



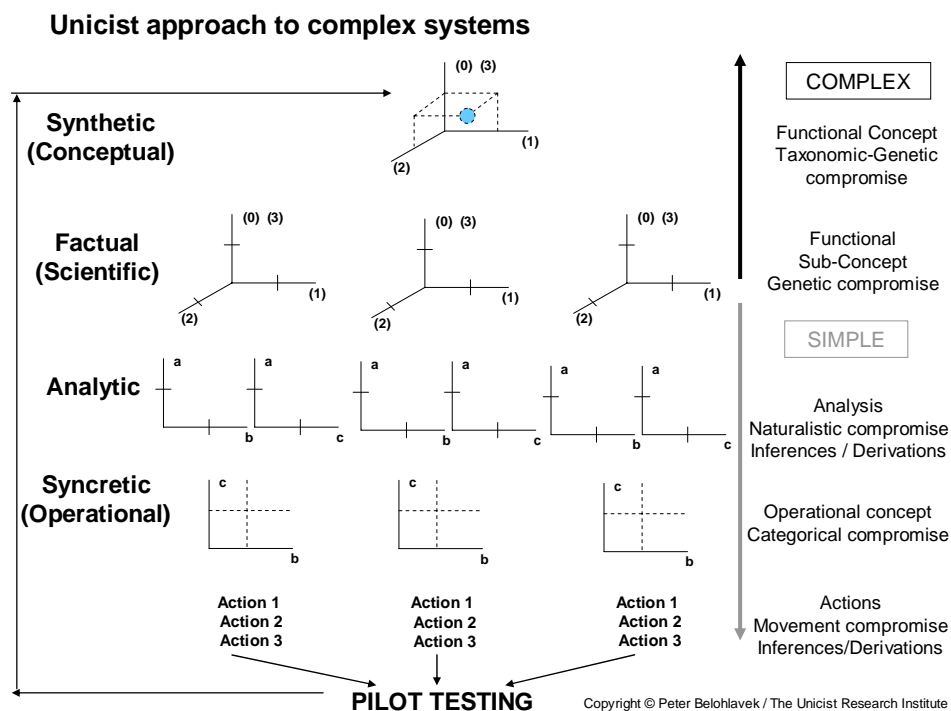
## The basics of learning new skills to solve complex problems

*This is a synthesis on the results obtained from the research on complex problem solving led by Peter Belohlavek.*

Human skills are based on the use of information registered in neurons. Neural networks evolve based on real actions of the individual. The higher the exposure to successful complex problems' solving in reality, the more "objects" and individual stores in his brain. The approach to complexity requires specific skills related to the use of his intelligence to integrate the information and transform it into actions. Complex problems solutions require different skills than those of systemic problems solutions.

### Complex problem solving skills

In many cultures complex problems are derived to religious or magic solutions. In other cultures the solution of complexity is based on creating a rational solution based on "ceteris paribus". Other cultures face complexity based on its ontology and find solutions transforming complex problem into simple solutions that can be used by the general public.





The learning of the skills to solve complexity requires a total involvement in the solution of real complex problems with which the learner is totally committed and ends up in real action beginning with pilot testing.

There are specific mental processes necessary to deal with:

- 1) Open boundaries
- 2) Biunivocal cause-effect relations
- 3) Conjunctions and the inexistence of disjunctions

Open boundaries imply that there can be no observers. When dealing with complexity, the “observer” is part of the system. The conjunction of its components implies that the inexistence of one of the elements involved destroys the complex system. It works as a “0” in a multiplication.

Human approach to complex problems requires to be based on the individual’s ontointelligence in which:

- a) Ethical Intelligence defines the capacity of an individual to focus on a problem. Such focus sustains the individual’s introjection process of the problem.
- b) The predominant type of thinking an individual has defines the depth of the comprehension of the problem, beginning with the operational aspects and ending with the comprehension of its essential concept.
- c) Strategic intelligence defines the amplitude of the problem an individual can solve.
- d) Unicist thinking allows the individual to apprehend and comprehend the dynamics of the problem and therefore it permits the comprehension of its complexity within the limits established by his type of thinking and his strategic intelligence.

Emotional aspects and functional intelligence are previous gates that have to be crossed before accessing complexity.

The development of new skills requires the use of the corresponding neural networks in the brain. Only real actions develop new neural networks.

This is clearly observable in the rehabilitation processes of individuals who had suffered a brain stroke.

By watching the video at <http://www.healthology.com/stroke/video3002.htm> you will access the information of how a skill is rebuilt.



Rehabilitation requires action. “Habilitation” has the same learning structure as “rehabilitation” when dealing with adults. It requires a disciplined, taxonomic driven, complex problem solution activity.

Thus the individual will develop the skill in those fields in which his emotional, functional, ethical, and strategic intelligences are effective. His type of thinking lays the limits of the comprehension of the problem and his unicist thinking permits the apprehension of the dynamics of the problem and its solution.

Complexity can not be approached with analogical thinking. It requires both analogical and homological thinking.

### **Synthesis**

The specific characteristics of each complex problem define the specific skills necessary to approach it. On the one hand, there is the objective knowledge of facts, technologies and methodologies. On the other hand, acting as drivers and limits, there are the human intelligences and the types of thinking.

Only constant real actions solving real problems respecting the natural taxonomy develop the necessary neural network to solve complex problems.

The Unicist Research Institute