Death of formal social units? The magic of complex adaptive systems, innovation and the *harmony* of future environments

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The complexity of a living individual minus its ability to anticipate (in respect of its environment), equals the uncertainty of the environment minus its sensitivity (in respect of that particular individual).
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Abstract

The act of sharing information with the environment is not subject to the same laws (fundamentally incremental) that apply to the physical flow. The sharing of information is not only the basis upon which evolution works in order to get higher organization levels, but it has also been the way in which those higher forms faced problems.

This dynamic behaviour along with the limited rationality of every actor (being the actor an individual or a coordinated group), produces in the actor some kind of misunderstanding, or misinterpretation, of innovation.

However, if we assume the perspective of what has been defined as the *average live expectation of the organizations*, instead of that of the actors, what we can observe is the vanishing of the most part of these problems.

When the manager of an organization becomes aware of his being a mere administrator of the organization, it lives longer (actor sees himself as a *tool* that introduces changes enhancing the organization's survival capability).

The motivations for it are very different, among them its relationship with the environment, the understanding of the organization from the inside and not as something external to the actors themselves, or even have a good understanding of change (some authors talk about organizations as *living beings*).

There is no doubt that learning is an advantage for organizations, since it enhances their competencies or its adaptation to the changing circumstances of the environment. What currently could never be done is looking at learning as a *curve*; the well-known research on the *learning curve* (or *experience curve*) didn't show any kind of relationship with the learning processes, and it easily falls in the useless *black-box* theory.

And we couldn't even think the improving of productivity as an obvious result of *knowledge*. In any case, and with Leonard- Barton (1992), the old truths become new falsities from the moment in which, depending on the changes in the environment, the core capacities become core rigidities, both at the practical level and at the level of the old capabilities or abilities which block adaptation to the new circumstances.

On the other hand, we can still observe that the relationships established with the environment are restricted to those which can be understood from within the organization, forgetting the fact that the interaction with the environment sets up a system of relationships.

The relationships to the environment are a representation of culture, which can vary along with time (transformation of cultural forms). Such environment, in the case of organizations, is not only physical, but also conceptual.

From a theoretical point of view, it could be seen that —at different levels— what constitutes the research object is:

a) learning as the creation of sense, and learning as an action developed in activity-finality,

b) analyzing the relationships among *signs* building every and each *reality* (each way to see and tackle the world, among which *cultures* are the most relevant).

In this context appear the differences between *feedback* and *feedforward*: whereas *feedback* implies both the enhancement of the process and our understanding of it, and, therefore, allowing us to improve what was already known (Levinthal 1995, p. 5); *feedforward* is a process offering the possibility of guiding the action to its end.

The way to the alternative *reality* is constructed as we move toward it; so the most powerful innovation an organization can implement is the strategic innovation, as a result of a cultural change through learning.

It could be seen how the relationships are always *changing*, they are not a closed or even finished set, which leads to *communites of practice* as learning-as-action groups. Working with this kind of *complex adaptive systems* fulfils March's (1988) double demand:

a) goals vary at the same rate at which new relationships are added or created, and

b) the usually extremely rational choice frame *relaxes* fostering the *discovery* of goals and *alternative* rules (Levinthal 1997 calls it *random jumps*).

Learning shows itself as an action, but a poietical action; in the same way that through drinking we are no longer thirsty, learning updates the way we deal with the world, showing what forms are no longer useful and which need changes.

Innovation, as a result of learning and *unlearning* processes could only be enacted in some culture- environment conditions. In the case of *communities of practice*, the results of this innovation activity are non-incremental imbalances which, by changing the point of view the set has generate a first order strategic innovation. When both learning and the implementation of *knowledge* accelerate, the possibility of adaptation accelerates at the same rate and the one of extinction diminishes.

The gap to fulfil in order to consider environment and culture as a system implies changing various links of the chain: first of all, change in the perception implies a change in the way learning is enacted, which in its turn implies change on action. At the same time learning involves more and more elements (more relations arise), enhancing the system, making it bigger.

Then the awareness of the so called environment maximizes.

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