The Construction Hierarchical Multilayered Cognitive Cards of Light-Structured Systems

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The sphere of organizational management in socially-economic systems really includes everything. Organizational management is developed, it becomes complicated and improved, in parallel with the development of a human society. On one of the directions of the development we would like to stop.

Any kind of organizational system can be characterized as a set of light-structured or mixed problems which contain both qualitative, and quantitative elements. And, qualitative - reflect the unknown and uncertain sides of problems and tend to dominate. Therefore the most important is the question of the methodology of development of the formalized description of the similar system. There is a task of the description of adequate quantitative model. With its help it would be possible to connect enough interrelation between all the parameters and variables of the organizational system.

During studying the features of functioning and development of difficult systems with active elements, a number of the conformity of assisting more deeply to understand their dialectics comes to light: these are conformity of interaction of parts and the whole; purpose constructing, conformity of occurrence and a formulation of the purposes; conformity of formation of hierarchical structures of the purposes and conformity of hierarchical orderliness of systems. As gives us is right to name light-structured system - multilevel hierarchical system.

In this work the difficult regional system was investigated. It is modelled hierarchy the cognitive cards to the appropriate different levels of acceptance of decisions of management of system is investigated. The concept of the cognitive cards (a card of knowledge) is initial in cognitive the analysis and modelling of similar structures.

To understand and to analyse the behaviour of a similar complex system the charts diagrams of relationships of cause and effect are under construction. The analysis of relationships of cause and effect on the cognitive cards is necessary, for the forecast of development of situations at realization of various managements by processes in system.

Let's consider two-level cognitive the card designed on a plane.

The following blocks of the regional (one of southern Republics of Russia) infrastructures are designated as concepts. ‘Vi’ represent set of layers on an echelon.
The first (the lowest) echelon (level):
- ‘V1’ - final consumption;
- ‘V2’ - industry;
- ‘V3’ - employment;
- ‘V4’ - incomes;
- ‘V5’ - total accumulation.

The second echelon:
- ‘V6’ - federal regulating systems (budget - tax, monetary - credit etc.);
- ‘V7’ - an inter-regional and external economic exchange;
- ‘V8’ - the environment;
- ‘V9’ - the population.

Each of the named blocks is also represented by a system of interconnected cognitive cards.

The analysis of the accepted rules of construction cognitive cards, and also all the possible examples cognitive cards allows to come to a conclusion that may not be the only cognitive cards for light-structured systems. The system of cognitive cards as their certain hierarchy and multilayer therefore is offered.

At research of a regional system it was carried out cognitive modelling, which allowed to investigate tasks:
- causally - investigatory connections;
- distribution of disturbance on cards;
- complexity and connectivity of the system;
- observation of the controlling the system;
- stability and adaptability systems;
- occurrence of accidents.

The basic feature of research was that the decision of the named problems was made interconnected on all considered layers of system.

For construction of system of multilayered hierarchy cognitive cards, for investigated southern region of Russia the statistical information for last 10 years for all above named ‘V1 - V9’ blocks multilayered cognitive cards was collected and processed. At map development series of expert interrogations were also carried out.

The purpose of the carried out cognitive modelling was revealing the scripts, conducting to steady development of region.