Decoding and modeling the future: strategic context and information

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ABSTRACT – in this paper we argue and describe the relation between the context information and strategic scenario to the strategists in the present time. Cause if the human brain needs "to digest the information that consumes before incorporating new information" (Punset, 2008), we are in trouble because the communicative ecosystem drowns us in an "ocean of signs, symbols and messages, in which the individual, either learns to swim or drowns" (Garrido, 2001). Nevertheless, we tend to think that the information assimilated by the individual drifts on one hand from knowledge, and the other from fragments of trivial information, which at the end they not remembered (this responds to adaptive behavior).

Keywords: strategy; strategist; strategic thinking; strategic model

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1. INTRODUCTION

The neurosurgeon Wilder Penfeld (1977) confirms in his investigations that everything we experiment throughout life remains registered in our brain, "from the face of each unknown individual that we have seen in a crowd up to the spider webs we stared at when we were kids". This great volume of data and information lead Von Neuman (1944) to calculate that an average human being throughout life storages in the brain 2.8x10 bits of information (280,000,000,000,000,000,000), despite the holographic and fractal conditions that are associated to the notable storage capacity of the brain (which includes visual, auditory, tactile, olfactory and taste).

This is why for the modern *strategos* an above average performance seems as a more complex challenge. Nowadays, he performs in a world full of data and has to be skilled to "discriminate, relate and evaluate if it has or not a significant meaning in order to generate the information, knowledge to then make a decision" (Ricart & Garrido, 2015). The correct discrimination of data with symbolic content, to transform them in

significant information has always been one of the strategist's skills. Nevertheless, in the 21st century, he must sail real oceans filled with crowded shoals of information proportional to uncertainty (Chaos Theory). On this matter, Anatoli Karpov (2007), world chess champion and master in the arts of handling great volumes of parameterized information, reminds us that "planning without action is futile, but action without planning is fatal". The implementation of our strategy requires a demanding combination of assessment and calculation, because in the business world one must understand what and why is happening. "Out of millions data, it is important to know which one are useful and which one are not", adds Karpov.

We will say that a datum can be considered as an unprocessed "something", upon which (potentially) some meanings can be built. Since we start from a confirmed fact, which is an essential and proper condition of a datum with supposed independence and pre-existence in regards to the observer. If it is true that the datum exists with independence of its confirmation and of its exposé (or collapse), given the own limited nature of the human being, and impossibility to recognize and group together quantities *ad infinitum* from aggregate series further than just the perceptible universe through its senses, the datum would be understood as a non-collapsed possibility. On the other hand, the information is the own meaning that proceeds or can be extracted from the singular or collective structures of data.

From the company world, the directors, managers and strategists must be well aware about being co-creators of the interdependent and self creative materialization as we call it in "the real world" and that in the organizations it is materialized in the decision of creative-strategic order. We should ask ourselves if awareness exists about what we build and re-build during the day-to-day of the organizations through influence and materiality of the facts of our thoughts. In the analysis, creation and synthesis processes, essential for the strategist to develop his own ability of strategic thinking, the information plays an essential role of basic input of the process.

The task of generating a proper contextualization of the vector senses of the thought that builds the reality of the individuals immersed in the social system, within which the companies move, it produces a challenge from which the strategist cannot

escape. This challenge requires, first, a thinking logic that grants *depth and density to the analysis, creation and synthesis process*. It is a proper form to decode and systematize ideas, which allows recoding them upon patterns appropriate for the goals and objectives.

2. DECODING THE SIGNS OF "REALITY"

In this ocean full of *bits* there are articulated, sustained and grouped structures of *data* to which we try to relate in the best possible way through our series of conscious, subconscious and supra-conscious matrixes, that resolve or not the extraction of the meaning from the informative flow, upon aggregated data. They tend to gather together according to a certain grouping logic that, whether they are complex mathematical systems or simple sign conventions, we call *codes*: they are the comprehensive matrix that transforms expressions into signals with symbolic content, in sequences of transcendent stories in space-time.

For Negroponte (1995), there are some similarities between the revolutionary effects of the essential unit of the matter or *atom,* and the essential unit of the information or *bit* of John W. Tukey (1977): the main aspects of convergence are revealed in the functionality that meant the *Industrial Revolution* (which can be described as a period of great expansion and combination of groups, series and chains of atoms reorganized by the man's hand as it was never seen before in human history) for the effect of establishing the basis of the *Information Revolution*. Indeed, the industrial development unprecedented in human history happening at instances of last century, it allowed the rise of the need and classified production of millions of *bits* grouped together in ways of consumption proper of the contemporary society (documents, files, texts, diagrams, news, *e-mails* and thousands of other forms). The bit can be explained as the smallest digital pulse (ones or zeros). However, its real value for communication or information effects in the company (but not for information technology) resides in the fact that the bits *for themselves are not priceless*: the true bit value is in its role as a potential component of meaning. They are logical chains or connections of bits (which encoders do not have the exclusive in its manifestation) that

connect the significant objects we capture through our senses, and that we continuously reconstruct in the cloud of electrons that does not escape our brain. What we suppose are aggregated and disaggregated structures of data are constituted in an involving phenomenon of life of the human being. Upon conception itself, and from the same energy sparkle of the fertilized ovum during the initial collision of the cells, we witness a series of energetic and gestational processes that inject the being in the informative flow of this dimension. We know that from this initial creation act, there is an ordered series of data that are translated into informative sense: a new cycle of life has begun, through the collapsed structure of a living system, whose structure and development obeys to *genetic codes*.

In different chapters of science, we find references to the transversal importance of the *information* concept (Bertalanffy, 1942) and to the extent of it in the search of breaking the hatred of uncertainty (Shannon, 1933), and universe complexity (Einstein, 1930). In the daily steps of an average individual, the proper duality is manifested in the different binary plots of modern reality: life/death, information/uncertainty, knowledge/ignorance, open/closed, *ying/yang*… ones and zeros. What can be information for one observer, it can be considered just a datum for another: the interpretation of the environment and the "reality" will unveil or collapse (in quantum terms), depending on the conditions of the observer. Von Clausewitz mentioned that "great part of the information obtained in wars is contradictory, another part is false and most of it is from really doubtful nature". This leaves no options for the *strategos*: he must be a skilled interpreter of reality, of the complete situation he faces and without intermediaries in the information that may be considered as "relevant" in his decision making.

Such contextual *signs* are expressed before the individuals, offering information (or data) about the implied (not expressed) or explained (expressed or collapsed) reality which is always interpreted by the observer and mostly, it constructed at a supra-systemic level (and supra-mental). These signs and indications that the individuals are able to analyze and interpret, upon the *information provided by the environment*, it

allows them to perform with greater successes or failures, inside and out of each one of the social systems where they perform.

The own Evolution of the Species Theory is not understood to the margin of the interpretation/adjustment capacity that the individual realizes regarding the environment. Learn is partly to remember what is useful to survive and *to adapt*, thus we should not ignore the fact that the purposes of information are ultimately human and social purposes. If during the second half of the twentieth century we had to repeatedly listen to a McLuhan (1980) setting information as an asset "economically superior to protein" [1], today the evidence and the distance allow us to say that the information is not a value itself. In this regard, and as pointed out in previous works, we will say that the real value of an strategist in the companies and organizations in this century is connected to his *non-replicable abilities and competences*, as well as the understanding an proper use of the tools of the contextual, analytic, creative, synthetic and communicational process in the strategic conception.

Given the significant increase of informative flows in which the company navigates, the ability and competence of current and future reality interpretation (or the construction of them), are the key elements for the strategist. This is why the sufficient capacities of analysis, relation and synthesis of the informative flows (that are not the least) mark much of the sought executive leaderships in the most influential companies of the world. Wurman (2001) works on this line when he mentions that "99% of the information online and offline is not very significant or is misunderstood"[2] by the executives and CEO's of the companies. This coincides with the perspective of Norton (2008), who together with Kaplan repeatedly aim on the negative effects that it has on the dimension of strategic design, the lack of understanding of reality, as well as the subsequent "lack of communication of the strategy"[3].

This situation worsens for the strategists if we consider the weaknesses of decoding the context that, in general, the modern executives have, which ends up in a

[1] McLuhan, M. (1980): "Understanding Media: the extensions of man". Gingko Press, Sn. Fco. CA, USA
[2] Wurman, Richard (2000): "Information Anxiety 2", New Riders Press Publishers, USA.
[3] Garrido, Francisco J. (2013): "The Soul of the Strategist", W&C Publishers, NY, USA

new form of poverty (understood as a competence that since is not develop it subtracts value). It has nothing to do with the informative asymmetry, but with a systematic loss of competences seeking to ensure a superior performance of the strategist in the current and future scenario. The raw material required to execute the most valued part of the process: reflection ability in future and real time, in known and to be known conditions. This is a new way of poverty affecting the high level directives or stakeholders in the organization and companies that we have previously called *decoding asymetries*. This occurs when the access to the information is not a major problem in the current times and when no different future trend is predicted, seen the "Law of Accelerating Returns"[4] (Kurzweil, 1999).

Then, we will say that the information works as an input for the strategic thinking models and for later decision making has a resolutory, trendy and connective value.

a. It has a *resolutory* value as long as it constitutes a decoded input that nourishes the analysis and collaborates with the resolution of problems.

b. Its *trendy* value arises from its potential contribution to activate proper predictions referred to long term processes.

c. It has a *connective* value because upon thereof, it can be connected or assemble previous information that enhance valuable relationships for the creative resolution of problems.

We can assume that, as well as the uncertainty wraps those bodies covered by the most absolute darkness or by the reflection of the most blinding sparkles, and counting on that the sense of vision is the only means of contact –only can be discovered by our eyes when having the presence of the proper light-. Likewise, the existence of

[4] Kurtzweil, R. (1999): "The Age of Spiritual Machines", Edit. Penguin Books, USA

information regarding the environment and its effects for the company will be significant as long as the directive provide the necessary competences or skills for *capturing* and *decoding* the environment.

The individual concerns about the development or exercise of decoding skills (for example: social skills), implies a recognition of the utility that entail the signals and the information associated to them, concerns that in good measure are equivalent to those of the company. Certainly, the pragmatic survival need seduces many towards repeating the learned behavior and models of success in their own decoding exercises of reality ("success cases", for example). This powerfully transforms the biased directive of the 21st century and the companies, in observers busy on the forms of the processes (trying to reproduce images of a satisfactory shaped reality), tending to concentrate more in reproducing current success models, instead of necessarily understand them.

The *awareness* or *insights* process of the individual-company to search a successful decoding of social and environment analysis processes are manifested in a system with clear *informative asymmetries*, and what is even worse -and as mentioned before- with clear *decoding asymmetries*. When the company is capable to accumulate and organize information coming from the context in accordance with its interests, then is able to select and reject the enormous volume of raw data that surrounds it. It begins with the constant construction of its own and personal universe that revolves around a systemic equilibrium, sifted by sensitive filters that operate in "registration frequencies" of its private interests. In this regard, we should never mix up the mere *order* in data matters with the extraction of useful information from them, and with the necessary *understanding* and subsequent learning thereof. Actually, the way in which the data is organized, coded and *recoded* will potentially change its meaning, collapsed and emerging relation.

There are thousands of examples that show how man is capable of extracting useful information from the environment to ensure his survival. In ancient civilizations (e.g., learning about the climate and solar cycles), as well as in apparently more complex contemporary societies (e.g., learning about economic cycles). In the life of a man and

in the structure of the contemporary societies, there is a constant search for predictability of the facts to make the universe of the observer more stable (personal or social); trying to infer or to project the *futures states of the absent information in the current flow of information*, upon crossing its signals and indicators. In this decoding and *recoding* process of informative flows, it is where the constant adaptation of the actor occurs and the response from the environment to his survival actions.

The study of *information* as an essential component of the man's act in the society has been present in the essence of the Aristotelian reflection, upon whose foundational ideas, a clear utility thereof are outlined. As long as it was possible to appropriate the understanding/ignorance that could be assured by coding signals. However, the applied use thereof and the pragmatism of its components –besides its known military use- were "overflowed by its own success from the beginning of the first half of the 20th century"[5].

If the concern about the scopes of information crosses numerous scientific fields, perhaps the most notorious in our daily life is computing and data processing (biology and human genome), but not because of it their impact has been less constant on the business world.

The Latin root associated to the concept on which we are focused is *informare*, which means "to shape". Thus the etymology carries us to recall that upon capturing information we are associating a series of pieces –so to speak- giving it a certain form trough the exercise of thinking: we give *sense* and form to a disaggregated series of data that we collapsed in *form* of a particular idea. This is an exercise that synthesizes and groups, according to modern cognitive theories, the *forms* or *representations* of what is known (experience). A positive aspect of these forms of grouping data and transform them into information conducted to a specific sense, is provided by the improvements in times of response in known or similar situations. The negative sense is provided by *aprioristic ways* of interpreting reality that can potentially mislead because people only see what they are ready to see.

[5] Garrido, F. (2012): "Strategists". McGraw Hill, Madrid, Spain

Often pre-made forms of knowledge (pre-concepts and paradigms) become blinders. Other times are the own axiomatic structures of science which lead us through roads that do not allow us to find solutions in alternative ways. This was criticized by Einstein in the field of scientific research: “the theory decides what can be observed”. This principle brought to the business field explains a recurrent verification that we have been able to do from the consulting world: “what is not in the heads of the businessmen, it does not exist”, and what many times is actually there is in a preconceived or paradigmatic form of exploring reality.

It should be borne in mind that the informative content arising from the interpretation of the facts and data is potential and conceptual. It is *potential* because it depends on the importance and interpretation that the individual assigns to it, and it is *conceptual* because is an immaterial interpretation of the signals or data obtained from the environment. From another perspective, it can be stated that the conventional signals correspond to proposals that foresee the occurrence of a concrete fact, and in such sense, it will always provider information. For example, a burglar alarm (signal) is material, while the content that transports (information) is potential and immaterial: the probable occurrence of the robbery. This fixes the potential veracity of the signal in most of the cases; it is the associated regularity of the occurrence of the fact with the corroborated information.

The quantum collapse of the informative content of the data flow still is the patrimony of whom decodes the message (observer), because it can be inverse, or different from the proposal literally described from the point of view of the signal (e.g. the informative potential displayed on a table of money does not supposes a purely mathematical-financial decision making, but rather from binding elements that go beyond the signal itself). Understanding that the informative content is mediated, it results to be always a true proposal. Every signal is true in itself (p=p is always true), which means that the reliability or certainty of occurrence of the fact that the signal report us must be trustworthy (the information will be considered as an *objective but not absolute magnitude*, because it is independent from the interpretation of the potential receiver). On the contrary, *causality* does not provide the minimum reliability

conditions in its occurrence as to be considered as an informative regularity (even if an amateur is capable to put a hole in one of his first times on the *green*, the necessary reliability doesn't exist to suppose that he will do it every time his *swing* reaches the ball). Therefore, a certain degree of reliability is necessary in the occurrence of informative content and in its correspondence with the signal that supposes its occurrence i.e. that it has a low margin of error or accident rate.

3. INFORMATION, UNCERTAINTY AND MODELING THE FUTURE

The branch of mathematical physics that deals with the random behavior of the dynamic systems is what we have popularly called "the chaos theory" (chaotic, unstable and stable systems). It explains a form of aggregation of multiple ordered behaviors that have as corollary a chaotic conduct: none of both forces in this complex and dual universe overlaps, prevails or dominates the other in normal conditions (it seems to follow the dynamic equilibrium of ying/yang). In the chaos theory, numerous systems are explained in which the answer to a stimulus notably varies by introducing minor changes on the initial conditions: either biological or social systems do not escape to it. Einstein (1940) mentioned that "disorder is not the chaos", meaning that the apparent disorder of a sequence –state or fact- does not mean that the indetermination or the regularity of the sequence cannot be of human domain and even premeditated.

Pure chaos has total unpredictability, nevertheless, we suppose that chaos in its purest state is not necessarily random, because it would have an underlying order in the order implied by Bohm (1992) or if preferred, a behavior where "cause and effect do not entirely match"[6] and do not proportionally relate. In words of Kosko (1995): "a lineal theory gives us the whole from its parts. By adding the parts, we will have the whole". In chaotic sense, when we add the parts, the result obtained will not be the whole because we are dealing with the nonlinearity. Poincaré (1963) introduced the model of nonlinearity (concept that may not be the most fortunate), upon which the

[6] Bohm, David (1992): "Wholeness and the implicate order", Kairos Pub., Barcelona, Spain.

origin and result diverge and the formulas do not resolve the system: it is the threshold of the "Chaos Theory" -which was originally applied to the analysis of electronic circuits- it demonstrated the possibility of synchronies in chaotic systems that resulted excited by an equal signal, regardless their initial state (Heller, 1966). That is, within the multiple possible behaviors in a chaotic system, when affecting on it with the adequate stimulus it will be forced towards a specific behavior; however, the initial conditions mark the difference of evolution of the final states. Markus (1945) models biological processes upon this same concept, given that the smallest variations (even measured in millionths) constitute modifications to the biological system that make it unpredictable. In this sense, the vital human cycle is constituted in an order/chaos process: altered the initial conditions, in which the cells integrated and diverged, will tend to disintegrate (it is what shows the convention that we call time).

The so called "state spaces" constitute the *scenarios* on which the different variables or axes meet synchronously and asynchronously. The variables located in the order of the constant parameters (or attractors) are the ones that drag (centripedal sense, given the universe curvature) the trajectories (finally, determining them). These are the orbits or points on which over the time tend the stable systems and they feel strongly *attracted* (sense of order). A chaotic system is characterized by manifesting both behaviors: it feels trapped by the attractor; however, its own active forces drive it away from it. Thus, the chaotic system is arranged in an unstable zone of its states of space, without tending towards a fixed attractor that determines its trajectory.

The *periods* of the attractors (pa) will tend towards predictability in their cycles (when *pa* is different from "n" which tends to infinity), even when we talk about chaotic periods of longer cycles. Once we know them, we can hope to model the system and to know its operation for a period of time (even when we know the model, this tends to diverge from reality after some time, upon the verification that precise descriptions do not guarantee the certainty of the prediction of future behaviors, for example, in social systems or in economy), because a decision can be made in states of balance of *certainty, risk or uncertainty*.

4. CONCLUDING REMARKS

The state of *certainty* supposes that the strategist fully knows the context situation and thus, he does not presume destabilizing risks or uncertainties in his actions (in a decision matrix the actor may decide to act, for example, being certain that the competition cannot do it, or on the contrary, to not do it due to that reason: in this sense, the information is an impartial magnitude and the decision maker will act according to his will). Even though, the decision in status of certainty is optimal, it doesn't usually happen like this, in absolute terms.

In reference to the status of *risk*, the strategist dos not completely know the reaction that will emerge from the conjunction of contextual factors. The mere occurrence probability and the mere appearance of related factors will make him decide based on supposed limited or unlimited risks (here the intuition of the strategist plays a major role).

The axes (dynamic variables) that define the non-lineal movements are space/position and time/velocity, for processes that account for episodic states (each point, each fact, as a secondary and partial picture), and temporal (described combinations by the succession of episodic points that have a trajectory sense). In the structural axis of the "reality" part calling our interest for analysis purposes, it refers to cultural processes, of identity and social *tendency* that responds to construction processes indexed to change or building processes of generational type.

Complex forms of chaotic systems define, according to our judgment, one of the greatest challenges for the analysis of the future states of the systems (which impacts on the strategy *core*). In this regard, there are two major considerations to be noticed and which will be addressed below: the scale and the information.

Regarding the *measuring scale* of complex forms, the principle adapted to the systems or symmetrical and stable forms does not operate. It is the own asymmetry system what defines the need to have adaptable measuring parameters, that do not start from the classical (and paradigmatic) cause/effect point of view. They are the analytical measurements that are extracted, for example, from the own theory of Mandelbrot

(1982) fractals that will helps us to obtain a greater probable success when describing the complex systems.

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