

A Living System

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ABSTRACT

A living system is created from already living elements with the aim of improving the possibilities for their regeneration. Regenerating, currently non-working elements, e.g. man or water molecules, represent a kind of “dark” matter, or the regenerative part (RP) of the system. It is a structure without mutual production relations. With the rest of the living system - “normal matter”, or the production part (PP) - this only has a relationship of removing regenerative resources. These are created in PP in specialized groups - production units (PU). These are e.g. eukaryotic cells or companies. The control of a living system consists in constantly monitoring the dissatisfaction of both its elements and production units and reacting to it. E.g. in human society, this governing body is approached by a parliament with a government.

Introduction

The aim of the presented work is to present a general definition of a living system based on the results of an economic, but non-econometric model, with the application of the per analogiam principle. That is, not only animal and plant systems, but also, for example, human society.

The Elements of the System

The model assumes that the elements of the system are themselves alive and that it is possible to assign a satisfaction value to each of them. This property is then the basic controlled quantity. Another primary characteristic of an element is its gradual exhaustion, fatigue and the general need for regeneration, restoration to at least its original state. The element itself is not capable of such optimization of satisfaction as a system of similar elements that is controlled as a living system. Due to the never-ending regeneration, the activity of the element is then divided into involvement in the production process in PP and the utilization of the fruits of this activity during regeneration in RP. On the work involvement associated with the evaluation, and on the use of this evaluation for the acquisition of regenerative needs, especially food. In the case of human society, this reward is money. Involvement in production is thus not anonymous, but the element is evaluated according to its contribution. Accordingly, he can draw regeneration in RP.

From what has been said, it follows that, for example, in humans as a living system, the element is not a cell, but a smaller and ubiquitous molecule - water. A cell is a PU where working elements are connected, where certain specific substances and properties or activities are created. Water then receives a reward based on its involvement. Outside of this production system, in the case of humans, apparently in the space of the cerebrospinal fluid, water is regenerated. In a live system, there are thus two basic components of the organization – element and production unit. All of this is then connected through evaluation. The moment when these two components are effectively controlled, when the satisfaction of the element is respected and optimized, it is possible to talk about the emergence of another life. That is, a new life based on an already existing one.

Production Units

Production units are a grouping of elements that are involved in the production process in PP. During this connection, the elements gradually become depleted, fatigued, and the need for regeneration arises. For its implementation, elements from this work involvement leave the RP. In order for the elements to efficiently produce the respective products of the respective work unit, resources are provided within its organization. In the case of cells, these are various protein and lipid groupings, various organizational membranes, etc., in the case of a company, they are machines and other well-known essen-

tials. The production unit is more or less sophisticatedly organized, but it is not a living object. It is an auxiliary structure of the elements in the effort of the control system to fulfill their regenerative needs.

In the first approximation, the management system observes a certain kind of dissatisfaction in the elements as well as in the production units. The system thus approaches the PU as a certain grouping of elements. Whichever dissatisfaction is greater, it then enters the proceedings and is resolved. In the next more detailed approach, however, the control evaluates a different quantity for PU, although derived, but completely different from the satisfaction of, for example, an element. It is a characteristic of the evaluation flow to and from the PU. In the case of businesses, it is their profitability, in the case of cells it is not yet known. Perhaps it is somehow connected with the flow of elementary particles - mainly electrons - and the global importance of pH. The subject of live system management is always PUs based on the evaluation of dissatisfaction. Through them, the system also solves the dissatisfaction of the elements. It has no direct mechanisms of action on them, always only through PU. And this control is done through the regulation of the flow of evaluation in the system. After all, the system also receives information about the state of satisfaction in its parts through specialized PUs.

Evaluation

By nature, regeneration at the point of production is not possible. It only occurs in the RP, and therefore it is necessary for the elements to bring some evaluation from the PP, which they then exchange for means of regeneration. This evaluation must be universally exchangeable and obtainable according to merit - in the process of production. And on the other hand, in PP, the same evaluation must also work in some form between production units - during the movement of the means of production. Simply put, it must be something that one knows from society as money. Model work shows that different forms of energy have properties similar to the required evaluation in a living system. The cellular organelle associated with energy transformation is, however, the mitochondrion.

Mitochondria are specific according to the type of activity of the cell. It is a place associated with the formation of ATP, and on the other hand, water - an element - is associated with the breakdown of ATP. Mitochondria appear to be a candidate site for binding already committed water molecules to some extent. This evaluation cannot be on a chemical level, and to some extent not even on a simply physical level. The water regeneration process itself is at a much lower level than the chemical reactions in the mitochondria. Thanks to these reactions, it is water that acquires its standard chemical form and can move to the RP. However, it is heavily processed and full of "scars" on another level - on the level of a living object. And it is precisely these scars that must be regenerated in RP. To begin with, the complexity of this "living" water should be estimated at least as the complexity of another element of the living system - man. However, it should also be said that the model does not indicate whether the evaluation has a material or only informational form.

Tension of the PUs

At the beginning of decision-making, the management system monitors the satisfaction of all management subjects. Both for PU and elements - for example, in the form of a migration trend. In the next step, however, PUs work with a different quantity, namely the tension between PUs. This tension arises when there is too much difference between PUs in the demand for their outputs. In other words, in success, which then manifests itself in unequal flows of evaluations to PU. The aim of management is to minimize this tension. Only certain PUs are always available to the control and it is up to it to choose correctly. In the first phase, it selects the PU to act on based on the information from the relevant sensors. According to the model, it seems that it is mainly information describing the behavior of the RP, i.e. regenerating elements. In the next phase, these selected controlling PUs act on the final PU through an increased flow of evaluation.

Comment

The behavior of the system in the model and apparently in reality is described not in continuous quantities, but in their events. An event in a given time series occurs when its certain value in comparison with the previous value is somehow increasing critically, and moreover, the prediction of this series is also increasing further. The event is thus only a qualitative quantity, acquiring the values 1 and 0 or yes and no. An example is action potentials and control based on them in the nervous system of animals. Dissatisfaction is essential for management - not satisfaction. The object must constantly evaluate it and possibly react to it. He generally does not respond to satisfaction, which can be said to be deadening. In the work presented, the terms living system, living object, etc. are used as synonyms only to emphasize some aspect in the text, a different view of the investigated entity.

Activating the Object

The effect of an object on its elements is twofold. On the one hand, it is an observable effect in the form of controlling the flow of evaluation. It seems, however, that there is also a second, latent effect that is difficult to observe from the outside and acts at every moment of the existence of the management subjects. It is a direct interaction between the management systems of two levels and in the case of human society it is the legal environment in which elements and units move. From a formal point of view, it is apparently a mechanism by which elements and units are at least partially defined - their affiliation to the given system is determined. However, the model has not yet recorded this latent effect, so we will continue to talk only about the first type.

A living system intervenes in the functioning of its elements and production units only at the moment of its activation, awakening. However, the elements work in their own time and in between, so the influence of the object will only cause a change in this "stereotype". Awakening means that on the basis of ongoing activity, which is connected with the activity of elements and production units, the

critical values of a certain monitored quantity have been identified and the occurrence of events. The critical quantity is defined as the overall dissatisfaction of both elements and production units. If the maximum monitored value of dissatisfaction exceeds a certain limit, the control system of the live, not yet awakened object must ensure awakening. The object then reacts according to whether there is dissatisfaction between elements or production units and in which group, and affects the activity of the relevant control units.

Food and Non-Food

To solve the satisfaction of its elements and PU, a living object needs both food, which produces part of PP, and non-food production of PP, which ensures everything else. From the point of view of the management system, the production units forming PP are thus divided into two groups – food production chain units and non-food chain units, i.e. all others. Food is always connected to the elements and their regeneration. It is therefore necessary to first establish what these elements are in a given specific case and only then consider what food is, i.e. regenerative needs in a given living system. E.g. in society, the thing is most transparent - the element is man, and the agricultural and food sector is really what the PU food group is in the living system. The situation inside another system is different – for example, in a person. The elements are molecules of water, so it is clear that what is food for the whole object - man - is not food for the element. Here, food becomes an input to PU cells. However, what is food for water is not yet clear..

Inputs for non-food PUs in humans are controlled by the autonomic nervous system. As needed, its activity switches between sympathetic and parasympathetic. Food for the elements of the system – for water – is then dealt with by the central nervous system and its higher nervous activity. It can be seen that this activity is concentrated around the cerebrospinal fluid, the RP of the given living system. And it is here that the elements are regenerated. By the way, in plants, RP is apparently the woody part of the conductive system - xylem.

Sympathetic vs Parasympathetic

The system needs sensors that reflect two views, both of which are element views. The first one says how favorable and stable it is from the point of view of the elements surrounding the living object. Does this neighborhood not require some reconstruction - at least in relation to the entrance PU. The second sensor tells how the demand of the elements for the remaining inputs is progressing. That is, not for basic regenerative needs - in the case of humans, for example, for food - but for things without which they can quite well exist for some time. The activation of these sensors then decides the branching of the system's response. The first decides on the activation of the reconstruction of the inputs, the second on the activation of the optimization of the inputs to the PU. In cellular organisms, this optimal state of inputs is called homeostasis. So sympathetic vs. parasympathetic.

The units of the food production chain react to the dissatisfaction of the elements. To the dissatisfaction of the production units, then the rest of the PP. The consequence of this activation is the removal or at least the reduction of the corresponding dissatisfaction.

Satisfaction vs. Successfulness

Since the element is a living object, its satisfaction is a complex concept and it is about the system being able to estimate it as best as possible. Accordingly, the overall management will be successful. In the case of PU, it is not a living object, and the satisfaction of PU can be easily estimated based on the flow of evaluation.

Definition

The following is a definition of a living system. It is certainly only her working outline, which is, however, built on model calculations.

1. A living system consists of living elements.
2. The elements themselves have their main goal – to solve their regeneration.
3. Solving element satisfaction is the basic task of the system.
4. The elements themselves merge into the system at the beginning of its creation for the purpose of better regeneration.
5. For the purposes of better regeneration, PUs are created as specialized units for regeneration needs.
6. PUs are work groupings of elements that specialize in a certain production that the elements themselves would not be able to achieve.
7. The living system regulates the elements only through specialized PUs.
8. Elements and PU are active during the time in which system control only temporarily enters.
9. The living system thus tries to change the ongoing activities to remedy the intolerable dissatisfaction.
10. Elements are regenerated outside the workspace - in the RP, they work and get evaluation in the PP.
11. Evaluation of elements and PU is a phenomenon where involvement in production in PP is evaluated in such a way that it reflects the merit of the given entity.

References

To his detriment, the author cannot provide any references.

Conclusion

The presented definition of a living system is the result of modeling work on economic series. Thus, the proposed general system is best tested on one living system - the company. In the case of animals

and plants, it is already based more on the approach per analogiam, when the properties of the element - water - are very nebulous. An interesting next step in the examination of a living system would be the objectification of the design on, for example, a plant. However, the

possibility of monitoring the condition of specific plant parts in the form of a digitized input to the calculation is, unfortunately, beyond the author's capabilities.

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