

Principles of phantasing

Research of the ideas found in a fantasy has allowed to systematize a fantasy. On the one hand it has resulted in creation of «*The Register of science-fiction ideas*». On the other hand - this work has helped to reveal receptions of imagination for designing new technological, изобретательских ideas.

The List of receptions of imagination contains some groups.

The First group is made with «*floor*» *designing* which is the complex(difficult) complex tool.

The Second group represents various updatings the morphological analysis, including *operator STC* (space – time – cost).

The Third group is a change of fantastic and real object with the help of receptions of overcoming of technical contradictions.

The Fourth group – *a method of fantograme* – is qualitatively new association of the second and third groups.

The Fifth group - updatings of *principles for overcoming of psychological inertia*.

The Sixth group – a *scale «Phantasi»*.

The Seventh group – *the Multiscreen scheme*.

The two first and two last groups of this list are shown separately. In this section the third, fourth and fifth groups of *principles of phantasing* are briefly examined.

Principles for overcoming of technical contradictions – one of the first micro-instrumentation of TRIZ. Such receptions some tens were revealed. G.S.Altshuller studied statistics of use of these tools and on the basis of such analysis has constructed the *Table for application of principles* for elimination of technical contradictions. Different versions of tables defined various quantity of technical contradictions. The quantity of receptions which were used in the *table* was various also. The final version which was included in ARIZ-77, contained 40 principles. In development of TRIZ this table began less effective in comparison with new, stronger tools, therefore in further versions ARIZ it was not used. Some principles of elimination of technical contradictions (especially non-tables which have numbering from «41» to «50») were included in the new tool – *system of standards*.

On a basis of more simple receptions and G.S.Altshuller's transformed table has constructed *the phantogrammes*. These are the tables intended for creation of fantastic ideas. Columns and lines of the table represent various universal parameters and principles for transformation of these parameters.

For elementary education G.S.Altshuller recommended such parameters:

- 1 – substance (a chemical compound, a physical condition);
- 2 – a microstructure (that is a subsystem of object from considered(examined) set);
- 3 – object;
- 4 – super-structure (that is system which includes object from considered set);
- 5 – a direction of development;
- 6 – reproduction;
- 7 – a feed by energy;
- 8 – a way of movement;

- 9 – sphere of distribution;
- 10 – a level of the organization and management;
- 11 – the purpose, the sense of existence.

Principles for the educational purposes were recommended such:

- 1 – to increase, reduce;
- 2 – to unit, separate;
- 3 – «on the contrary» (that is to replace the given property «antiproperty»);
- 4 – to speed up, be slow;
- 5 – to displace in time forward to displace in time back;
- 6 – to change dependence «property – time» or «structure – time»;
- 7 – to separate function from object;
- 8 – to replace connection between objects and environment (including replacement of environment);
- 9 – to change a quantity indicator (constant).

Principles («methods») for elimination of psychological inertia which are used in rate DCI, as a rule are created outside of TRIZ. They concern to «nonclassical» organizational tools and consequently them apply only to educational, training problems.

Most frequently on employment by ТРИЗ use:

- The method of focal objects;
- The method of associations;
- The method of «gold fish» (or «the gin – executor of desires»);
- The method by Arnold (search of the Eks-factor on a planet closed by «conditional clouds»).