THE DEVELOPMENT OF A BUSINESS STRATEGY SYSTEM FROM AN ENTROPIC POINT OF VIEW – PART II

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ABSTRACT
An important area of interest regarding the functionality of a business system is the manner in which structural patterns are developed from the constituent elements of the system main model. The way the internal process and sub-processes of the model generate its structure (using its resources), that gives an organization the required set of capabilities for generating a flexible structure through which it can withstand shifts in parameters, such as capital and information.
In the circular model, the relation between the process and its structure is designed as a built-in feature through the usage of self-similar patterns (fractals formations that resemble the form and behavior of natural systems). The fractalization degree of the structure is in direct relation with the evolution of the main process and it is rooted in the internal tensions exhibited by the model, evaluated through a network of feedback loops.
Due to the dynamic and circular characteristics of the model, the internal tensions and transfer phases can be viewed at their core as thermoeconomically (and thermodynamically) transfer zones. The model's proposition to fractalize its subsequent structure and define the transfer phases, as transfer zones, enables the model a higher degree of flexibility, and opens the door to a series of complex adaptations.
In the following paper, I will present a symmetrical fractal representation of the model for the first iteration of the main process, which is presented in a state of equilibrium concerning the main parameters (time, capital and information), developed in a closed environment.

KEYWORDS: *Circular model; dynamic reactive planning model; entropy stages in an internal system; internal business model; structure of circular model.*

JEL CLASSIFICATION: *P00; P11; P17.*

1. INTRODUCTION

On the route from resources and foresight to a product or a service, a company must conduct its own procedures as a unitary system, with clear stages, timeframes; structure and so on, all of them interrelated and interdependent in a continuous, direct or indirect stream.
At a first glance every organization's structural model may look as an indecipherable web of methods, procedures and routines, that is tailored by each organization to fit its own needs, with little mush in common from one company to another (even in similar or the same industry).
After the major financial glitch of the first decade of the 21th century, "companies in the vanguard are beginning to make what I call "the big pivot". This represents a profound change in strategy, operations and business philosophy that will make a company more resilient and help them create a new value in a hotter resource scarce world" (Wilson, 2014)
As a resultant of this new economic paradigm, identifying the temporal and logical succession of actions and stages, which companies as a whole independent of their line of business or industry,

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must traverse to reach their envisioned goals and objectives must be regarded as the first fundamental step.

The three basic elements in any form of organization that define and determine its manifestation are: structure, strategy and the goal/objective. The objective must be reached through the cooperation of the first two as Peter Drucker defined it by the term M.B.O. (managing by objectives), in his book "The Practice of Management" (Druker, 1954) by the statement that "strategy and structure become relevant by subordination to an objective/goal".

Therefore, the first element "strategy", is explained as a method or plan chosen to bring about a desired future such as the achievement of a goal or solution to a certain problem, as well as an abstract concept that is also understood as the science of marshaling resources for their most efficient and effective use. Derived from the Greek word "strategia" (meaning generalship or the ability of leading an army) the epistemological root of the term is linked with the characteristic of minimizing the randomness inside of a system through proper usage of information.

The second element "structure", is defined by the Oxford Dictionary as "the quality of being organized", deriving from the Latin noun "stuctura" (that means building), it is identified with the concrete part of a system in which the rather abstract notion of strategy shapes up and it's shaped through the ordering and utilization of material resources.

The binding agent between "strategy" and "structure" is the "objective", defined as a specific result that a person or system aims to achieve within a period and with available resources. The broader view of an objective is the defined as the goal, which involves the same forward motion and measurability, but is longer on direction and shorter on the strategy stage. Meaning that a goal does not involve the same implication, of a dedicated structure, as the objective thus being more concentrated on the abstract side, as objectives are more specific and easier to measure than goals, which are having one or more objectives to be achieved within a more or less fixed timeframe.

Objectives are basic tools that underlie and fundament of all strategic and planning activities as they serve as the basis for creating internal policies and evaluating the performance of an organization. An increased profitability rate corroborated with minimizing the expenses and an expanding market share, implemented through an effective-efficient management of present resources in relation to the business environment, is the fundamental objective of an economic entity. As these activities may be developed through the usage of verifiable evidence or facts instead of opinions, bias free and unaltered by unfounded beliefs, in opposition to what may be called a subjective perspective.

2. THE LINEAR MODEL

The relation between the three basic elements, from a temporal perspective, can be defined on a linear timeframe as objective defines strategy, and strategy determines structure.

Figure 1. The initial logical sequence, in linear structure formation
Source: adapted from R.Rădulescu (2013 p.390)

Having an objective demands a transfer zone from the abstract (e.g. information) to the concrete (e.g. product, service) in which to manifest, this intermediate state is defined as strategy.

This pathway from objective to structure (and finally to a result) cannot be efficient without linking the abstract elements to the resources available, and the business environment, all those elements are being present in the formation of strategy, as well as in its development.

At this point, the linear model can be separated into stages and transfer zones, as strategy (that has a dual definition) is the first major transfer zone/stage identified. Even though the logical and temporal succession between structure and strategy has been largely debated (Chan & Mauborgne, 2009), in an incipient project (greenfield) the relation of causality is straitforward, with strategy as the base for structure.

After this basic triad of constituent elements, in the development of the model a clear separation between abstract and concrete stages must be taken. The parameter on which the stages are classified is their nature (as it may be dependent, in its formation, to information or concrete resources). The conceptual definition of the stages is divided in two main groups.

Abstract Stages:

1. Documentation: In this part, the subject (any person inside the company that is keen to resolve a problem) is constructing its critical batch (or mass) of knowledge (form its own sources or external sources);
2. Vision: The imagined, abstract solution, that forms on the basic batch of knowledge attained in sub-process no. I, and fulfills its intended scope;
3. Strategy: From the Vision emerges the "pattern in a stream of decisions" as stated by (Mintzberg & Waters, 1985) in their definition of strategy. It's the sub-process that labels future actions (objectives) in the order of their period, complexity and interconnectivity;

Concrete Stages:

4. Tactic(s): In this sub-process the methods that would be used to fulfill the objectives underlined in Strategy are developed. As you may see, we have used the plural form to buttress the possibility of multiple tactics, according to the efficiency and effectiveness evaluation capacities of the subject;

Tactics is also the final step in which limitations (technological, geopolitical, etc.) can be taken into consideration; preferably, this evaluation should take place in sub-process no.3;

5. Implementation: The realization of the tactics trough execution;
6. Result(s): The completion of sub-process no.5, and the final step in an iteration. After this, the result will become incorporated into the Documentation sub-process for similar actions undertook by the subject or other members of the organization.

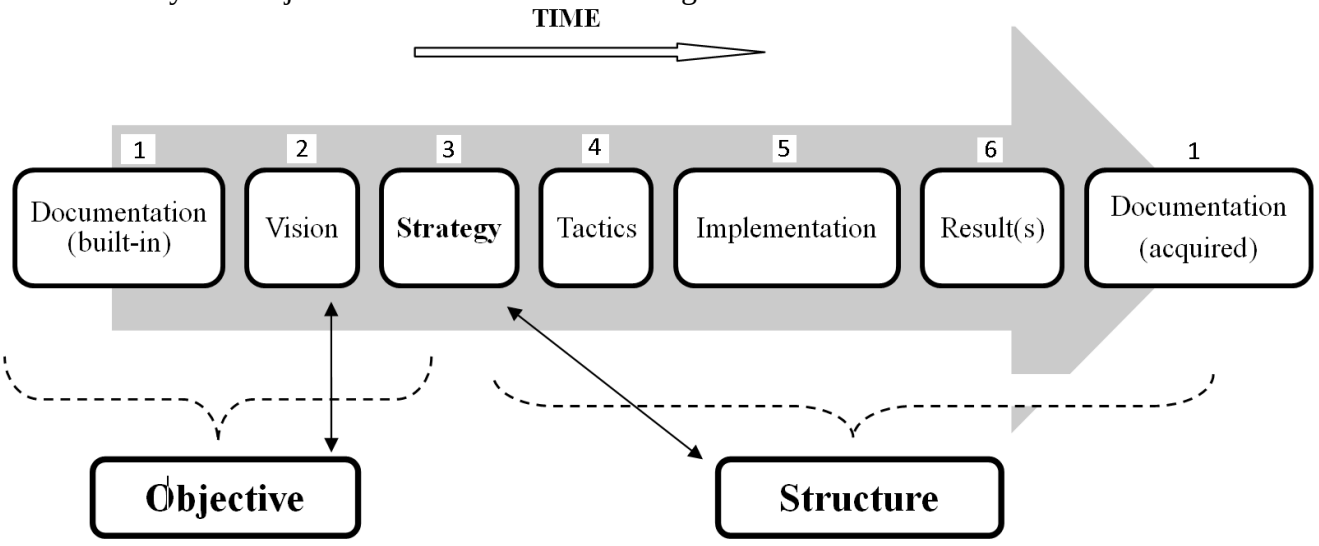

Figure 2. The main stages (elements) and the order in which they evolve, trough different conceptual zones, in a linear System
Source: adapted from R.Rădulescu (2013, p.392)

The representation of constituent stages of the structure as tactics, implementation and results is made in regard to their strong bind and dependency with the structure itself. As none of the above can be developed without the support of an efficient structure (Kavale, 2012). The same dependency can be spotted in the formation of the objective, as critical batches of information and foresight are needed to shape a relevant objective. After the definition of the six main stages (in a frugal manner), the binding zones of the model are to be defined as it follows:

Transfer Zones – The relations between stages:

All of the relations are functioning based on a feedback-loop, proportional with the level of entropy.

1-2. Bidirectional relation, with the highest amount of entropy involved. Is where the vision and the information necessary for its development are crystallized.

2-3. This relation is also bidirectional and but is more related to the environment in which the solution will function. The entropy is starting to minimize.

3-4. The relation in whom the limitations are improving the Strategy so it can evolve in a usable set of Tactics. Entropy is starting to be controllable by having to do more with the effectiveness-efficiency paradigm;

4-5. The critical point in which any flaws in the above sub-processes are revealed. This may be, from a temporal point of view, far from the vision and strategy sub-process, so any possible changes in the input until this process should be taken into consideration;

5-6. The transfer zone that is characterized by the lowest level of internal informational entropy.

6-7(1). The relation when the result becomes part of the documentation is unidirectional.

This working relation between stages and transfer zones is hard to grasp in a linear representation. Therefore, the circular model representation is preferred, much like the radian representation of the circle (π), that evolved into the steradian representation (° angle): it is self-feeding, gives us mathematical tools to operate with, has a more graspable visual impact that its linear counterpart that can be used for a clearer understanding of its feedback loops and its sub-processes.

The linear-circular transformation may seem easy to grasp at first sight, the mathematical and thermoeconomic implications that create a further thermodynamically approach to the transfer of parameters inside the model are a critical point of novelty in this research.

3. THE CIRCULAR MODEL

The integration of the six stages ad their subsequent transfer zones on a circular representation gives the model a clearer perspective on the abstract-concrete threshold. This also has the ability to accurately depict de interdependencies between the stages and use the mathematical tools needed to define the transfer zones.

A main novelty of this circular model is promoted by its scalability feature, as the radian distribution is independent of any measuring unit and gives the model symmetry from inside itself. The transfer zones and stages, as well as the processes and sub-processes follow the same pathway, creating a functional and unified mainframe that is highly adaptable as it disperses the external tensions uniformly inside de model.

The circular characteristic generates a more clearer perspective regarding the transfer of information through the two Documentation stages (build-in and acquired), previously numbered 1 and 7(1), as the two create a feed-back relation between the first and the last stage of the model. This transfer creates a degree of sustainability as the future iterations of the model are harvesting the information from the previous ones and bettering it as a mean of utilizing the previous used resources that are encapsulated in the process of developing the information batch.

This transfer creates besides a sustainable internal environment, also a dynamic a recurrent feature as the model passes through subsequent iterations and retains historic data of its internal efficiency rates and external interactions.

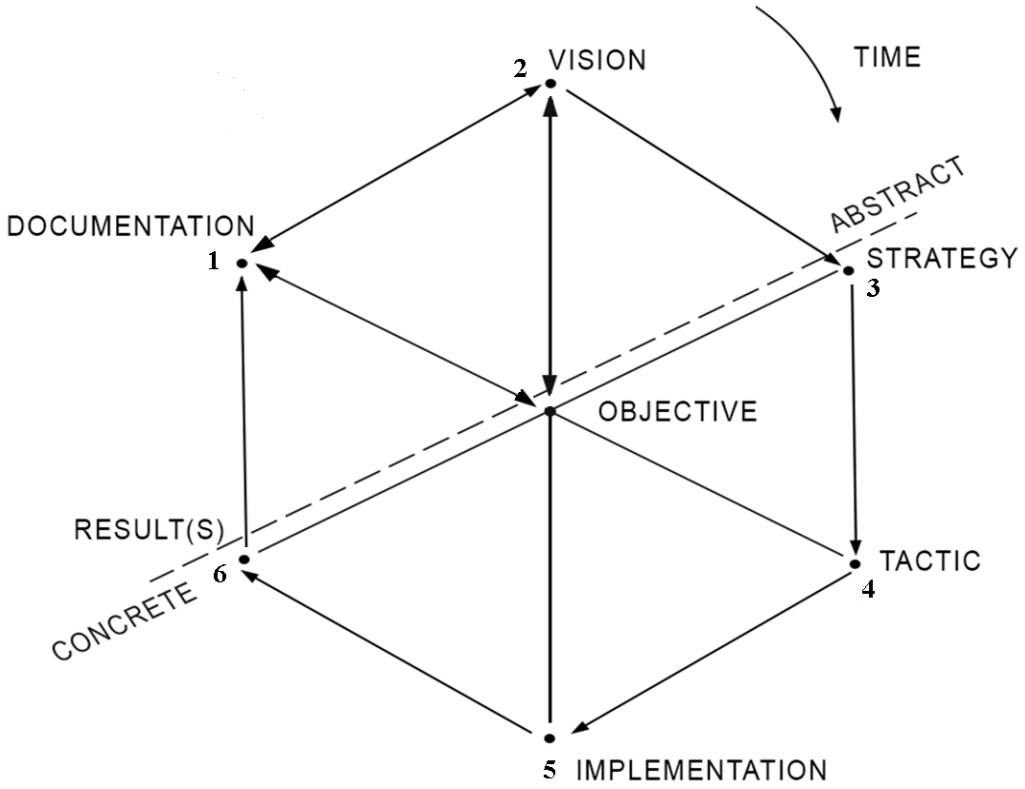

Figure 3. The logic sequence of conceptual zones in the circular model
Source: adapted from R.Rădulescu (2013, p.392)

As it can be seen in Figure 3 the relation between all the model's components are regular and symmetrical, as the model is represented at homeostasis, and the pathway of information density is represented uniformly inside de main process.
This particular example is used to as the principal blueprint and it must be realized the fact that mutations of structure and strategy are present for particular organizations and industries.

FRACTAL CHARACTERISTICS OF STRUCTURE DEVELOPMENT

For a recurrent characteristic of the model, the integration of a certain degree of fractalization of the structure is needed, as fractals are a natural phenomenon defined through mathematical sets of equations, which repeat a similar pattern displayed at every scale of their structure.
Due to the relative uniformity in nature of the forces applied on the model, the necessity of an equally uniform response from the model's structure demand the fractalization of its structure, as well as its future development on natural and replicable sets of equations.
A simple and mathematically elegant fractal progression is the Sierpinski fractal, as it has the most appropriate characteristics for the abstract section and the concrete section of the model, due to its potential deltoid formation.

Figure 4. Siperinski's triangle fractal evolution
Source: adapted from M.Baranger (2014,p.5)

The direct utilization of a fractal-like mathematical set will be applied to the transfer zones as it can be observed in Figure 5, the stages are to be viewed as points of minimal entropy of the transfer zones. Due to the explanatory and theoretical nature of this paper, I will not present the mathematical demonstration for the formation of minimal and maximal points of entropy.

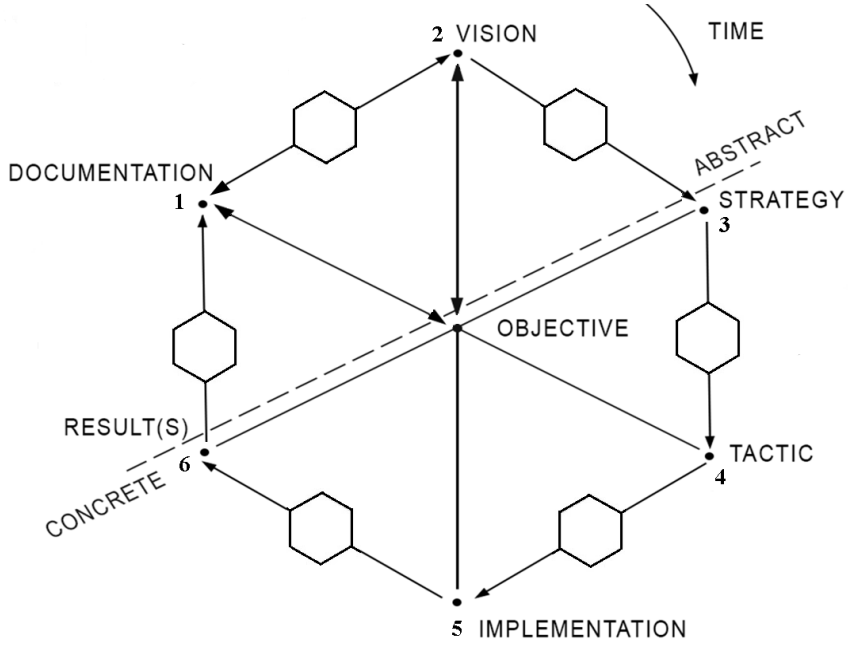

Figure 4. The formation of fractal structure in the transfer zones due to the similarity of the sub-processes
Source: Răzvan Rădulescu 2014

The dispersion of entropy and subsequently neg-entropy (the main process and response of the model) are synchronized with expansion of the fractalization degree inside de structure. This feature creates an equilibrium inside the organization and permits the model to maintain a certain internal stability.

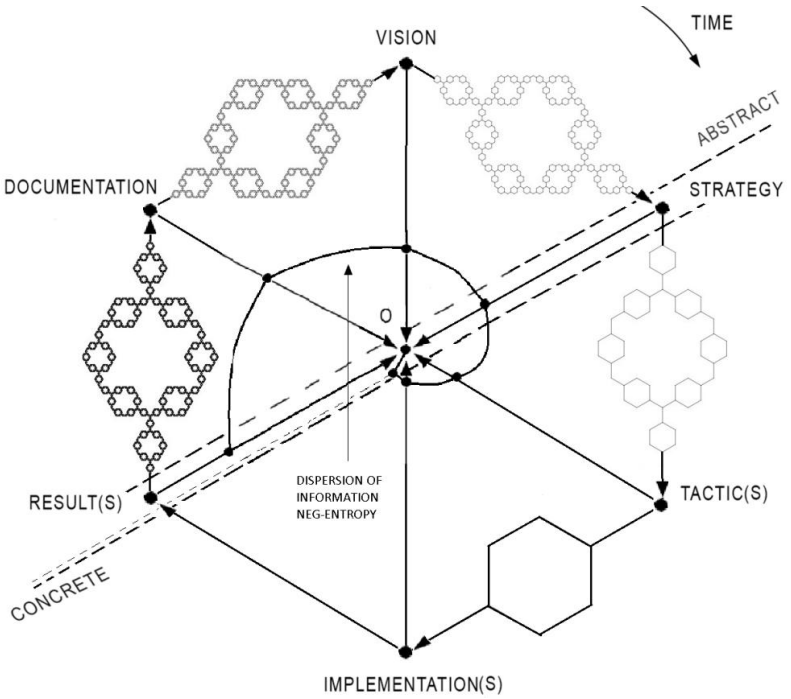

Figure 5. The sequence of fractalization of the structure, determined by the dispersion of information inside the main process
Source: Răzvan Rădulescu 2014

The evolution of the fractal development of the structure that is responsible for the fulfillment of a stage trigger points is represented in Figure 6 and 7 in relative to the two main parameters: information and capital.

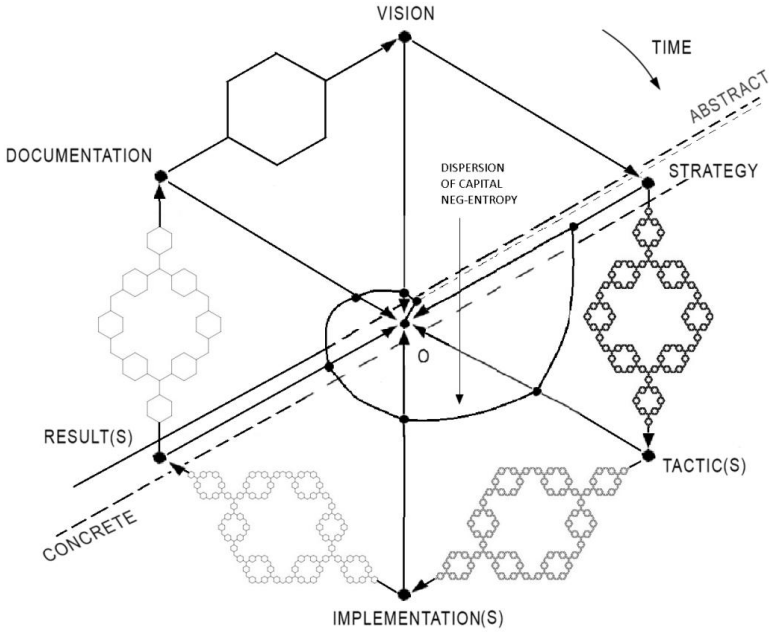

Figure 6. The sequence of fractalization of the structure determined by capital dispersion in the main process
Source: Răzvan Rădulescu, 2014

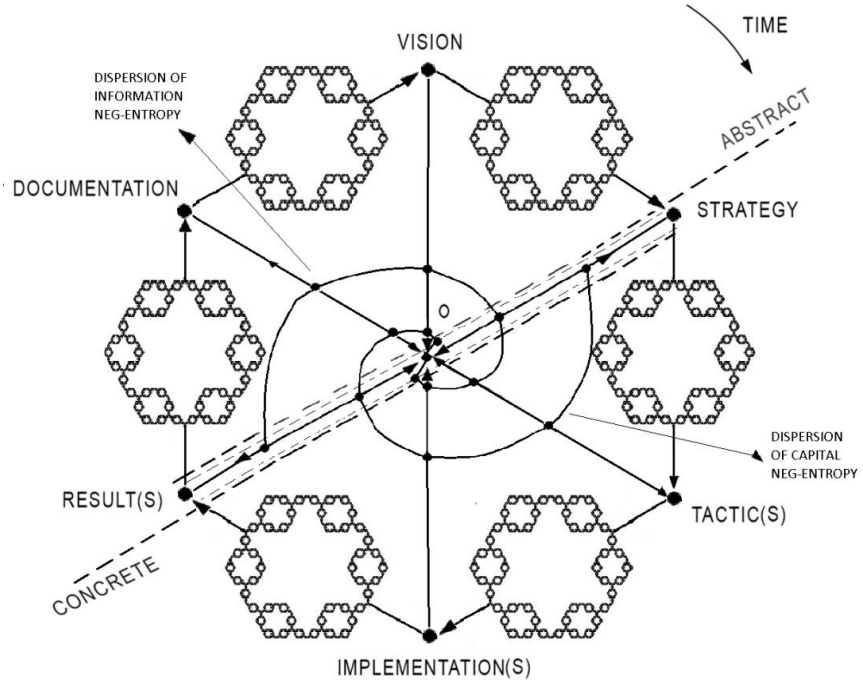

Figure 7. The complete fractal structure of the model generated by the overlaying of the two main dispersions
Source: Răzvan Rădulescu, 2014

The dispersion curve presented in the previous paper (Rădulescu, 2013) is determining and is determined (in bilateral relation of interdepency) the structure. As it can be observed in Figure 6 and 7, the density of fractalization is also interlinked with the nature of the parameter that is handled by it. Therefore, in a basic example of overlaying of two major parameters (information usage and capital usage) in Figure 8, we get an simetrical fractal evolution of the model's structure.

4. CONCLUSIONS

The relation between a fractal characteristic of the structure and a circular representation of the main process, inside the model, creates a dynamic structure and a recurrent framework for the planning of information pathways in an organization. The ability of transfer of information through the transfer zones and the reutilization of information, from one iteration to another, creates the capability to relocate the relevant information and prevents the dispersion of the resources previous invested in acquiring and developing the information.
A higher degree of scalability and sustainability of the structure are generated by the fractal capabilities embedded in the main process (and its recurrences) that shapes future developments of the structure accordingly to internal and external inputs.
The characteristic of self-similar stages (building blocks, elements), in the abstract and concrete sections of the structure, is in conjunction with the self-feeding characteristic of the main process and its sub-processes (every stage has its own sub-process and transfer phase). Furthermore adding to its flexibility characteristic, the model is generating a non-linear development with an emergent topology and a dynamic network of multiplicity.
The control parameters, that are defined and generated through the usage of the circular model, give an immediate status of the model in relation to a certain predefined timeframe and an historic utilization of resources. Thus, giving the decision makers the necessary tools on which they can base future projection of information and resource consumptions, benchmarked to the objective fulfillment rate.

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