TOP 12 QUESTIONS ABOUT TRIZ

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1. Should I learn TRIZ?

If you wish to increase both efficiency and effectiveness of your problem solving and idea generation capabilities, you will find learning TRIZ useful. TRIZ is a heuristic science which studies trends of system evolution, reveals patterns of inventive solutions, and attempts to extract principles and understand a process of inventive thinking. Knowledge of TRIZ helps considerably increase your innovative productivity. Interestingly, my first acquaintance with TRIZ was negative: back in 1986 I bought a book of Altshuller at the university bookstore, and after reading 30 pages put it away since I decided that it was all science fiction rather than real science. A year later I was working on a project and I was stuck – there seemed to be no solution available to my problem. I checked all the sources during 3 months – no solution was available and no one was capable of producing one. And then, by accident, I had visited a short 2-hours introductory evening TRIZ workshop at my university, and when I came back home I applied a technique I learned at the workshop and immediately found a solution to the problem I was working on! Needless to say, next day I hurried to the lab at the university which was experimenting with TRIZ. Three months without a solution and 2 hours to find it – this speaks for itself. Today when sustainable innovation becomes not just a competitive advantage but a matter for survival, learning TRIZ which provides "innovation on demand" becomes even more crucial than ever before.

2. Is TRIZ different from brainstorm?

Brainstorm is the oldest method of producing ideas by trials and errors. This is our natural way of thinking. It works well when a problem is relatively simple and we do not need to explore large knowledge area; therefore we do not need to make many trials to find a solution. But modern innovation demands thinking out of the box and exploiting outside knowledge more and more often. Many innovations, especially the most difficult ones require a huge number of trials and errors. As pointed by the Industrial Research Institute (Washington, DC), on average, one successful project requires 5.000 raw ideas to be generated. When Altshuller started to work on TRIZ, his primary goal was to overcome this major disadvantage of brainstorm. TRIZ provides navigation within the search space thus directing a problem solver towards a right segment with the highest chance to find a required solution.

3. I took one day training in TRIZ, but still, why can't I produce great inventions?

In fact, technology around us demonstrates that all great inventions were made without any TRIZ at all. But is it true? TRIZ is not just a number of techniques but a way of thinking, and TRIZ studied how inventions were produced – in some way, by possessing TRIZ skills we become capable of working just like strong inventors – and probably they used the same way of thinking as introduced by TRIZ. In my professional life (thanks to it I very often meet

all types of creative and inventive persons) I only met few persons who were what I call "natural born inventors" and could successfully deal with virtually any complex problem due to vast and encyclopedic massive of knowledge they possessed. One day of TRIZ training can provide you with a good introductory overview of TRIZ and develop some very basic skills with its simple techniques, but I doubt one day is enough to absorb the TRIZ way of thinking and learn TRIZ at a proper level. TRIZ does not solve problems; the problems are solved by people; and you need practice and knowledge how to use the tool. In addition, there is no a single unique path from an inventive problem to its solution: all problems are different, some of them can be solved by simply rearranging existing knowledge, but some require outside knowledge, and some require complete problem reformulation to achieve desire results. TRIZ is complex since it helps attacking a large variety of different problems. Minimum 40 hours of training is a necessary condition to start successfully applying TRIZ in most cases. Since TRIZ is not a just a set of tricks, it is not easy to learn and master; but this investment pays back.

4. Does TRIZ work in other areas besides technology?

Yes. TRIZ studies how to deal with a category of problems which we call "inventive", and these "inventive" problems can arise everywhere, not necessarily in technology only: in business, in organizations, in family life. And it seems like our brain deals with all inventive problems similarly no matter where they come from. This makes the TRIZ way of thinking universal. Today we know extensions of TRIZ to business and management, arts, advertising, public relations, politics. However each new area of application requires TRIZ to speak with its own terms.

5. Are there successful examples of TRIZ applications?

As reported by Samsung Electronics, in the years 2002-2005 there were over 200 successful projects which used TRIZ to come up with innovative solutions which resulted in economic benefits of Euro 2 billion up to date. At Value Innovation Program Center "the goal is to train every engineer and researcher in the company in TRIZ think" (see Fortune, 75, 2005: "A Perpetual Crisis Machine"). Most commercially successful product of Procter & Gamble, Crest Whitestrips was developed with TRIZ, generating $200 million in sales in the first year. TRIZ was used to win over competition in developing a new refueling tanker by Boeing. In fact, there are a lot of successful applications of TRIZ within different industries, although many companies often choose not to mention that they use TRIZ to maintain their competitive advantage. In 1984, Altshuller wrote in his report on TRIZ that there were thousands of successful applications of TRIZ in the former Soviet Union reported to him and his associates.

6. Does TRIZ replace creativity?

Absolutely not. Instead, TRIZ enhances creativity by introducing knowledge-based and systematic approach to understanding problems and defining the best strategies to search for a solution. In some cases TRIZ recommendations can directly lead to solutions, but it is not always the case. Most of TRIZ recommendations have generic and abstract nature, and

creativity is definitely needed to translate these recommendations to specific ideas and solutions.

7. Is TRIZ a Contradiction Matrix and 40 Inventive Principles?

Only partly. Both Contradiction Matrix and 40 Inventive Principles were developed by the middle of the 1960s. After that time, a number of more sophisticated techniques were developed, like Substance-Field Analysis, Function Analysis, 76 Inventive Standards, Databases of Effects, Algorithm for Solving Inventive Problems (ARIZ), Theory of Technology Evolution, and so forth (For an overview of modern TRIZ components see [Annotated List of Key TRIZ Components](#)). There was even a period when the Contradiction Matrix was abandoned from TRIZ, but later in the beginning of 1990s it was brought back due to its simplicity of use and ability to provide a good entrance to TRIZ for beginners. While 40 Inventive Principles and Contradiction Matrix still remain the most popular techniques, they represent only a small part of modern TRIZ. And TRIZ is still evolving: the existing techniques are improved and new techniques are introduced.

8. Is TRIZ a technique, a database, a method, a theory?

This is a difficult question. Modern TRIZ is a large body of knowledge, which, in turn, includes several methods and techniques. It has as well some strong theoretical foundations, but as a theory from a philosophical point of view it is incomplete, more studies and research is needed to make TRIZ complete and consistent as a theory. It is better to say that today TRIZ is an evolving science of creativity and innovation which has already been used to build a number of practical and working tools and techniques.

9. I want to buy TRIZ software, is it enough to work with TRIZ?

There is no single software package available on the market which supports all aspects of modern TRIZ. Besides, TRIZ is not just a process or a database, it is combination of logical analysis, knowledge bases of inventive principles, and thinking skills. While some TRIZ software packages provide some good tools for problem and system analysis and databases of principles, they can not replace thinking skills, especially abstract thinking. Although I personally was involved to the development of three TRIZ software packages, I still recommend TRIZ software as tools to provide fast access to the TRIZ databases and support analytical parts of problem solving process only, and to get most of these tools you need to learn and understand how TRIZ works.

10. What is main difference between TRIZ and SIT?

SIT (Systematic Inventive Thinking) or ASIT (Advanced SIT) are methods for creative ideas generation recently developed in Israel. They are often mentioned as being derived from TRIZ and developed to simplify TRIZ and make it easier to learn. But as a matter of fact, TRIZ and SIT are two very different methods and have very little in common. SIT only uses several TRIZ ideas, and while SIT can be learned within a couple of hours, TRIZ mastering requires months and years of skill perfecting. SIT and TRIZ would probably compare as an electronic calculator and a computer: SIT uses a very limited set of idea-triggering concepts, while TRIZ

targets at deep understanding of factors driving systems evolution, thorough study of emerging conflicting demands, has extensive databases of invention principles and scientific knowledge. If SIT can help to improve traditional brainstorm, TRIZ can be used to solve most complex problems in systematic way and provide scientifically based forecast of next product and services generations. This of course does not limit the ability of SIT to help with generating great ideas (since ideas and solutions are produced by people anyway), but with TRIZ the idea generation and problem solving processes are brought to the next level.

11. Can anyone learn and use TRIZ?

With enough patience, open mind, and commitment, yes. I have not yet met a person who would not be able to learn and use TRIZ. However, learning technological TRIZ requires some basic engineering background. In addition to technological TRIZ, there are other versions of TRIZ, and one of them even targets at teaching the TRIZ way of thinking to kids starting at the age of 3 (with fairy tales, puzzles, drawings, etc). A project "Jonathan Livingston" in the countries of the former USSR unites 10.000 teachers who introduced this method in their schools. Recently a book "*Thoughtivity for kids*" was published which summarized their experiences.

12. How TRIZ can be implemented in my organization?

First of all, an organization should have or move towards establishing an innovative culture and be willing to invest time and effort to properly learn and introduce TRIZ. If there is no innovative atmosphere at the organization, nothing will help – neither TRIZ, SIT, nor Lateral Thinking. Usually TRIZ is implemented as a pyramid-like model with three-four competence layers: a cross-functional group of TRIZ professionals headed by a TRIZ leader provides dissemination of TRIZ across the organization as well as facilitates and assists innovative projects. Other employees can be trained in TRIZ to acquire basic skills and know how TRIZ can help them and cooperate with TRIZ professionals.