# ORGANIZATION VS. STRATEGY TOWARDS RETHINKING MANAGEMENT FOR TRAJECTORIES OF RESILIENCE IN WORLD PANDEMIC POST-CRISIS*

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Received: *March 27, 2020* Accepted: *August 6, 2020* Online Published: October 205*, 2020*

## *Abstract*

*The recent history of organizational modelling shows a dominant position of strategy on organization with a weakening of the former in front of growing global complexity and change all over the world. In recent years we have seen organization as "part" of strategy as a dynamic counterweights process of action able to improve managers to take decisions often decoupling them, to put them back together in better and more suitable organizational models for more dynamic stability and gaining resilience in front of innovation and change. We see in digital world – in particular - to the organization as a (quasi)-substitute for an increasingly weaker concept of strategy as linear process and an alternative and flexible solution to the failures by the logic of pure calculation of consequences (deterministic rationalism) or simple reactivity – as describe by Pavlov 100 years ago - (bound by external resources), or enclosed in the narrow spaces of a contingent intuitionism of the Bergsonian type (subjectivism and dependence on the constraints of internal resources). Analyzed rigorously by Weaver in the interaction between complexity and science because all problems which involve dealing simultaneously with a sizable number of factors which are interrelated into an organic whole that needs of a governance action both with or without information or decision. Exaptation is a model mutuated by biology able to produce solution before problems and in particular after post pandemic crisis.*

* A first version of this work it has been presented in the 1st International Interdisciplinary Conference on "Strategic Decision-Making in International Context", held in Urbino on February 27, 2020.

## 1. Introduction

We have to see when a rough sea generating complexity of our direction searching for trials and errors where the speed of trial overcome the speed of reasoning neural cortex as in case of non-verbal human language where we need of high level of learning with all of our senses in particular after crisis of covid-19 as an emergent global shock (not first and not last) following financial one of 2008 by USA sub-prime. In modern man we see *cultural limits* and not only by *bounded rationality à la* Simon, with a disrupting coordination between thinking and action facing emergent world where body and mental reactions are decoupling by reducing scarcity of resources and consequently the efficiency of linear processing of action by strategy that presupposes absence of uncertainty (Motterlini and Guala, 2011).

Along a jagged emerging ridge of dynamic learning organizations, want to try to synthetically formulate the ongoing transition starting from an evolution of operational and behavioral contexts, increasingly influenced by the paradigmatic shift between predictability and unpredictability, between simple linearity (in a stable world) and complexity (in an unstable world). Exploring the effects and emergence of substitutes, such as that of *ecology* that shows that it is possible to settle the crisis of the strategy with the appearance of new resilient organizations, just like in the *organic whole* defined by Weaver. Leveraging on non-linear and dynamic complexity models, which integrate interdependent biological, cognitive and social dimensions. *Ecologies*, where change can be understood as self-reorganization of results that derive from (social and cognitive) inter-connectivity between the members of the community, the sub-systems and the environment designed by *density overlapping feed-back loops* of *network* and *network-of-network* nodes, in the sense of Maturana and Varela (1987) and Capra (1996) or in case of exaptation mutuated by biology of J.F. Gould (Gould and Vrba, 1998; La Porta, Pilotti and Zapperi, 2020). In the last case we can see how organisms “normally” push their adaptation in opportunistic way structures just available for many other functions, as could be for human beings when they transform their organizational and social forms to “control” change but with high level of imperfections and without optimization strategy in a bricolage of actions.

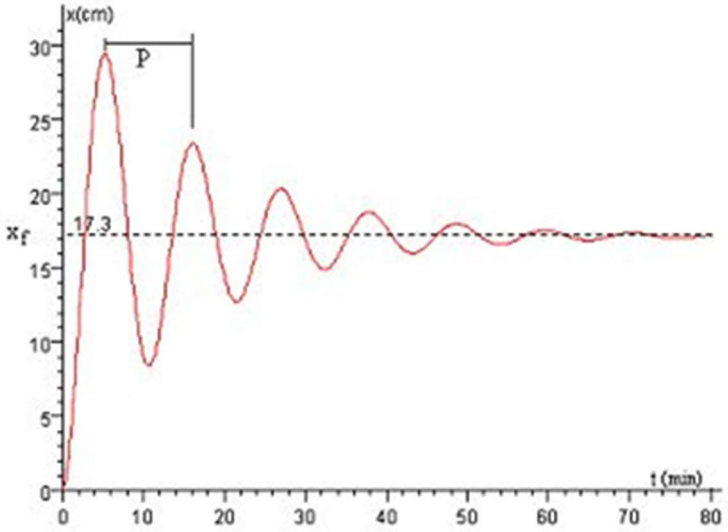
## 2. Which human behavior in unpredictable world?

Science – as we know – works by connecting (or trying to connect) the causes and effects of natural and social phenomena. In the "hard" sciences, however, this connectivity turns out to be relatively simpler because the variables to be considered can be "isolated" in the laboratory and replicated in their relationships to verify that a simple correlation is also an expression of causation, capable of confirming or denying a research hypothesis and therefore also a theory or segments of it. On the contrary, in the social sciences this exploration of the relationships between causes and effects is more complex, because laboratory replicability is almost never possible. In the social sciences the methodological reductionism, that is usually adopted in the hard sciences to isolate some variables and replicate the experiments, is rarely possible, even if it has been tried to “align” economics and social sciences with the hard sciences, with frequent disappointing results. Such unsatisfactory results have been demonstrated, for example, by the scarce ability of economists - academic and / or professional - to foresee the crises that have occurred over the past 120 years.

Robust forecasting models have always been sought also in the management trying to connect the structure of behaviors to the performances, for example, as in the well-known deterministic approach S-C-P, based on a substantive rationality followed by the agents and assuming a stable world. This led Chandler (1962) to detect that “*structure follows strategy*”.

Therefore, a linear approach of connection between structural market variables (average dimensions, number of occupied people, number of competitors, consolidated technologies), which would influence the conduct or choice behaviors (strategic behaviors), would eventually determine the (positive or negative) performances, precisely according to linear logics. But this would happen in the substantial absence of innovation and where the variables at time t cannot change at time t + 1, which configures what economists define *steady state* (borrowing the concept from biochemistry or physics - see figure 1): situation in which the starting conditions do not influence the final or exit conditions of the process.

Figure 1 – Example of a chemical-physical steady state representation




In this case, the decisions would be determined by the original structural factors that would lead to specific performances, based on a good forecast of the future, having gathered the necessary and available information. "Good predictions", in this case, of the economy and management, will depend on the degree of complexity of the surrounding (as well as internal) environment. On one hand, low or no complexity will determine good predictions (which all agents should be able to provide, having the same information and knowledge, or the same technology), even for a prevalence of *close innovation.* A case in which the value of the information approaches the "0", because all the agents can access it at almost zero costs. While, on the other hand, high complexity will force us to formulate alternative scenarios (from *best* to *worst*), scoring the results based on the probability that some circumstances will occur (or not) and in conditions of *open innovation.* In this case, the information value is different from "0" and positive, because it will depend on alternative scenarios and differentiated emerging conditions. The latters, however, are perceived in different ways, which will influence the final results as well as the starting conditions.

## 3. An “efficient strategy” through Organization preparing action by information networking

The linear-deterministic model in economics - and even more in management - does not work effectively in conditions of complexity of the interacting variables (internal and external), since we (decision makers) are ourselves part of the object of observation and therefore part of the process of decision-action.

Let us start with a practical example, like the persimmon plant and the farmer (Figure 2). The farmer's problem is to determine the best forecast of the times of fall of the leaves (and persimmons) and of their quantity to adapt the technology (trolley and broom) to collect them. The persimmon plant tend to differentiate the adopted strategies in a linear (or simple) world with respect to a non-linear (or complex) world. In the first case, the farmer has only the persimmon plant and only that in the absence of other disturbing variables (wind, rain, birds, and other plants), in a short time and without innovation (the technology cannot change). In this context, the strategy represents the minimization of resources, given the technology and the time needed to reach the plant, according to a principle of energy saving. In this case we can speak – as known – of an optimization procedure. Here the concept of strategy is suitable because it leads us to accept a sequential and deterministic relationship between decision and action, that will ultimately tend to coincide, given the objectives, the resources and timeframe within which the phenomenon is assumed to have run, in a linear and highly predictable manner. The timeframe, however, is short (within a limited space) and susceptible to recourse to some form of stochastic or probabilistic forecasting, capable of giving us an (efficient) measure of the space that can be spanned and of useful or necessary energy consumption. In these situations and contexts, opposite and equivalent solutions cannot exist in the outcomes, in order to exclude possible errors in the chosen solutions to the problem. *The strategy is the calculation of the expected value* of the farmer's decision-action, without other considerations on the behavior, that is assumed to be rational and in which the outcomes will not be influenced by the initial conditions, also for the prevalence of *short termism*. On the whole, we would always face classes of *"reversible"* phenomena, as in the hard sciences.

Figure 2 – Persimmon plants

## 3. Complexity and non-coincidence between decision and action: the concept of effective ecology and catastrophe change model

Taking up the elementary example of the persimmon and the farmer, we must note that if together with the persimmon plant we have other plants, we introduce the wind (or snow) and also birds that lean on the persimmons and move them, or the presence of insects that condition the life of the plant the original problem changes. It can also change based on the behavioral influences of the farmer and the sense of proper actions and his own perceived identity as his competences. A set of factors that change - dynamically - the original steady state conditions. The outcome is no longer that of simple energy optimization or resource minimization given

an objective, which, moreover, in the short term is supposed not to change, but to understand the effects of the network or of the interdependence between the variables. In this case, then, the problem of the farmer is no longer to predict when the fruits will fall and *how many*, but *what to do when* they fall and *how to* collect them and whether he will have the appropriate technology, as well as the spirit (awareness of himself and of his potentials) to do it (Pilotti, 2019; 2011).

Therefore, we will no longer have a "standard forecasting" problem in a strict sense, but the need to understand and design the interaction perimeter between the relevant variables, which arise when all this will happen, so that our farmer knows how to intervene appropriately. Here the concept of strategy is no longer useful because the objective is not given and the process of interaction between the variables changes the relationships in space-time and even theself-perception of the farmer. Another concept is needed, capable of delimiting a *problem of appropriateness* in the variables interaction and/or in the networking and/or in the perception: the concept of *ecology* could be useful for this purpose. Since the concept of ecology is able to point out the appropriateness of behaviors and useful resources - designed in their complex interactions - to accept the challenges of a multi-interaction context (also subjective and behavioral) between variables in unpredictable forms, with multiple effective solutions.

The question is then which solution to choose and furthermore: what connection between decision and action in an unpredictable world? If cognitive functions are co-emerging with respect to the reference environment, to individuals and activities, then decisions no longer coincide with actions but tend to decouple from them. The main reason is because the same decision can bring to more possible actions or, viceversa, the same action can be generated by multiple independent decisions, given the plurality of objectives and the generativity of knowledge emerging in the process. Therefore, the starting conditions can change the final results of the activities and thus we enter a class of *irreversible phenomenous* as in case of Butterfly Effect analyzed by Edward Lorenz for the first time in 1962 (New York Academy of Sciences, 1963). As we know by Lorenz (1963) - and anticipated by Turing in 1950 -, in *chaos theory*, the "*butterfly effect"* is the sensitive dependence on initial conditions in which a small change in one state of a deterministic nonlinear system can result in large differences in a later state. A very small change in intial conditions had created a significantly different outcome.

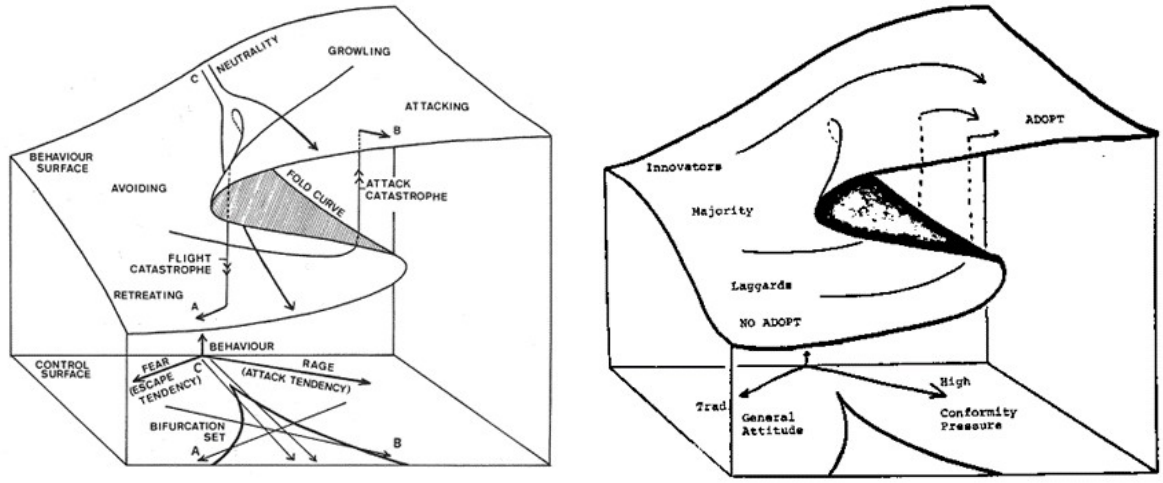
From this point of view Renè Thom (francophone mathematician, winner of the prestigious Fields Medal in 1985) proposing some form archetypes, tries to solve this problem of discontinuity and irreversibility of the phenomena of change with a qualitative use of quantitative models of geometric or topological type, suggesting the possible forms of change that would lead - in our case - the farmer to accept the challenges of leaps in process innovation and in the system of objectives, as well as in perception. The 7 catastrophes of Renè Thom have the purpose to draw, in a topological sense, the possible connective structures that the variables will or could have when the event takes place and adopt appropriate behaviors to absorb the impacts on subjects and institutions and certainly on the context. His major contribution is in differential topology and in particular in the catastrophe theory, applied mathematically to natural phenomena. In particular, the differential topological theory of catastrophes, by the use of mathematical models, represents those discontinuous phenomena caused by the continuous variation of the parameters on which they depend, i.e. those phenomena that introduce variations in the starting conditions. Thom classifies seven possible types of elementary catastrophes that tend to describe a sudden change in a process that is considered structurally stable. Such theory can be applied to the genesis and evolution of fields ranging from hard sciences (physics, climate change, bio-engineering, chemistry) to human and social sciences (linguistics, semiotics, ethology, sociology, economics). According to this approach the world

cannot be described as chaotic by itself, but it is the expression of a series of rational structures whose sequence is the object of a morphological investigation (Pilotti, 1984).

The specific case of the cusp of innovation adoption is representative of many of the complex problems that managers and organizations today have to face in circumstances of permanent and continuous or *disruptive* change, which normally determine behavioral situations of bifurcation of possible choices. Contexts of choice in which the prediction or the concept of standard strategy are misleading or not useful because they assume a stable, linear and substantially adaptive world for incremental changes. In situations of radical change, we need another concept, more capable of indicating a different complex (or ecological) relationship between the variables and of non-coincidence between decision and action. Not coincidence that occurs in a precise point in space where time collapses and gives rise to the innovative "leap" and the cusp. *The ecology of the relationships* between subjects and environmental contextual factors that give origin to the cusp is effective in representing the process of innovation in adoption in an ecological form, of which the cusp (final outcome) is among the possible forms and the surface describes instead process continuity.

In Figure 3 we have the *cusp catastrophe* proposed by Renè Thom and adapted to interpret consumption adoption within a three-dimensional scheme, capable of discriminating between innovator and follower or, even, no consumption.

Figure 3 – The cusp catastrophe interpretation of consumer adoption




The cusp catastrophe (Figure 3) that we have chosen, appears in systems which have two control factors (exogenous variables) and an axis of behavior (endogenous variables), which are interrelated by the action of a potential, which alters the energies of behavioral factors, influencing their direction. However, while in natural phenomena the geometry of the potential is given, in economic-social phenomena it is subject to mutation. The continuous changes of the slope of the paraboloid are generating discontinuous changes in the behavior of the system and determine explosive effects and divergence (unstable equilibrium); or, the discontinuous changes of the paraboloid are incapable of altering the continuity of the behavior of the system, so that they generate implosivity of the process and convergence (stable equilibrium).

Topological languages help us to model the relationships between exogenous (discontinuity) and endogenous (continuity) variables along the crests of a radical and discontinuous change, not predictable, as can be consumption and innovation. They are offering

the availability of appropriate tools and languages to grasp discontinuities and structural asymmetries of the changing nature of change (which is technological, but also social as well as economic), expression of a reunion between economic-non-economic, technological-non-technological, endogenous-exogenous factors. They prove also useful to explain the relevant passages from variables normally considered exogenous to an endogenous or behavioral dimension, that assign "autonomy" to the organizational and institutional aspects of a structure with respect to technological ones, changing the traditional causes between social, economic and technological factors towards bifurcation chains between action and decision. To be rejoined in an appropriate ecological understanding of change, that reassigns a role to the subjectivities and relationships, both in their organizational and inter-organizational aspects.

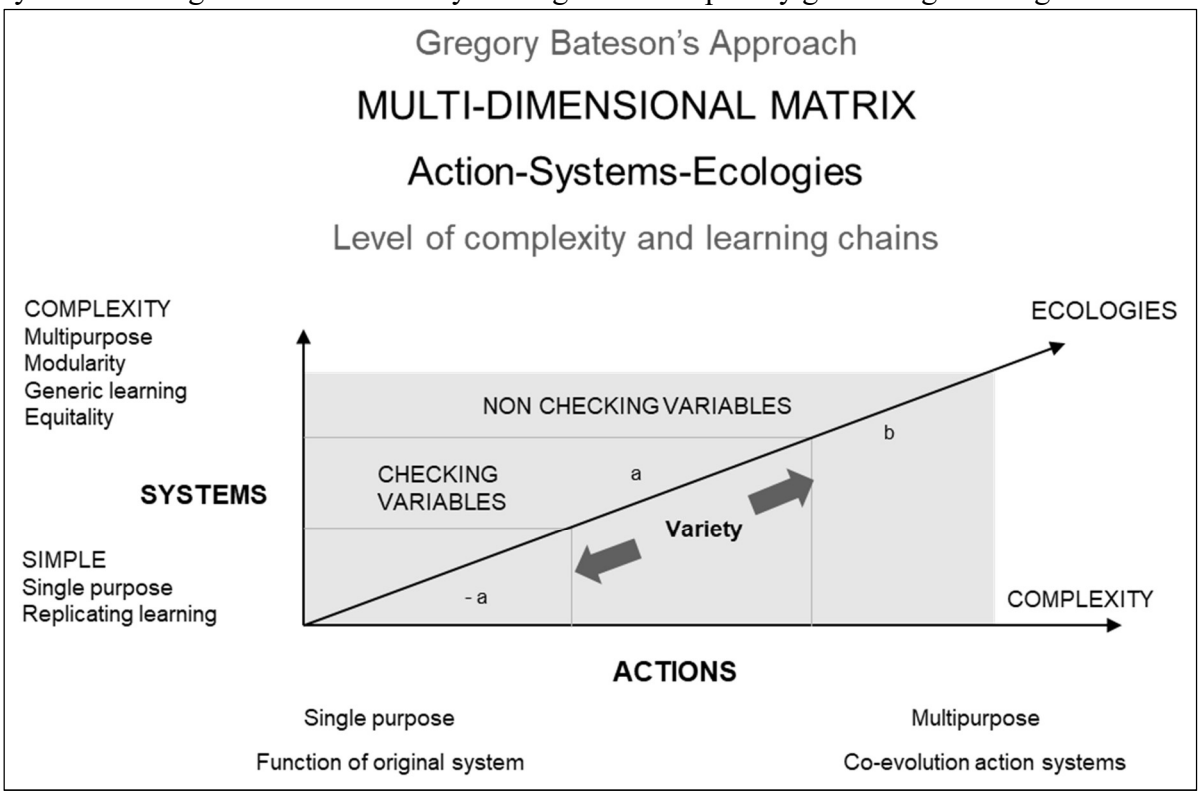
Overcoming, at least in part, the specialized exasperation assumed by academic studies, which shattering reality into thousands of micro problems and contingent micro solutions, is dispersed in a thousand rivulets and sometimes it loses the sense of the whole in the hard sciences and, in part, also in the social sciences, but that seems instead assured by the Italian corporate tradition. The lack of the sense of the whole constitutes a serious problem for all the disciplines, but in particular for the social sciences when they adopt methods and solutions translated *sic et simpliciter* from the natural sciences. And yet around the concept of *ecology* they show unusual convergences through, for example, the categories of self-organization, reflexivity, feedback, resilience, homeostasis. They are trying to solve the structural conflict of each organization, namely that between monocratic centralization and pluralistic decentralization, between top-down and *top-down control* and *bottom-up* or *bottom-up self-organization*. Couples both necessary as long as one limits and enhances the other. Such as to found an organizational postulate so far not denied by the theoretical and practical history of the organizations: the power of government of an organization must be concentrated enough to allow to face the complexity of the problems in their organicity in "reasonable" times, but not so concentrated to inhibit the initiative, autonomy and skills of all actors in the space-time exploration of useful alternative solutions. Because sometimes those solutions even precede problems, especially in a world with a high rate of change that breaks down the causes from the effects, the decisions from the actions. Indeed, that postulate from the bottom up can be reformulated as follows: the nature of the problems, the speed of change, the role of specialist skills require an articulation of the power of corporate governance to endow each point of the company organization with autonomy, responsibility and capacity of initiative, useful to feed creativity and widespread cognitive productivity. As long as they are compatible with the unity of direction and governance of processes, internal and external to the company.

## 4. Change management and “dramatization” of decisions: exaptation as solutions before problems

We must start to recognize the irreplaceable importance of free, responsible, motivated actors, able to multiply their effectiveness through hybridization, cross-fertilization, respect for differences, awareness of the "ecological" long-term consequences of their decisions (Sérieyx, 1993, p. 248). Only in this way, the company legitimizes its role and allows human capital to preserve itself and to develop, produce utility, consolidate ties, share values and meanings. Markets and organizations need rules but also meanings and certainly without the latter, neither the first nor the second are governed, because the calculation cannot foresee them. We are at the great historical and paradigmatic passage from the Fordist representation of the rigid and fortified enterprise like the castle to the net (from the 90s of the last century) and from this to the community (of the first decade of the century in progress), as was well underlined by Butera

(2005) and Dioguardi (2007). Transformations that - even under the lashes of globalization and digitalization, the Internet and AI, migrations and *climate change* - are paving the way for holocratic organizations, also in the form of ecologies. A form of organized ecologies aimed at privileging osmotic elasticity and flexibility in relations with the external (and internal too) environment as dynamic and complex, impressing trajectories of self-organization, towards a growing decoupling between decision and action, between cause and effect. In this way, we could say that "the space of the possible" can be represented as a multidimensional matrix between actions-systems-ecologies. A matrix of systems and actions differentiating between spaces of uncontrollable variables with unlikely and high-value information (high uncertainty) and spaces with controllable variables with probable low-value information and high certainty. We see a differentiation of actions between single purpose (high specialization as replication of original conditions) reducing variety on one hand. With multipurpose to the other oriented to co-evolution (of / with original conditions) increasing variety. Complexity of the systems (organizations) coupling with multipurpose actions (and functions) create emergent ecologies.

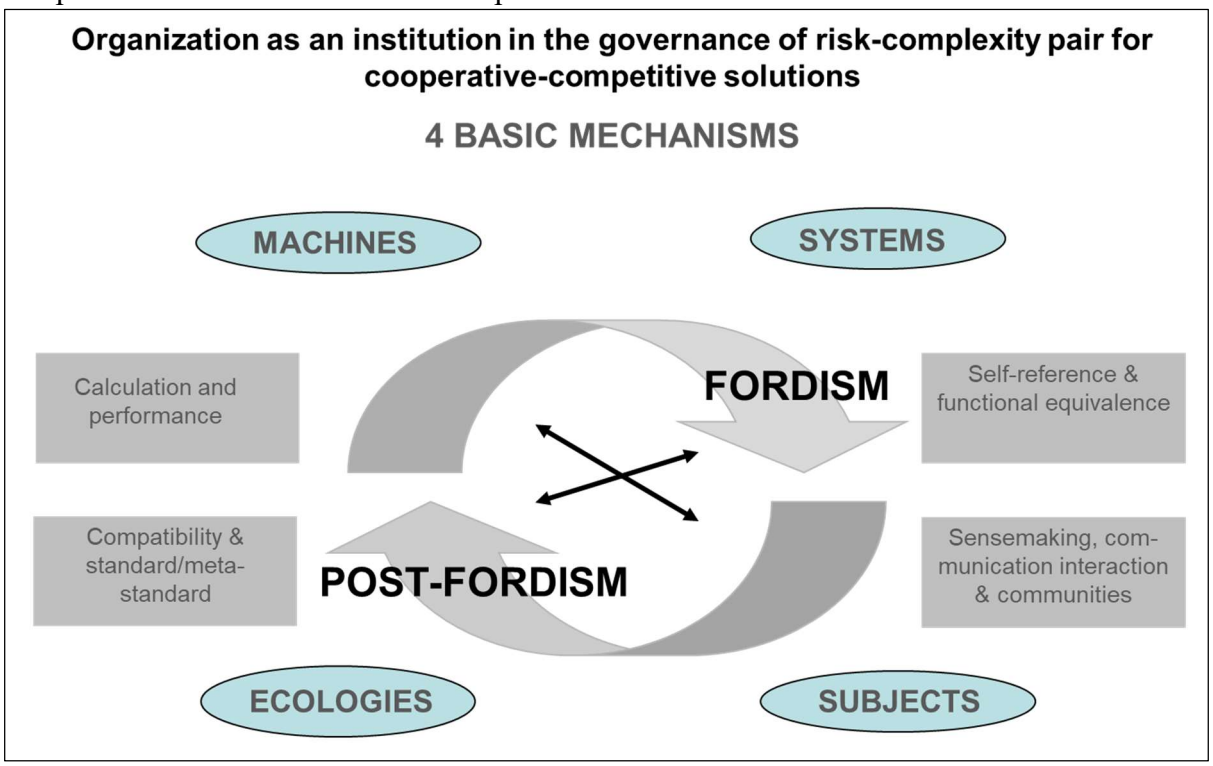
Figure 4 – The space of the possible (or emergent) like a Multidimensional Matrix Action-Systems-Ecologies Differentiated by the degree of complexity generating learning chains




The spaces of controllable variables correspond to historical and social situations (Figure 5) that can be traced back to Fordism (since 1910 until the 1970s), while the spaces of non-controllable variables are attributable to post-Fordism or the current situation (after fall Berlin Wall in 1989 and started new globalization) and digital worlds of Artificial Intelligence in the last two decades. In the former, machines (calculation and performance) and hierarchical systems (authoritative and functional equivalence) prevail, governed by "well-functioning" and stable markets with incremental innovations and where decisions and actions are coupled linearly, as proposed by SCP linear modeling in 1960. Instead, in the latter, ecologies (compatibility and meta-standards) and subjects (meaning, communication and interaction) prevail in the presence of highly unstable markets triggered by radical innovation, where

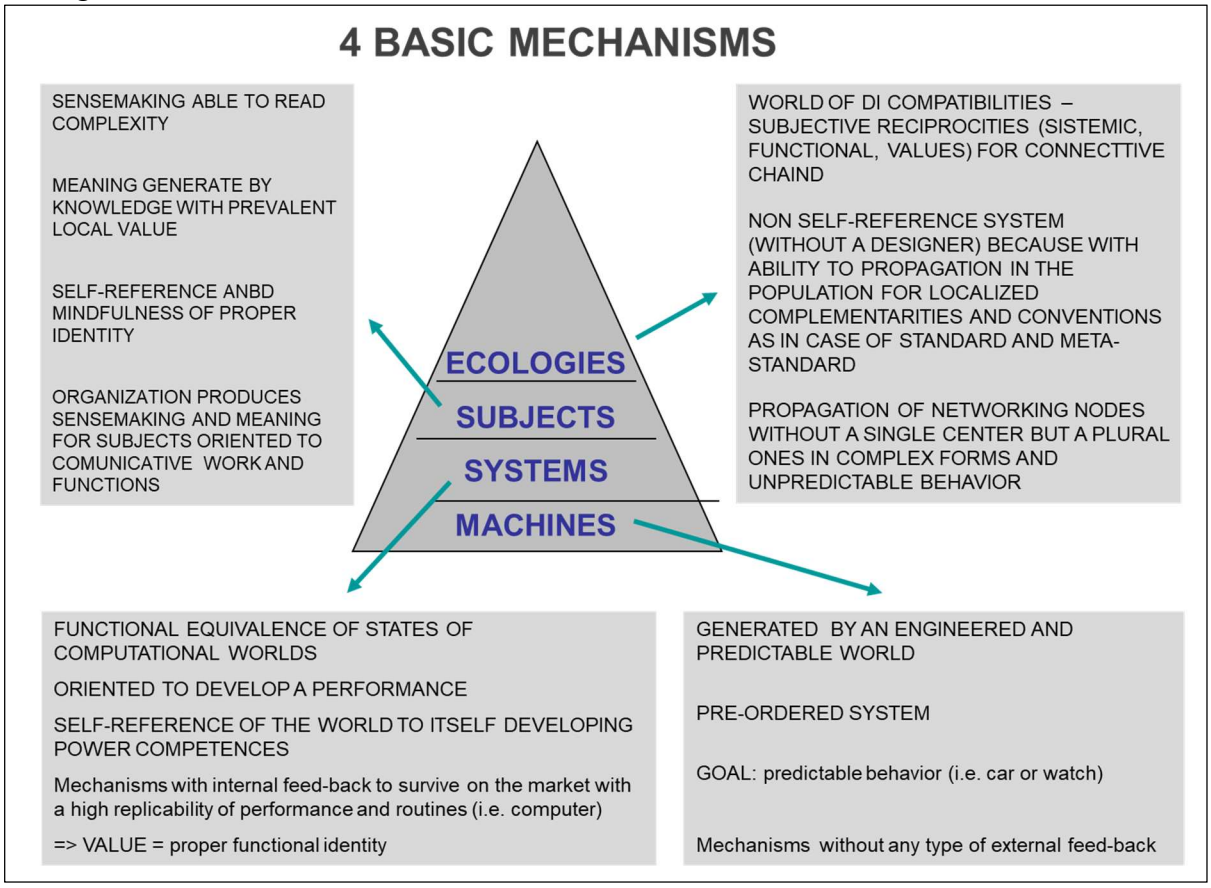
decisions and actions are decoupled, because subjects (stakeholderships and employeeship) are emerging by systems with self-organizations procedure supported by collaborative digitalization.

Figure 4 – The institution-enterprise governs the risk-complexity pair by comparison of competitive solutions from fordism to post-fordism




In situations of non-coincidence between decision and action – as in case of high complexity - there arises the need to offer sense and meaning, as in the innovative emerging contexts of the bifurcation of a cusp and where the concept of strategy is no longer useful. Consider, for example, the decisions of the managers to select a choice, which cannot be based strictly on a standard forecast, derived in some form from a sufficiently stable past and for unchanged contexts accompanied by performance calculations and supported by self-reference. In the current post-Fordism we need to "represent the change in an ecological sense", as it could happen in different configurations, to be able to accept its benefits as an essential part of that change. To do this we need representations of scenarios through a *theatricalization* of the decision-making process and assess the impacts on the context and on the actors where the solution anticipates or precedes the problem, in an ecological meaning: a dynamic mix between rationality and creativity as a viable connection exchanging intelligent collaboration and pluralism of points-of-view (Pilotti, 2011) (Figure 5). The theatricalization of the decision-making process in the organization is then useful in giving a "living" form to ecology (script or storytelling towards scenarios) on which we will have to decide, by choosing between possible or only emerging scenarios, the direction to take, sharing it. Choice of scenario that will no longer be of a reactive-adaptive type, but shared with all participants in the *(decisional) play* of dramatization within a new realistical narrative: achievable, defensible, and sustainable.

Figure 5 – 4 Main Mechanisms by simple to complex Machines – Systems – Subjects – Ecologies




In the *standard approaches*, in fact, we see the centrality of indicators that generally refer to: costs, product, quality, level of profit, customer satisfaction. While in *ecological approaches* we see relevance: relationships, patterns, scenarios, processes, motivations-emotions and contexts.

We are replacing Caesarist, assertive and decision-making leadership with a democratic and shared, inclusive leadership that initiates and promotes motivating and involving *employeeship*, building together the way to go with the business community. As in school contexts of children in primary school we see increase in heuristic, applicative and experimental reasoning. Because, inductively it does not sink its own thinking (predictive-mathematical logic, calculus) on a series of progressively acquired and gradually applied mental structures to various assimilable contexts, but rather on the concrete and experimental experience of concepts learning them in the reality, gradually experienced also by the theatrical representation that can variously be configured. Building "solution configuration scenarios" for problems that could only emerge later, and that, when emerged, will be able to accept and respond to the problem, having already tested the possible solutions.

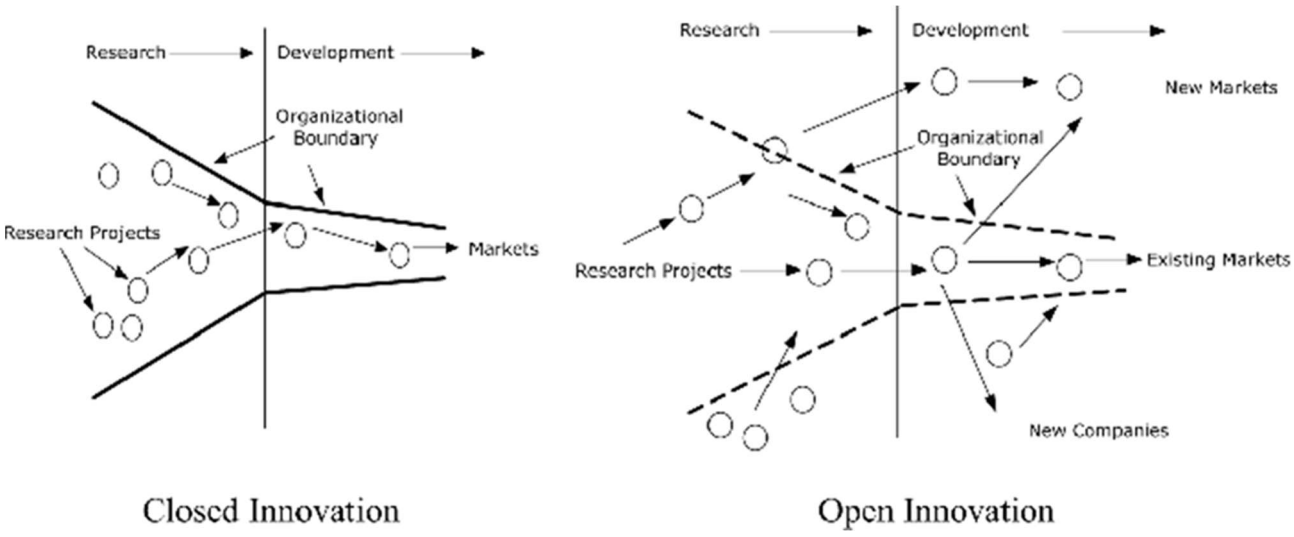
In everyday practice we could cite the *cases of nudging*, that is, of policies capable of "educating" by encouraging virtuous behavior, such as in the separate waste collection where prizes are offered for those who on the basis of their virtuosity "certified" by the smart card that records the quantity discharged for the individual components (plastic, glass, damp, metals, etc.) through a subsidy. Or in driving incentives with the "points license".

All this pushes towards an ecological and eco-systemic balance between multiple variables of subjective behavior (of all the stakeholders) that crowd in an interdependent way and that

must be "pushed" or encouraged to reciprocally condition each other towards "virtuous results" producing skills and abilities "evolutionarily constructive" in anticipating solutions to problems. Preparing to accept the shocks and becoming resilient by decoupling decisions from actions to reconnect them ecologically. Adopting a conscious decision today (separate collection / prudent driving), to carry out a responsible action tomorrow (clean up the environment / avoid accidents), contextualizing the overall "vision", minimizing costs and maximizing the creativity of those acts, assigning them sense and a good perception of the self.

Managers are interested in innovative skills with investments in R&D not because they identify a precise immediate result, but because they can climbing on the highest tree in the forest able to explore horizon. They will be able to send a longer look at the emerging landscape that those same investments contribute to achieve *(exaptation)* in *team projects,* continuously oscillating between exploration (open) and exploitation (close), as in the Chesbrough open *innovation* model (Fig. 6).

Figure 6 – Chesbrough open innovation model




It is evident in the Chesbrough model that the *research project processes* are displayable as ecological activators of connections between markets, companies, networks, team projects and single people, as a self-engaging tree capable of generating new ideas for multiple trajectories, generating complexity or entropy. A "persimmon tree" that gems solutions before problems, continuously decoupling and re-coupling decisions and actions without any need to predict the (unpredictable) future, but instead, with the imperative to build it and rebuild it in a warp of options and subjects without clear hierarchies and directionality. Where "dramatized narratives of possible scenarios" - hybridizing and contaminating languages-roles-functions (*semantic capital* of Floridi - 2019) - can try to shed light on disorder by constructing / reconstructing - tentatively - a new order, by assigning a *meaning* to those connections to reduce entropy without reducing variety. Giving origin in this way to resilient organizations, in the ecological activation of conversations and dialogues that Peter Drucker (1986) already referred to as a necessary outcome almost forty years ago.

*Resilient organization* is – consequently - a horizontal network of people supported by roles and information incentivated (with monetary and non-monetary tools) to participate to dialogue process of actions for trial and errors in decisions as a chain in real terms often not necessarily coinciding with the axiomatic norms of a so-called *rational choice*. Because as in David Hume (1748) approach facts and roles or norms are to distinguish for the simple reason

that what it is "normal" or statistically with high frequence or "natural" (independent by human action) in not coinciding with what's right. Resilience in a complex world can be represented as an ecology of the value produced by interacting actions between multiple actors that exchange credible information on their mutual perceptions of that world or by an emergent one in a fabric of "virtuous" imperfections in the sense proposed by Steven J.Gould where solutions anticipate problems.

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