlike this, a mirror stock is changed only one time at the end of the current time unit, its value being given by the sum of all the upstream stocks connected by mirror flows. If a mirror stock is to be connected to all the other stocks in the model, its value will stay constant because of the preservation principle that the software is developed upon.

Another particularity of the TRUE software is that the rate of flows change and the targets conditioning the system evolution became unnecessary. TRUE allows the introduction of all the needed data within the causal links design.

Thus, for the purpose of identifying the patterns of organizational culture evolution, a decision was made to dynamically model it over a period of 10 years (a period subject to change), with the help of the TRUE software.
As we have already stated, human behaviour is affected both by genetic inheritance and by experience. Even more precise, the ways in which people develop are shaped by their social experience and circumstances within the context of their inherited genetic potential. G.VALI model sees the way that experience and hereditary potential interact in producing human values, deep assumptions and the overall behaviour which are actually based on each person's way of illustrating reality as following:

**a)** Both cultural advantage and feeling models have a constant influence on the entire flow of the simulation.

- the external environment: socio-cultural, economic, political and legislative setting, in which the individual was born, raised and grew-up (named here cultural advantage) and which continuously affects how a person learns to think and behave, by means of instruction, rewards and punishment, and examples. The class into which people are born affects what language, diet, tastes, and interests they will have as children, and therefore influences how they will perceive the social world. Moreover, class affects what pressures and opportunities people will experience and therefore affects what paths their lives are likely to take—including schooling, occupation, marriage, and standard of living (American Association for the Advancement of Science, 1990).

- Innate personae (the type of personality, cognitive intelligence and emotional intelligence with which the individual is born, all prior to any cultivation/refining/elevation process, and also the predominant cognitive style: convergent, systematic and vertical thinking or divergent, intuitive and lateral thinking). Due to the propensity of the native component (difficult to control), the present analysis is limited to the identification of the factors of influence and their avoidance until the point at which they can be molded through different educational methods and means.

Even if there is some substantial similarity in the manner that individuals respond to the same pattern of influences (for example, being raised in the same culture, or having similar type of personality), it is still hard to predict which influence will be the most potent, not to mention their quantification. Furthermore, culturally induced behaviour patterns, such as speech patterns, body language, and forms of humor, become so deeply imbedded in the human mind that they often operate without the individuals themselves being fully aware of them.

**b)** In contrast, the level of family education, school education and self-education are considered as being inflows (entry flows) for obtaining the sensitivity level of an Individual World Map:

- The education received from the family (the social class, used language, religious amount, and so on). As a general rule, it is considered that the education received inside the family has a major impact on the first few years of the child’s life (“the seven years at home”) and then gradually declining following the shape of a sigmoid function (figure 5).

- The education received from formal environments – school, institutions. It usually reaches its didactic-pedagogical purpose with propensity in the medium segment of scholar program, gradually declining afterwards with possible periods of return (revival), according to a Poisson distribution (figure 5).

- The self-education process (here we refer not only to the knowledge gained through extracurricular courses or through the individual reading of books, treaties etc, but also to self-acknowledgement, as a method of understanding personal knowledge and capacity) has also an “S” shaped evolution (sigmoid function) that cannot be illustrated on a model that covers 10 years, but it maintains its shape when doubling the time span, the step remaining the same – a moon-shaped one (figure 5 vs. 6).

Insert figure 5 here

The chronology of each of those five inflows is established as follows:

1. The cultural advantage and feeling model being considered as continuously acting over the individual's awareness, they are not assigned a beginning moment in time;
2. Education within the family and the self-education are given from the very beginning of a child's life. For this, their chronology is set as 1.
3. A little bit later on, school starts to shape the individual's thinking model as well, fact that makes us to assign it the chronology 2 (see figure 5).

Insert figure 6 here

The influences of the 5 inflows are cumulated in order to obtain the level of accuracy needed for the Individual World Map (it has the chronology 3 in figure 5). Given the fact that the generally acknowledged influence of the educational system on the individual thinking pattern is materialized into
obtaining a stereotype and developing a linear and deterministic thinking pattern, we can draw the conclusion that this type of education stimulates convergent, systematic and vertical thinking, leaving the family and the individual the task of deliberately developing divergent, intuitive and lateral thinking. As a consequence, the total will be given by the cumulation (or integration, in the DYNAMO programming language developed by J. Forrester and explained by Robert A. Hanneman in "Computer-assisted theory building. Modelling dynamic social systems", 1988), of the influence of the two constants we considered (cultural advantage and feeling models), the addition of the influence of family education and self-education, and by subtracting the influence of institutional education, as follows:

\[
y = \text{Svalue}("\text{Cultural\_advantage}\"") \\
y+ = \text{Svalue}("\text{Feeling\_models}\") \\
y+ = \text{Fvalue}("\text{Education within family}\") \\
y+ = \text{Fvalue}("\text{School education}\") \\
y+ = \text{Fvalue}("\text{Self education level}\") \\
y= \text{Round}(y,3)
\]

Insert figure 7 & 8 here

In theory, the higher the accuracy of the individual reality representation (the mental representation of the social system interactions and the behaviour determined by these interactions) is the higher the level of understanding the world, and thus the better response to external stimuli. The result of the cumulated education that an individual receives along his years of life thus reflects in the imprinted trend of the graphical representation of an IWM. The general situation depicted by the model illustrates an ascending slope - which normally means a positive evolution of world comprehension, of meeting people, of understanding their necessities and the personal impact on others (figure 7).

Alongside a better representation of reality, we consider an increase in the capacity of the individual to develop a vision (figure 8). The value and the general tendency of the evolution of this variable are considered to be tightly correlated with an intrinsic capacity (un-educated, not tampered with) of the individual to develop a vision (initial capacity of PVM in figure 8), as well as the abilities acquired as a consequence of the educational process, up to that moment:

// code for capacity of projecting a vision/mission
\[
y = \text{Svalue}("\text{initial capacity of PVM}\") \times \text{Svalue}("\text{Individual WM}\") \\
y= \text{Round}(y,2)
\]

The model considers Landsberg's formula of developing a real leadership: not only is there a need for the capacity to outline a horizon to be reached, but also the need for a certain state of spirit (the enthusiasm), and the capacity to motivate oneself and the others around: if the enthusiasm and the capacity to project a certain vision can co-exist independently of the motivational abilities of an individual (their chronology is 5), the reverse is no longer valid. The capacity to motivate requires certain ability in projecting attractive visions and a dose of enthusiasm necessary for determining change; for this fact, its chronology is 6.

As a consequence, G.VALI considers the ability of the individual to self-motivate and to motivate others as a cumulation of influences of the IWM flows of capacity of projecting a vision/mission, level of enthusiasm and initial ability of MP. In order to obtain the value of this flow, the prior variation in the flow of the level of enthusiasm is needed. For this we shall consider a minimum value (0.8 out of 1 – a value subject to any alterations) for the IWM for which the person does not acknowledge or even try to control his/her mental state in general, and enthusiasm in particular. On the interval superior to this level, the link will record an “S” shaped curve as it can be seen in figure 8 and also below:

// code for level of enthusiasm
\[
x,centre,pente \text{ is real} \\
sile,iwm \text{ is currency} \\
\text{centre}=60 \\
x=nbt-centre \\
pente=10 \\
sile = \text{Svalue}("\text{initial level of enthusiasm}\") \\
iwm = \text{Svalue}("\text{Individual WM}\")
\]
IF \( \text{iwm} > 0.8 \) THEN
\[
y = \text{sile} \times \text{iwm} \times \frac{1}{(1+\exp(-\text{x}/\text{pente}))}
\]
ELSE
\[
y = -\text{Random}(1,2) \times \text{iwm} \div 5 + \text{iwm} \times \text{sile}
\]
END
\[
y = \text{Round}(y,2)
\]

Coming back to the flow of the ability of motivating people, the evolution over time of its graph is given by the accuracy of the individual world representation, by the native ability of the individual to motivate and his/her ability to outline a vision and convey personal enthusiasm on to others:

\/
\text{code for ability of motivating people}
\x, \text{centre}, \text{pente} \text{ is real}
\text{centre}=60
\x=\text{nbt}-\text{centre}
\text{pente}=10
\y= (\text{Fvalue("capacity of projecting a vision /mission")}+ \text{Fvalue("level of enthusiasm")})/(1+\exp(-\text{x}/\text{pente}))
\y+= \text{Svalue("initial ability of MP")} \times \text{Svalue("Individual WM")}
\y = \text{Round}(y,2)
\]

The simultaneous action of the 3 flows – vision, motivation and enthusiasm – will outline the leadership abilities of the person at hand (see figure 9). Leaving aside for the moment the value of the flow of changed values, believes and behaviours which can be found in the leadership ability action, we can observe the sum of the three previously mentioned influences (vision, motivation and enthusiasm):

\quad \text{Insert figure 9 here}

\/
\text{code for leadership ability}
\x, \text{centre}, \text{pente} \text{ is real}
\text{cvbb} \text{ is currency}
\text{centre}=60
\x=\text{nbt}-\text{centre}
\text{pente}=10
\y = \text{Fvalue("level of enthusiasm")}
\y+= \text{Fvalue("ability of motivating people")}
\y+=\text{Fvalue("capacity of projecting a vision /mission")}
\text{cvbb}=1-(\text{Fvalue("changed values believes and behaviors1", False, nbt-9)}/(1+\exp(-\text{x}/\text{pente})))
\y+=\text{cvbb}/500
\y = \text{Round}(y,2)

G.VALI model adopts the belief that between the manifestations of a leader and those of a manager a continuum exists (every leader displays each style to some amount): laissez-faire, transactional style (associated to the managerial activities) and transformational style (associated to the process of influencing in which leaders change their associates’ awareness of what is important, and move them to see themselves and the opportunities and challenges of their environment in a new way). The leader with an optimal profile infrequently displays laissez-faire leadership. This individual displays successively higher frequencies of the transactional leadership style and the transformational components most often. In contrast, the poorly performing leader tends towards inactivity and ineffectiveness.

Moreover, from the viewpoint of the model, an effective leadership always combines tasks and socioemotional orientations. This is why, no matter the level of leadership abilities, all the three inflows (intrinsic motivation, ICT adoption, and redesigned ORG&FUNC structure) coexists. The threshold given by default in the model influences only the shape of the relationships set among the leadership ability and the downstream flows.

Thus, it is set by the model that if the leadership abilities of the person occupying a management position surpass the threshold of 66.6 out of 100 (value that could be altered), then his behaviour will be treated as that of a transformational leader: it will put a greater emphasis on the intrinsic motivation of his subordinates

\/
\text{code FOR intrinsic motivation}
zz are currency
zz = Fvalue("leadership ability")
IF zz > 66.6 THEN
y = 1.5*zz
ELSE
y = (1/4)*zz
END
y = Round(y, 2)
and it will offer less attention to bringing new technology in to make activity more efficient (Information and Communication Technology, ICT, in general)
// code for ICT adoption
zz are currency
zz = Fvalue("leadership ability", False, nbt-5)
x, centre, pente is real
centre = 60
x = nbt-centre
pente = 10
y = 1/(1 + Exp(-x/pente))
IF zz > 66.6
y = (1-y)*zz
ELSE
y = y*zz
END
y = Round(y, 2)
or to reforming the decisional act (redesigned organizational & functional structure):
// code for redesigned ORG & FUNC structure1
zz are currency
zz = Fvalue("leadership ability") + Fvalue("ICT adoption1")
x, centre, pente is real
centre = 60
x = nbt-centre
pente = 10
IF zz < 66.6 THEN
y += TriangleS(nbt*1.6, 50) + (SinusPulse(nbt, 35, 90) / 3)*zz
ELSE
y = zz / (1 + Exp(-x/pente))
END
y = Round(y, 2)
Antagonistically to this, a lower level of leadership abilities will place the individual in the transactional leadership model, concentrated on making the activity as a whole more efficient (planning, organizing, leading and controlling). This will implicitly determine a propensity to be oriented towards investment in new technology (which could bring a plus in efficiency) and towards a reform in the decisional act (figure 10). Their chronology must also be observed: if the upper branches have 8 as chronology, the lowest one has 9 due to the fact that it is considered also a consequence of the new technologies implementation.
The model takes for granted that the level of creativity manifested in an organization is the result of both intrinsic motivation of employees, and the volume of knowledge and intrinsic awareness that exists in that organization; it tends to have an "S" shape still being limited in its ascending trend. Thus:
// code for creativity level
x, centre, pente is real
centre = 60
x = nbt-centre
pente = 10
Considering that the Internet enhances the readiness of explicit knowledge, fact that makes no longer essential the tacit knowledge, the link established between the flows of ICT adoption and tacit knowledge are considered to have an antagonistic evolution; it also manifests a particular delay in reaction over time due to the general inertia of the human factor and to the time needed for transforming explicit knowledge into tacit knowledge.

\[
y = \frac{Fvalue("intrinsic motivation1") + Fvalue("tacite knowledge1"))}{1 + \exp(-x/pente)}
\]
\[
y = \text{Round}(y, 2)
\]

Between creativity and the level of individualism a sigmoid relation is considered, further accompanied by an inverse oscillation of the graphical representations of the level of individualism and the competitive environment as follows:

\[
x, centre, pente \text{ is real}
x = nbt - centre
pente = 10
y = \frac{Fvalue("creativity level")}{1 + \exp(-x/pente)}
\]
\[
y = 1 - y
\]
\[
y = \text{Round}(y, 2)
\]

Any introduction of new technology is meant to modify, to a certain extent, the organizational and functional structure of an organization. Therefore, the redesigned ORG&FUNC structure flow is itself a cumulative action which determines a decrease or increase of bureaucracy and the percentage of reformed business processes (fluctuate in the same direction). This final flow is also a cumulative action as it incorporates both the influences of the ICT adoption and the redesigned ORG&FUNC structure (figure 11).

The action fear of new tech/processes records an antagonistic evolution to that of the redesigned business processes, the relationship between them being an inverse one (type O). Fear also influences team work by discouraging it (O type relationship), though exacerbating the resistance to change (S type relationship). The latter slows down the assimilation of the novelty; thus, between the resistance to change and the redesigned business processes, redesigned ORG&FUNC structure, and ICT adoption an inverse relationship is established (type O) (see figure 12).

\[
x, centre, pente \text{ is real}
x = nbt - centre
pente = 10
y += Fvalue("redesigned business processes1")/(1 + \exp(-x/pente))
\]
\[
y = \text{Round}(y, 2)
\]

Thus, the action flow of changed values, believes and behaviours will accumulate with the influence of the resistance to change flow and the bureaucracy flow (O type relationship). The last one is also a consequence of redesigned ORG&FUNC structure on the one hand and of the number of rules and regulations of the organization on the other (S type relationship).
Because of the actual formation of a team (irrespective of its nature: functional team, interdisciplinary, interlock etc) which as a third stage requires some norms setting, a type of positive causality relationship is considered between team work and the number of rules and regulations:

\[ y = \left(2-y\right)^{2}\cdot Fvalue("resistance to change") + Fvalue("bureaucraty")/\left(1+\exp(-x/pente)\right) \]

\[ y = \text{Round}(y,2) \]

Because of the actual formation of a team (irrespective of its nature: functional team, interdisciplinary, interlock etc) which as a third stage requires some norms setting, a type of positive causality relationship is considered between team work and the number of rules and regulations:

\[ y = 1 + \text{Fvalue("team work1",false,nbt-5)} \]

\[ y = \text{Round}(y,2) \]

As one can see in figure 13, the trend of the new values, beliefs and behavior assimilated within an organization is a negative, descendent one (in a 10 year simulation). This shows a strong resistance to change determined by novelty, leaving the impression that we are dealing with an inert (no change in the first years) to slightly flexible, but rather static and rigid.

**Insert figure 12 & 13 here**

When increasing the period from 10 to 20 years (figure 14), one can easily identify the movements of the values and belief graph, modified and assimilated, are both negative and positive, fact that contradicts the previous observations and proves the dynamic character of organizational culture. Within the model some parameters were introduced; however, these are not fixed, but on the contrary. By altering them, one can totally change the profile of the decision-maker, and therefore the outcomes of his actions. But even so, a certain variation of the basic compounds of the organizational culture is perceived.

**Insert figure 14 here**

The managerial staff, characterized by developed abilities or innate leadership skills, being, in essence, the decision-maker for both operational and strategic issues, is the first domino piece that through his decision consciously or unconsciously causes the variation of the organizational culture. The more obvious it becomes that no matter the desire of the stakeholders, the organizational culture keeps changing itself, the more important ends up to be the existence of decision-makers capable of combining analytical problem solving with intuitive thinking. Unfortunately, people have the tendency to affiliate to one of the two styles, the educational system not being built to offer a complementary development of innate abilities. Consequently the following situation is encountered too frequently: "...when an organization becomes successful based on bountiful environments … and obtains an abundance of resources and assets, managers lose sight of the core values and factors that originally led the organization to success. Although these factors may provide the managers with an environment where it is relatively easy to perform effectively, accountability and responsibility are reduced, if not eliminated. Thus, managers can get away with poor management techniques and in the process create a dysfunctional organizational culture. However, since the organization may still be functioning and effective for the time being, the managers will assume that the successes are due to (or attributed to) their own behaviours and leadership and the failures are due to external factors." (Kwantes, Boglarsky, 2007, pp 204-230)
As a consequence, equilibrium (if the organization is able to reach such a stage) is very fragile, the organization being extremely sensitive to all changes even the insignificant ones. Even the intensification of beneficial actions (like focus on team work) can put an end to the "normal" flow of things. Therefore, why to hire only perfectly fit people if there is no such thing?

On the other hand, given the inherent continuous reconfiguration of organizational culture landmarks, the idea of the necessity of a continuous training and leadership skills enhancement for decision-makers when needed has spread out. The proof of this need is shown through the comparative analysis of the evolution of the variables changed values, beliefs and behaviour and leadership ability (figure15). One can observe that the minimum evolution point of leadership ability is attained when the graph for values and behaviour reaches its peak. Therefore, changes in the organizational culture attract a need to redefine the environment in which the decisional act manifested, entailing on their opportunity and customization of the decisions and implementation model with respect to the deciding factors. Through some training sessions, specialized courses after graduating the initial levels and even self-instruction, intuitive managers will be able to develop their analytical capacity by forming a systematic vision for the unit managed and by assimilating quantitative techniques for decisional problem-solving, whereas analytical managers will become more creative by practicing creativity stimulation and enhancement methods (figure16).

Of course, a better solution would be to introduce a balanced initial instruction of future managers by focusing on developing these capacities during university years with the possibility of taking optional courses and practical tasks in order to allow students to balance their natural cognitive capacity.

Insert figure 15 here

The refusal of decision-makers, in some cases, to understand the necessity of continuous improvement of personal knowledge and abilities, justifies the tendency to blame other for personal failure (theory of attribution – the aspect of false consensus which states people’s tendency to personally attribute success but attribute failure to others) (Makin and Cox, 2004) thus overestimating the influence of internal factors on personal behaviour and underestimating the influence of external ones (the actions and behaviour of the people with power of decision).

This attitude of indifference and weakness in understanding problems can be looked at from a completely different view as well: managers are more inclined to attributing the weak performance of an individual to his incapacity, laziness or misfit, rather than his own failure in explaining tasks or providing an efficient work environment. At the end of the day, organizations “buy” the behaviour or their employees and not their personalities. So, given that the relationships set among players are of mutual understanding and support, and the "game" itself is fair for all the parties involved in it, nobody will have to take care of fitting within the organizational culture, the latter having the capacity of balancing and reviving itself, exactly like a living organism.

Insert figure 16 here

G.VALI TORNADO

Starting from the simple idea behind human evolution (very well illustrated by George MacDonald, 1824-1905: “Because movements in a human being’s life are a spiral: we come back to where we started from, always following our footsteps, only at a higher level, on the next step of the spiral, progress and regress at the same time and always both of them.”) and continuing with its obvious similarities with the tornado phenomenon, we are seek for including the evolution of the organizational culture dynamic behaviour in the same class.

On each point moving in space by a circular trajectory a force FR acts on determining its trajectory. This FR force can be decomposed into several forces (figure 17), as follows:
- Ft = tangential force
- Fcp = centripetal force
- Fcf = centrifugal force
- Fr xoy = resultant force that causes the movement of the point in xoy plane
- Fz = force acting along the timeline (vertically)
- FR = resultant force that causes the movement of the point in space

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In the situation described by the dynamic model of the organizational culture, due to the fact that the variable leadership ability is the one triggering the actions in an organization, we can consider that its value is the evolutional value of the tangential force, \( F_t \).

The novelty here is given by the level of assimilation of the new technology (involution of techniques and technology being highly improbable, the organization having as sole survival strategy the adaptation and the adopting of discoveries from the technical-scientific revolution). Thus, the value of the variable ICT Adoption will give the organization a general tendency of expansion, continuous development and extended spread over a geographical and functional area. As a consequence, we can attribute this behaviour to the centrifugal force, \( F_c \).

Simultaneously, a centripetal force, \( F_{cp} \), “pulls” the organization towards known elements and structures; this is the conserving factors that seeks to counterbalance the action of the centrifugal force and that can be considered, in our model, the redesigned business processes.

The resultant force of the simultaneous action of all three forces in \( xoy \) plane, \( F_{r xoy} \), will maintain the point on its circular trajectory. And because the values of all the three forces vary in time, the resultant will also have a non-linear trajectory, its movement describing spirals with a variable radius.

On the time scale, \( z \), \( F_z \) force acts, with a given value, represented in our case by the individual mental representation of the world (IWM). The ascending evolution is not regulated itself: due to the fact that an individual does not record a standard (self-)consciousness evolution but rather has “revelation” periods, periods of stagnation or even regression, thus, similar to the fluctuations of the tornado’s movement on the \( z \) axis.

With respect to the “point” moving on an ascending spiral trajectory, this can be identified as part of the studied organizational culture, changed values, believes and behaviour. In reality, this tornado does not exist (dash line in figure 17), although, for a better illustration, its three dimensional form has been represented (figure 18).

Whilst difficult to observe with the regular graphics of the TRUE software, the behaviour of the organization is easily understood when compared to a tornado: small “bumps” which tamper with a linear and smooth flow occur. From this point of view, the organizational culture seems, if not static, then with a high degree of inertia. The surprise is that when using the model for a period of 20 or 30 years, the tornado seems to “explode”, thus contradicting the assumption of dealing with a static organizational culture. Moreover, an alteration of the cultural advantage and innate skills parameters from the first quadrant dramatically changes the intensity of the evolution inside the organization, proving that the environment is not at all indifferent to the internal changes and neither is the innate flair of ‘actors’.

In addition, by modifying the value level established to differentiate between the behaviour of a decision-makers as managers or/and a leaders, we can determine a significant amplitude changes on all the 3 axes.

Consequently, the simple understanding of the change process can prove to be extremely valuable, especially for the organizations which work with the current extremely dynamic economic environment. The factors that prove to be essential are the characteristics, the abilities, the knowledge and the decision-makers’ behaviour, this conclusion being in conformity with the saying “Man brings life to any place”. The main characteristics of organizational culture are also not to be taken lightly along with the vision, mission, methods of introducing new technology, business processes in action, all of these coming from behind as a unity of reciprocal influences which cannot function properly without the existence of coherence.

CONCLUSIONS

As everybody knows, even if the organizational culture manifests in a profound dynamic context, given the up-to-date fast changing reality, it is still characterized by a certain amount of inertia. Because of that, people tend to unconsciously assume things are the same as ever, nothing happens, nothing changes within an organisation. From this point of view, the HR strategy that heavily relies on recruiting only the perfectly fit people seems to be legitimate.
However, the intuition shyly induces the idea of some internal and external factors affecting an organization and making its conservation or endless functioning impossible without change. A main problem arises: complex systems are said to be counterintuitive, sometimes their cause and effect not being closely related in either time or space. Due to this fact, the intuition will select the wrong answer or solution much more often than it used to. Related to the extent to which the HR strategy could safely supply the organization with somehow standardized people, the question is if the organization can really assume the long-run effects of rejecting valuable people and losing the opportunity to control the evolution of the organizational culture?

Starting from here, the present article aimed to ease the understanding of the organizational culture behaviour by identifying and describing the interplay between its components, as well as its consequences over the current state of the whole that will prove it as "a living organism".

Designing a theoretical model of the organizational culture dynamics by using causal loops diagrams, Gradual Value Added Leadership Integrator (G.VALI) model is obtained; this basically is a symbolic, graphical qualitative model presenting a snapshot of the organizational culture's dynamics. Than, the model was translated into the tenet of Temporal Reasoning Universal Elaboration (TRUE), software developed by Patrick Houel, Strasbourg, France, and able to simulate the social systems dynamics. The result is called G.VALI-TRUE model of the organizational culture which is a dynamic predictive model. At the end, this will turn itself into a dynamic 3D graphical simulation of the organizational culture dynamics, an analogue model called G.VALI organizational culture TORNADO.

The greatest advantage of G.VALI model is that it combines the advantages of both the intuition and analysis: a) on the one hand, the solutions generated intuitively can be checked and evaluated as a consequence of the creation of an explicit model of the issue at hand; b) on the other hand, on the basis of this model experiments can be concluded to estimate the results of the proposed solutions. Moreover, even the simple participation in the elaboration of such a model enriches and stimulates the association of ideas, implicitly enhancing the intuitive creation act.

Basically, Gradual Value-Added Leadership Integrator explains the organizational culture variation through the leadership's power of integrating the inflows within an organization. Running G.VALI model it becomes obvious that even if our world is based on lots of typologies and continuous searches for standardization, even if we make sense of reality by categorizing it into theories, methods, feelings, values and skills that we can use in a way that tradition judges to be valid, anybody's success on the long run does not lie on "general miraculous recipes". We cannot deny that there is a general need for rules, because a rule represents the standard for correctness. The educational system itself, even if it is a positive aspect, is the most powerful factor that leads to standardization and develops similarity, more than diversity, highlighting the importance of rules. Although helpful, rules are also limiting because they filter new knowledge (Ghinea and Bena, 2008) As a consequence, the model proves that even if not obviously, the organisation periodically needs "fresh air" for maintaining not only its effectiveness, but also the relevance of its organisational culture.

Therefore G.VALI model militates for conjunctural balance leadership that relies not only on knowledge but also on the enhancement of some innate abilities essential in understanding properly each situation apart and to take decisions in accordance with it.

As a conclusion, the secret resides in the harmonization, not homogeneousness, of things and behaviours, thus the harmonization of organizational culture (Davenport, Prusak, 2000)

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Fig. 1: Different shapes of the relationships among variables
1. cultural advantage
2. education within the family
3. school education
4. self-education
5. native feeling models
6. Individual World Map (IWM, personal representation of the world)
7. enthusiasm
8. vision/mission
9. motivation
10. leadership abilities
11. intrinsic motivation
12. ICT adoption
13. organizational and functional structure
14. creativity
15. tacit knowledge
16. individualism
17. competitive environment
18. team work
19. rules and regulations
20. bureaucracy
21. business processes
22. fear of the unknown
23. resistance to change
24. change of values, beliefs, behavior, etc

Fig. 2: G.VALI causal loop diagram of the organizational culture dynamics
Fig. 3: Stages of adaptation to change in the Hopson model

Fig. 4: Temporal parameters setting

Fig. 5: The influence of different forms of education on the mental model of world representation (IWM)
Fig. 6: The evolution of educational systems over a 20-year period

Fig. 7: The evolution of the IWM graph in accordance with the evolution of the educational systems
Fig. 8: The established connection between the mental representation of reality and the ability to outline a vision, to motivate people and manifest a certain level of enthusiasm.
Fig. 9: The leadership ability variable determined by the three variables mentioned previously.
Fig. 10: Influences determined by the decision maker and his decisions in an organization (superior branch)

Fig. 11: Influences determined by the decision maker and his decisions in an organization (inferior branch)
Fig. 12: Influences on and of the variable *fear of the unknown*

Fig. 13: The evolution of organizational culture in parallel with the evolution of bureaucracy, in a 10 year simulation
Fig. 14: The simulation of the evolution of bureaucracy and organizational values, comparison between a 10 year cycle and a 20 year cycle.
Fig.15: The comparative analysis of the evolution of the variables changed *values, beliefs and behaviour* and *leadership ability*
Fig. 16: Using different methods of continuous learning and the effects on their graphs
Fig. 17: The forces that influence a point moving in space on a circular trajectory

Fig. 18: 3D simulation of the dynamics of