Can a TRIZ software Help You Inventing?

Umakant Mishra
Can a TRIZ Software Help you Inventing? *

By- Umakant Mishra, Bangalore, India
http://umakantm.blogspot.in

Contents
Abstract:---------------------------------------------------------------------------------1
What is TRIZ Software?---------------------------------------------------------------------2
Features of good TRIZ software ----------------------------------------------------------3
Why to use TRIZ Software------------------------------------------------------------------5
Can TRIZ Software solve our problem in hand-----------------------------------------------5
Conclusion---------------------------------------------------------------------------------6

Abstract:
A software on TRIZ and/or Innovation can certainly supplement human brain and memory in order to speed up an innovation job. There are various TRIZ and Innovation software available in market. Some are too complex to use, some deal with only limited number of TRIZ techniques and some are having good features of innovation without much emphasis on TRIZ. An obvious task remains to evaluate them and find which software can help you best in inventing.

This article does not recommend or reject any TRIZ software per se. It only describes the expected features of a good TRIZ software and lays out the parameters of evaluating TRIZ software. The objective of this article is to help the TRIZ users understand what should they expect from a TRIZ software and how to choose a software that is really useful to solve inventive problems.

* This article was published in May 2006 issue of TRIZsite Journal
What is TRIZ Software?
Before understanding a TRIZ software, we must understand the TRIZ process. If you take a broad view, the TRIZ process involves two steps or processes, one of Inductive (finding rules, principles, trends, formula etc. by studying and generalizing from a large number of individual instances) and the other is Deductive (applying those rules, principles, trends, and formula etc. to the specific instances. The first step is to build the rules and the second step is to apply the rules.

The first step of finding the rules, is already done by Altshuller and his group. The Inventive Principles, Standard Solutions, Contradiction Parameters, Trends etc. are already derived from large number of patents and case studies. However, the job is not over. There are many TRIZ researchers today, who still work on finding new Principles, Contradiction Parameters and so on. Although software can be used to accomplish this step, there is hardly any ready-made software available to do this job. The researchers generally maintain their own database and apply their own logic to arrive at their findings.

The second step of applying the rules to individual cases, is what generally done by the TRIZ practitioners and problem solvers. The problem solver or innovator applies various TRIZ techniques (such as ideality, contradiction etc) on a particular problem to arrive at some solutions. This step of applying TRIZ to solve problems is more common among TRIZ professionals. More than 90% of TRIZ professionals intend to follow this step while only a very few intend to do the first step above.

This second step leaves a better scope for using TRIZ software. Eventually there are more software available in this area. In this article will focus on software on TRIZ application.
Features of good TRIZ software

As we discussed above the TRIZ software assists us in applying TRIZ techniques to solve our problems. But the TRIZ user often get confused with different software available in the market. Some are standalone tools to be used in PCs, some are online available on net. Sometimes venders mix up other creativity and innovation tools and package them along with TRIZ software. The question arises, how to evaluate them and choose the right one which can help us in our innovation process.

There are certain general criteria, which are important to consider while selecting any software. These criteria are useful irrespective of the software is used for TRIZ or any other purpose. Some of them are;

- User friendliness- simple to use, better GUI etc.
- Lower price
- Faster speed
- Stable performance, easy upgradation
- Compatibility with existing hardware and OS
- And so on…

Our purpose is to discuss more specific on the functionality of the TRIZ software rather than the general features above. Let’s discuss the features of a good TRIZ software.

- A good TRIZ software should ideally use TRIZ techniques. It should not use other creativity techniques in the name of TRIZ. Many software use brainstorming and creativity techniques. They may be useful in the process of innovation and problem solving, but they cannot be called good TRIZ tools.

- A TRIZ software can focus on at least one TRIZ technique, such as “solving contradiction by using contradiction matrix”. But it should explain and guide the user on how to apply that technique. Just displaying a contradiction matrix on computer screen is no better than using a matrix printed on paper.
• Although focusing on any one TRIZ technique is enough for the software to be called as a TRIZ software, it is definitely desirable to have features for more than one TRIZ techniques. Each different TRIZ tool/ technique is efficient in different circumstances and supplement each other to arrive at a more efficient solution.

• The software should be user friendly and should guide the user by prompting which technique to use and how to use. During the process of innovation exercise the software can give hints on using other techniques as may be appropriate. The software should facilitate the user in moving from one technique to other as necessary.

• A good or more powerful software should have numerous examples. The examples may consist of case studies and inventions from patent database. Each tool and technique should have adequate examples. In other words the software should display examples on different TRIZ techniques such as Inventive principles, Contradiction parameters, Inventive solutions, Trends of Evolution, Ideality and others.

• The examples should be filtered depending on the context of the problem. Displaying large number of repeating examples on each step is cumbersome. The software should simulate human intelligence to filter and display only relevant examples pertaining to the particular case.

• The TRIZ software should include tools to draw functional diagrams, s-field diagrams and other charts to analyze the components in a system and finding resources, constraints and contradictions inside the system.

• May include Idea generating tools using randomization techniques. The software may have features to record, organize and prioritize ideas. A good TRIZ software should have features to evaluate each emerging idea and assign weights to prioritize them.

• An advanced TRIZ software should facilitate group work, collaboration and idea sharing.

• The software should be capable of producing a report on the problem solving exercise done during the process.

• An advanced TRIZ software should contain a knowledge database (internal patent/ invention database or reference to external patent databases), and display relevant inventions (or patents) in the past.
Although all the above are possible to implement with the available technology today, there is no software available which has got all of the above features. Most software have very few features and are hardly useful.

**Why to use TRIZ Software**

A common question in many of our mind, whether should we use a TRIZ software? Is there any benefit of using a TRIZ software? The answer is “yes”. We use computers for many things in our day-to-day life, starting from writing emails to managing documents, organizing photographs to maintaining accounts. So why not to use computer during innovation.

The TRIZ practitioner uses various TRIZ tools and techniques during the process of problem solving. If the TRIZ software contains all those tools and techniques, it becomes easy to use the software instead of applying the tools manually.

Application of TRIZ involves trying and testing a lot of Inventive Principles, Standard Solutions, Contradiction Parameters, Evolution Patterns, and many more items, which are difficult to remember. It is always necessary to use handbooks, printed cards or similar references to remind us about the above items while working on a problem. If there is a software for the purpose, it can obviously solve the purpose better.

A good TRIZ software guides us on TRIZ concepts and techniques and make our job easy while solving a problem. An advanced software having more number of features mentioned above can ofcourse make our innovation easier.

**Can TRIZ Software solve our problem in hand**

No software can solve any of our problems or do any innovation by itself. That is because the problem is something that is conceived by the human brain and there is no language interpreter developed so far to explain the problem scenario to the computer with accuracy.

Even if we create some kind of similies to feed an intelligent software, the software at the best can give a series of solutions based on TRIZ (or other methods), where the human brain is again necessary to judge and weigh the alternative solution. However, such a tool is definitely difficult to built and not foreseen to come in near future.

Human brain plays a greater role than any method (say TRIZ) or any tool (say software). The people who can successfully solve problems by using TRIZ software they can also solve the problems even without using a computer. The computer does not make us inventive but speeds up the process, reduces load on our brain and memory, and help us to generate more ideas in less time.
Conclusion

It is the human being who conceives a problem and perceives a solution. There is no linguistic interface developed so far to explain such complex scenarios to computer. It is ultimately the human brain who invents and neither TRIZ nor TRIZ software.

TRIZ is a systematic method of innovation and a good TRIZ software can definitely help us using TRIZ more efficiently in our innovation exercise. A good TRIZ software supplement human brain and memory and makes the problem solving easier and faster.

Using the technology available today, we can build a linguistic interface which could pick up the keywords from our problem definition and show us the solutions in relevant patents. Besides a good TRIZ software may have a database of numerous examples for each Principle, Contradiction, Trends, Resources, Ideality etc, and display the appropriate ones depending on the nature and type of problem being solved. This kind of features can provide great assistance during our problem solving exercise.

About the author

After working for more than 18 years in various fields of Information Technology Umakant is currently doing independent research on TRIZ and IT since 2004. He last worked as Director and Chief Technology Officer (2000-2004) in CREAX Information Technologies (Bangalore). Before that he worked as IS/IT manager (1996-2000) for ActionAid India (Bangalore).

Umakant is a Master in Philosophy (MA), Master in Business Administration (MBA), Bachelor in Law and Logic (LLB), Microsoft Certified Systems Engineer (MCSE+I), Certified Novel Engineer (CNE), Master Certified Novell Engineer (MCNE), Certified Intranet Manager (CIM), Certified Internet Professional (CIP), Certified Software Test Manager (CSTM) and holds many other global IT certifications.