An essay of a systemic reading that can support a paradigm shift

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Abstract :

The observation of the "observed behaviors in action" is a complex act. Observation without evaluation of a single fact, except being in a solipsistic approach, can be seen as a relatively simple operation that allows a median intersubjective agreement. When the mission is to report of operative's phenomena that should lead, by consensus, to an assessment, we are in the presence of tensions. This evaluation will implement abstractions needed for the operation of the phenomena's representations. These abstractions make use of concepts whose meaning can only be understood only in relation to its opposite: cold - hot, open - closed, operating – non-operating. Common sense tells us that the assessment is not a matter of choice between one of the words but need a gradation. Based on this observation (many times repeated by others before us), we are led to revisit our systems approach. It appears obvious to us that the approach to the entities' identification that is connected to form a coherent whole is not sufficient. We must adopt an approach whose foundation may account for the processes, movements and tensions. Our study focused of the field theory. This brings us in the heart of a paradox: continuous-discrete. The same paradox has stimulated research in quantum field using particle and wave relation

Keywords: modeling, interaction, field theory, densification, antagonism.

Introduction

The GIROSCOPE (our modelling tool) named because of the abbreviation "G.I.R.O.S." underline the analogy with Gyroscope of Foucault. This latter is used both in aeronautics and sailing to ensure stability. In our approach of organizations, the Giroscope enables a stability of view made possible by the constant represented by the Managing Principles and their mutual interactions. Like the gyroscope seems motionless, the structure of the organization with its models relies on the movement (or the tumults) experienced by the organization. Closest to the etymology, the gyroscope which in Greek means "observing the rotation" refers to the circularity of the evaluation of organizations: the circular evaluation tool.

The Giroscope is a modeling tool which "concepts" are closed to systemic concepts. These systemic concepts have a unanimous consensus in the scientific community. There are 12 main concepts within the modeling tool. This tool is accessible by observing behavior (in the broad sense). Its peculiarity is the freedom of the practitioner to begin its observation from any Managing Principles. His choice is based on one that emerges from his first observations, which seem to him to be a good thread without

being the unique.
Over his observation further elaborate other Managing Principles are examined and linked with each other. The more a practicing advances in his modeling, the more a structure of the observed system is occurring and its representation of the system.
Now, we can easily agree that the Giroscope does not rely on a typology that derived from observations, built on induction, verified and used by deduction. The observer is involved each time in a new situation and must seek his own genius in the construction of its representation.

We wish to submit our peers and the scientific committee this paper. It is the first draft of a reflection that takes the risk of relying on the concepts of field and densification.
This risk exposes us to the coexistences paradox of the opposing view that appears in the coexistence of the concepts continuity and discontinuity inside the systems approach.

How do we feel this need?

Our observations led us to have the intuition that a systemic implementation based on a clear definition of the system and its components does not give enough possibilities to our representations. It limits our capacity of understanding to be able to act on complex situations.
We are well aware that the choice to make a step aside and move to the concept of field is only a representation among others. It does not pretend to a description of the Real . We recognize that the representation based on a strictly discrete and interactionist view is in many cases, relevant and sufficient to act.

The approaches going from the global to the element and from the element to global have at least two common concepts: the part and the whole. The element has some properties: indivisibility, homogeneous. The indivisible character is a convention that is systemically signified by the black box. The homogeneity is characterized by a univocal character. The whole logically includes the parts . Each part must be considered as a whole of other parts . Regardless of the approach, the observer will identify relationships between parts, between the parts and the whole according to an interactionist approach. This is a common approach that we want to develop.

Based on the Giroscope, we develop a model that could be considered as an analogy to the field theory. This vision must be used as an indicator to the path of the complexity to searching a paradigm shift of society. Very ambitious choice!

The Giroscope is born on the observation of human organizations. It is based on concepts described by the authors of the current systems research such as Gregory Bateson, Ludwig von Bertalanffy, Heinz von Forester, Francisco Varela, Humberto Maturana, Paul Watzlawick, Edgar Morin, Jean-Louis Lemoigne Joel de Rosnay, Ilya Prigogine, Mony Elkaim, this list is not exhaustive.
The Giroscope provides access and studied the structure of organizations. Its goal is to lead to a "diagnostic": operating, or no-operating (fulfill its mission, wrongly or even fail)

Before moving to our current thinking concerning a visible and materialized system" we want to say a few words about the 12 MPs as they are used in the model developed by A. Piecq.

The "12 Managing Principles" used to pilot the organizations

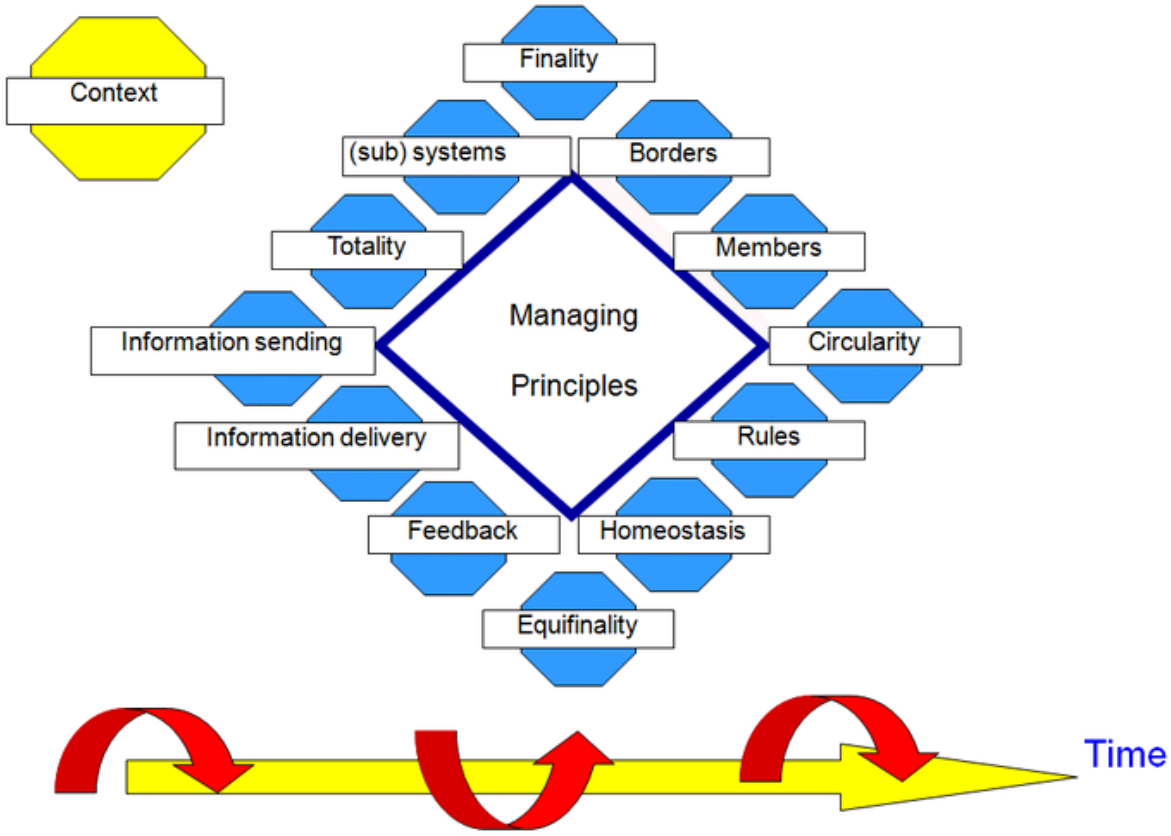

Figure: Managing Principles (Guy Koninckx)

After reading, this model may seem linear because of the successive presentation of different principles, but this is not the case because all the principles fit into the others and are all interacting. This model allows the study of the structure of human organizations and to identify the organizations' type in order to pilot them.

The context is consider as a set of circumstances for relations, interactions between members of the observed system. It is also relations between these members and other systems. One context is common to all systems of whatever origin: the time context.
We consider the context as a meta-managing principle. All organizations and therefore all systems are totally dependent on their context

Organizations are not a juxtaposition of components: they are characterized by the relationship between the parts. Relationships are not independent of each other but the organizations,(that we studied) are composed of individuals. If we forget their central position and their identity, this vision leads to a totally reductive purely holistic view.

1. Organizations are divided into subsystems based on criteria given by the observer. The subsystems can be considered as a fractal image of the organization. Found in sub-systems the characteristics of the organization, its structure and how it is organized.

2. Organizations consist of human members, partners in interactions that have a status, mandate, tasks, functions and different and complementary roles.

3. Organizations have a purpose, a goal. It has a general approach which is in the long term. This purpose is a process composed by three interdependent levels representing three steps

necessary for the evolution in time of the organization. The aim is also necessary for the control of the organization. These three levels are:
- a goal that specifies the overall direction of the organization (its mission). It happens in the long term;
- necessary objectives for the purpose and overall direction of the organization are met. It happen in the midterm;
- actions that operationalize targets established to achieve the purpose, the mission of the organization. These actions happen in the short term;

4. Organizations are subject to operating rules. Repeating sequences of behaviors communications allows the observer access to the rules of the organization. All members contribute to their development and their maintenance. We consider two types of rules: directly observable phenomenological rules (explicit rules, implicit rules) and mythical rules (rules that are carrying the image of the system itself).

5. An organization must be considered in its entirety, in its complexity and its own dynamics. It forms a coherent whole that emerges from all the interactions between its components. It is useless to analyze it from each characteristic of its parts.

6. Any modification of an element causes changes in the entire organization. It is said that the organization is subject to the principle of circularity. This means that a stimulus A will bring a response B which in turn becomes a stimulus that elicits a response and so on without turning back to the original stage.

7 Any organization provides information. It communicates as an issuer. Information travels from inside to outwards. Organizations are subject to the law governing communications. Organizations become non-operating when there are blockages or distortions of information that go out from the organization.

8. Any organization receives information. It communicates as a receiver. The flow of informations from the outside inwards. Organizations are subject to the rules of communication and may become non-operating if blockages occur in receiving the information.

9. The boundaries separating one organization from outside. Boundaries can be permeable or impermeable, depending on whether or not they let go of information.

10. Organizations are trying to keep a balance, a steady state. (which for over 20 year it is not true any more, organizations are taken into the spiral of change)

11. They use the regulatory process called feedback to try to maintain this steady state. Loops of negative feedback allow organizations to try to keep a steady state; positive feedbacks allow organizations to keep change; evolutionary feedbacks lead to complexification: the emergence of new instabilities that cause change.

12. Organizations are governed by the principle of equifinality. It establishes that the same goal can be achieved "from different initial conditions or different paths" (Bertalanffy, General Systems Theory, Dunod, Paris 1980).

Our current research.

The structure of an organization can be considered as emerged of a set of elements (members) These members are neither human nor predefined by the formal structure of the system entities. They are concepts which we have access by the behaviors observation. These elements are Managing Principles They are necessary to form a coherent and complex unit (system, organization). This unit emerges to do something based on a "given context" and interactions between Managing Principles

In other words it means that it is as if the organizations structure emerged from an inseparable couple field formed with the interactions with the context and the organization.

Indeed if we make the analogy with "fields concept in physics we say that it is as if the continuous flow of interactions between Managing Principles and the context formed what we call an interactions field » from whom the system emerges.

Referring to the physics, we learn:

That a "field" has no hardware support, but that it requires the sources presence (localized or not).

That the manifestation of a "field emerges by densification at the forces intersection that bind sources (densification omnidirectional interactions).

That these forces (the interactions) when they intersect become identifiable and form the systems

Also In the analogy of the fields interaction it is af is we considered :

As sources the 12 Mps and the context ;

The manifestation of the "fields' interactions" (the force) is an emergence from the "densification" that appeared at the intersection between sources : the context and the 12 Mps

These forces (the interactions) when they become identifiable and form systems (organization)

This proposal:

requires the redefinition of what generally is considered as an element: a discrete object that can exist by itself without any interaction;

highlights the complimentarily between the continuous and discrete concepts.

The system must be defined as a densification in the heart from the cross of several forces (interactions) that bind the two sources (context and Managing Principles) : we could say that it is as if the "materialized and visible system " (organization), emerged from the shock produced by the meeting, the crossing and the densification forces (interactions) that bind the two sources (Managing Principles and context.)

If we accept this proposal reading, the definition of the system must be reviewed the relation to its

context (the circumstances surrounding a fact).

The context is multifaceted and plural (time, relationship, place, politics, science, history .....). We could says (as we say for the materialized and visible system that is as the context emerged from the shock produced by the sources cross (interactions).

The context has sources which are multiples, and these sources are formed with elements' in interactions multifaceted and plurals. These cross forces (interactions) bind this plurality. This plurality is one of the sources of the "interaction field" from which emerge the system The other source are the Managing Principles.

"Materialized and visible context" is like " materialized and visible system ": multiple, interlaced and moving.
The same can be done for all Managing Principles.

It is from these multiple densifications that the notion of complexity is born for us.

In the pure meaning of the field, a system would be a system within a system.

The system as densification is at the intersection of several fields. These fields are of different types and properties. The system is immediately at the heart of the cross. From this crossing emerge new properties containing each other and all this properties gives the system identity.

In the Giroscope, the Managing principles are in interactions each other and with the context. From those interactions emerge system. Access to this "emergence" is done by the observations of Managing Principles through practical observation of the behaviors of the systems members in a context.

So far we have talked about the interactions but how do we define it?

An interaction occurs when two or more elements influence each other reciprocally.
Interaction elements can change condition and produce the emergence of a new structure, for example when there is interaction between particles, atoms, molecules, or any other elements of a system, of whatever kind they are. If there is emergence of a new structure, there is modification of the original structure, and there is "radical change".
This concept of interaction plays an important role in the analysis of the organization as well as in the analysis of all systems.

Interactions between Managing Principles.

It is their interactions that define how the organization (the system) is structured. They are the backbone, the "framework" of the system. They introduce a dynamic system, which evolves, makes it live, going ahead.
If we change the influence that the principles have on each other (strengthening or weakening certain observable behaviors), this will cause a cascade of changes. Since the principles are interacting, changing one will change the others and vice versa as in the game with dominoes.
A system whose interactions are unchanging come into a state of homeostasis that lead to the destruction, death by implosion (symbolic or real). Without the movement, without the change the evolution is nonexistent. However, the observation of our organizations shows that too much change or too quick change also leads to death but by explosion.
Interactions between Managing Principles are at a logical level above the interactions studied in the

communication.
The Managing Principles form a circular chain of combination that reaches a finite number but non-sizable (no phenomenon can grow indefinitely) namely a maximum of 12! (factorial 12) : 479,001,600 possible combinations. In common language this will mean that the chain is circular and with endless combinations.

The 12 Managing Principles are a "totality" of concepts in interactions with each other. In a particular context, due to their specific interactions, they form with it, a "interaction field" from which emerges the system structure. This structure embodies the system.

The system is at the intersection of several forces, giving its identity. These forces are of different kinds, the properties of our system field are at a cross between properties that make the emergence of a new one while containing each other.

By analogy, we illustrate our approach by water vortex that forms when a river flows into an other, this vortex is observable and identifiable. It has a certain stability that confirms its existence in time. Being able to identify it allows us to define its contours, its border. Its relationship to the river sources and the river (see the field) in attendance cannot be regarded as a relation to a context in a classical meaning; its existence depends on this meeting. It enrolled as densification crossing two forces represented by analogy with rivers. No observer would say that the vortex is an element in a unique and independent way.
If we continue with this analogy, we can ask ourselves the question of where the greater complexity is? Logically, we would have to say that the complexity is in the vortex. Reduced to our observations subjects, this implies a greater complexity in the element then in the system to which it belongs.
To continue with this analogy, in the heart of the vortex flow of the two rivers by meeting will inhibit some properties of both. On other side, some properties will strengthen. On this last point, we can say that some properties will be potentialized (inhibited), and others be actualized (strengthened). Finally new properties will emerge as a new color that will blend the two colors rivers meeting.

If we refer to the studies of Stéphane Lupasco in the logic of antagonism, this tension between two possible events is driven by the energy of opposites both complementary and antagonistic. Like the antagonist muscles biceps arms and triceps contraction (actualization) one corresponds to the relaxation of the other (potentialization). Rightly S.Lupasco added that the total actualization or total potentialization is not possible. How to justify this impossibility? By analogy, if we talked about the concept of "dry", it is relevant if it is placed in relation to the "wet" concept. The absolute actualization of one of two concepts would become irrelevant to one another.
If we return to human organizations, it would mean that the organizations will mitigate some properties (potentialization) to allow updating other properties in this system. What is relevant in this analogy is that what is potentialized is absolutely necessary to operate the system. The potential is of equal importance to what is actualized. In other words, remove the potential result to suppress the system. Regarding the new properties, we can see how the emergence of crossing several "fields of interaction".
Back to MPs: the member whose mandate and mission update function within the system which is an update of a set of skills. This update by the same principle of tension, antagonism is the potentialization of complementary skills and "non-visible".
What is said here by referring to the member-individual can be projected on the subsystems. We could go through each of the principles and identify contradictions at work.
We can continue with other principles which also have within them tensions and antagonisms.

The principle of totality linking the "whole" and the "parts" can raise a greater complexity in the part then in the whole, including any part based on the principle of fractal. This brings us naturally to the dialogic Edgar Morin e.g. see the man be defined by a ternary individual, society, species. The three poles of this dialogic are both singular and coextensive.

For a long time, the systemic incorporates the ambiguity in which communication is : the

inseparability of the relations' definition between members and of the contents about what they are speaking about; in other words : the communication shows the interactions in which are entangled the analogical communications and the digital communications.

Borders are both open and closed.

The system in its relation to the context puts us in accordance with the looks and the need to give meaning to the phenomena of ambiguity content-container. It's the same with the subsystems.

The causality is systemically revised in the common sense of cause and effect by the principle of equifinality.

The circularity can be understood in a diachronic and synchronic meaning.

A system can be both finalized and finalizing (cf.J-L. Lemoigne).

And so on for each MPS individually, and it is more complex when considering the interaction between principles.
We can advance at each level of the organization, as well as within each Managing Principle, we are in the presence of characters in opposition.

The actualization of one of his characters match the opposite potentialized. And to stay in line with the theory; what is potentiated is as "necessary" as what is actualized.
This development has consequences. Aspects actualized within a system have a counterpart potentialized. These potentialized aspects are stakeholder of the system.
This "excess potentiatlized" is what the system does not, is not and does not become in the context and the current structure of the system while it is present.

Conclusions:

What impact on the diagnosis of organizations?

The operability or non-operability of a system is certainly not within the binary approach.

Affirm that the interventions mission is to empower the organizations makes sense. The potential is logically present in the system, it is good to update and bring out a new configuration of the structure leading to either a development or a change, depending on the diagnosis.

With reference to the suffering manifested in organizations, we do not dwell on the relevance made sense to consider the actor as a whole. Indeed, beyond the moral, denying its potential is endangering the system.

What can we learn from this approach as regards the knowledge society, the purpose of this seminar? On the level of education of the younger generation, we would be inclined to worry an educational system that would focus only on skills needed in the companies. Indeed, it would omit the potential surplus, its corollary. This is not romanticism we suggest an awakening to knowledge in which future technicians will make music and philosophy, artists will learn mathematics and physics. The same principle can also be extended to all forms of intelligence: intellectual, emotional, bodily.

From a social point of view, the change is not necessarily the result of an ideological opposition but rather potentialized properties within a system that update. (cf. the revolutions that have marked the history). This challenges the conventional wisdom that change comes from the contrast between groups opposed by ideologies. It can also emerge from internal tensions.

As a non-conclusion, since this development is at an early stage, it appears to us that the "system-field" on its theoretical contribution approach offers the prospect of a systemic giving the opportunity to re-enchant the organizations and world for the emergence of a new paradigm. This representation is far from a widespread prejudice on systems science accused of being cold. This hope, far from being naive, is a corollary of the need for even more acute by the fact that grading is not as simple as in binary rigor. An analogy not unrelated to this, we place in front of a similar implementation of a quantum computer next to the classic binary computer challenge.

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