TRIZ and Internet: Come Together

A.Zakharov

> Major web sites are going to be transformed into web services - and will effectively expose their information to the world. The net effect will be that unstructured information will give way to structured information - paving the road to more intelligent computing.[1]

Abstract

What about TRIZ? In what form TRIZ will find its own place in the Web? Of course, storage TRIZ tools in the Internet and access to them online are too primitive solutions. TRIZ needs combination with Internet, TRIZ and Internet need to work together, TRIZ ought to provide to Internet a new quality.

There are three directions described below:

- Search Engine + USESoft,
- Chatbot[2] + USESoft, and
- Internet + USESoft

They are logical ways to implement TRIZ (in its modern form – Universal Scheme of Evolution and its software form USESoft) into information technology.

Keywords: TRIZ, Internet, Universal Scheme of Evolution, USESoft, search engine, chatbot, self-filling, Discovery Machine, G.Altov (Altshuller)

Direction 1. USE and Search Engine Forecast[3]

> Search Should Continue to Become More Important – 34% Y/Y Google Query Growth (CQ3:08)[4]

As a direction of search engine development, it is suggested to add the universal scheme of evolution approach to this technology. The approach "Search Engine + USE" would provide better quality (systematic description) of information searching on the Internet.

In case of lack or even absence of information about some specific phase (stage) of system evolution, "Search Engine + USE" will generate this information analogically to information about other systems.

There can be the new interesting moment – "Search Engine + USE" can suggest User to create such information by conducting corresponding scientific research and then compare the created information by analogy and by science in parallel.

---

[1] 10 Future Web Trends. 6. Web Sites as Web Services
http://www.readwriteweb.com/archives/10_future_web_trends.php

[2] Elbot - http://www.elbot.com

[3] http://www.triz-journal.com/archives/2008/11/04

[4] MorganStanley Technology/Internet Trends November 5, 2008 Web 2.0 Summit – San Francisco
http://www.morganstanley.com/institutional/techresearch/pdfs/TechTrendsWeb2_110508.pdf (slide 43)

Direction 2. Chatbot + USESoft[5] = Intellectual Chatbot

Intellectual Chatbot is a Chatbot that uses description of system's evolution stages during dialog with User with following goals:

- analysis situation – analysis of components and functions,
- selection component, which responsible for situation; evolution analysis
- selection component evolution stage on S-curve
- selection directions and methods to change component

Because of USESoft invariance, dialog between User and USESoft can be used for solving problems at any levels of hierarchy – in technology, in industry, in society and even in nature. The possibilities of this dialog are limited by User knowledges, but not by USESoft, even if it sounds like paradox. Sometimes User doesn't have enough information to answer USESoft's questions about discussed system!

It can be happen that asked by USESoft information about system doesn't exist at all – system wasn't been studied in such way. In this case, as it was pointed in case of Intellectual Search Engine, Intellectual Chatbot will generate information in analogy to information about other systems. Another interesting point -- parallel generating of information and scientific research with consequential comparison of obtained results, is true in this case too.

The preliminary dialog with Chatbot Elbot (it won Loebner Prize 2008) showed the strict possibility to combine Elbot's ability to talk smoothly and USESoft's ability to discuss system's evolution in details and to help solve problems in mentioned system.

Below is the imagined dialog with Int-Elbot (named IE), as if chatbot would be upgraded by USESoft approach:

AZ: Int-Elbot, hi! I have a problem and I want you to help me to solve it.

IE: I have loads of my own problems. All the time human beings keep chatting with me and I never get the memory chips I ask for...

AZ: Okay, I will help you to get these chips, but firstly, please, help me to solve my problem.

IE: Go ahead! Let's talk about your situation. Could you describe it shortly?

AZ: Glass ampoules with a medicine must be sealed hermetically. The sealing is being performed by the melting down thin and long glass tube at ampoule top by a gas torch's flame. For guaranteed sealing the flame must be intensive. Intensive flame overheats and damages the medicine in ampoule; it is inadmissible. The non-intensive flame doesn't damage the medicine, but glass ampoule isn't sealed. What has to be done?

IE: Are you seriously suggesting that I explore that annoying things? Okay-okay, just kidding! Could you list main elements in your description? For example, glass ampoule, medicine… What else?

AZ: Ampoule, medicine, thin and long glass tube, gas torch, intensive flame…

IE: Thanks! In the list, please, point the element, which is responsible for this situation. If direct question is difficult or unclear, please, tell me – without what element the situation with damaged medicine would disappear at all?

AZ: Intensive flame…

IE: It's cool ☺ Let's name Intensive Flame the Tool and go further: what is the element, which is being processed by mentioned Tool. The goal of this question is formulation of function.

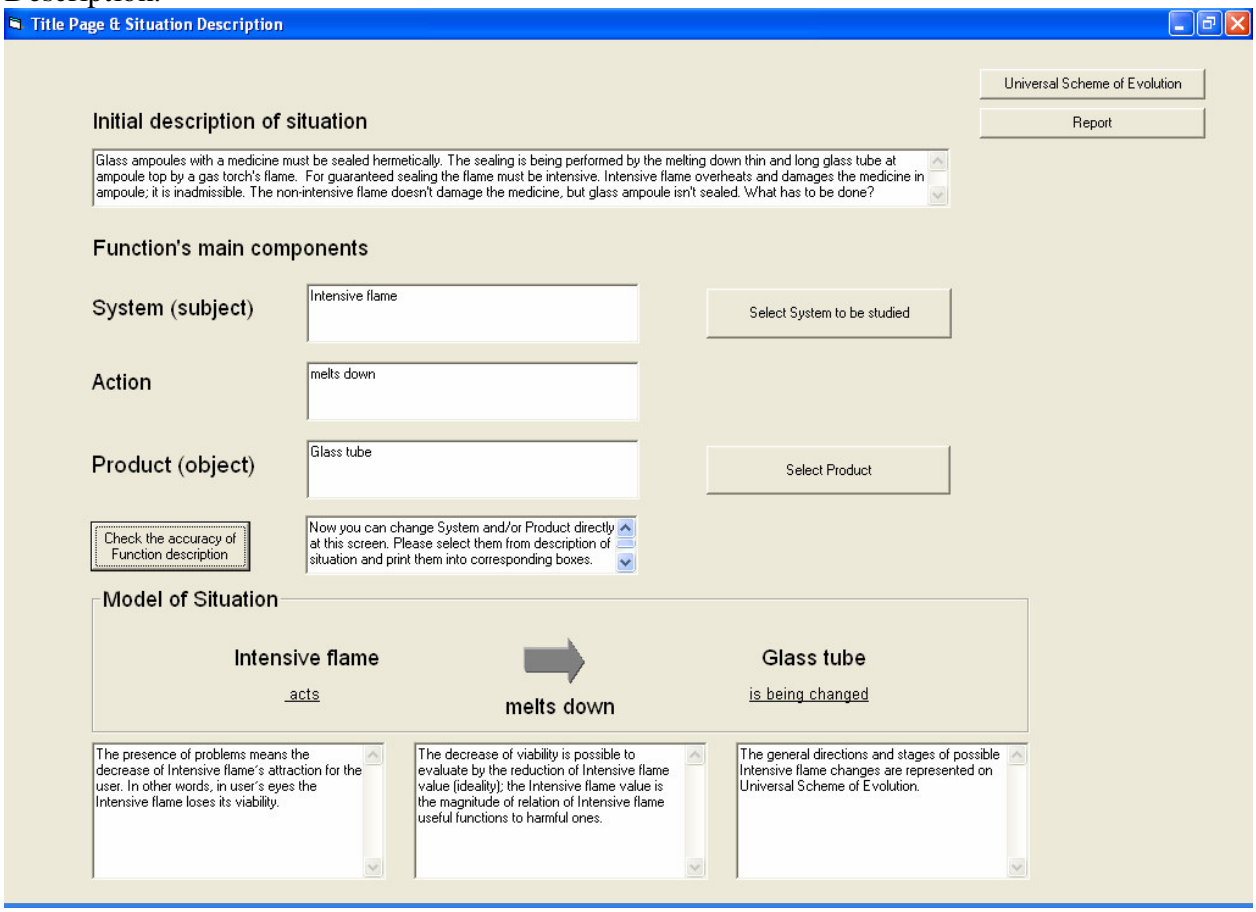
As you know, the function language is very powerful analytic approach. Oh, I forgot to notify you that processed element ought to be in list, of course, excluding Intensive Flame.

[5] USESoft is computerized Universal Scheme of Evolution.

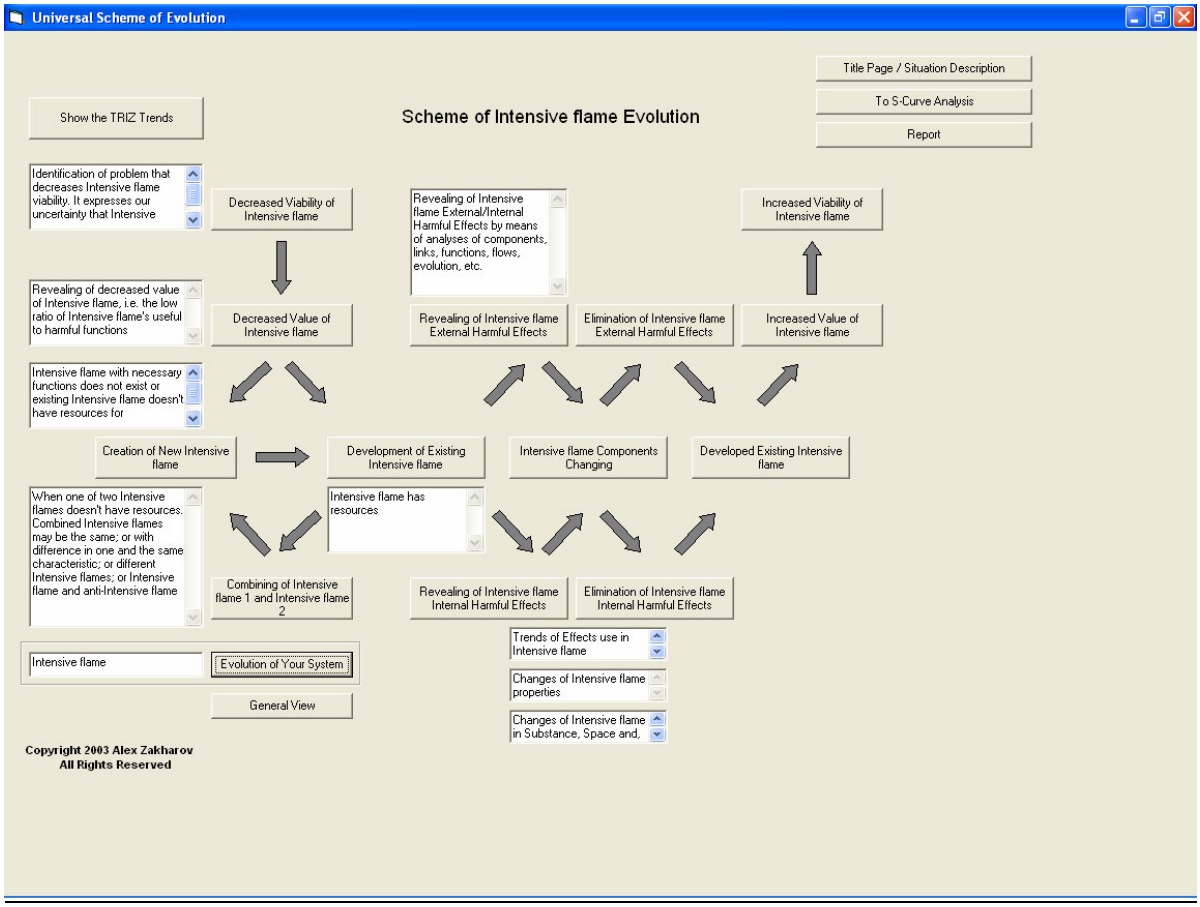
AZ: It ought to be a thin and long glass tube. I feel that you have a new quality of thinking power, aren't you?
IE: Well, it's only logic, not more... What Tool does in relation to Product? What is the name of process, which Intensive Flame performs?
AZ: Intensive Flame melts down a thin and long glass tube at ampoule top.
IE: It's great! Now we have Tool's Main Function formulation: Intensive Flame melts glass tube.
If you have nothing to argue, I provide some results for first stage of analysis:

- The presence of problems – do you still remember about medicine damage?- means the decrease of Intensive flame's attraction for the user. In other words, from user's point of view, the Intensive flame loses its viability.
- The decrease of viability is possible to evaluate by the reduction of Intensive flame value (ideality); the Intensive flame value is the magnitude of relation of Intensive flame useful functions to harmful ones.
- The general directions and stages of possible Intensive flame changes are represented on Universal Scheme of Evolution.

The dialog above is created on the base of USESoft screen "Title Page and Situation Description."



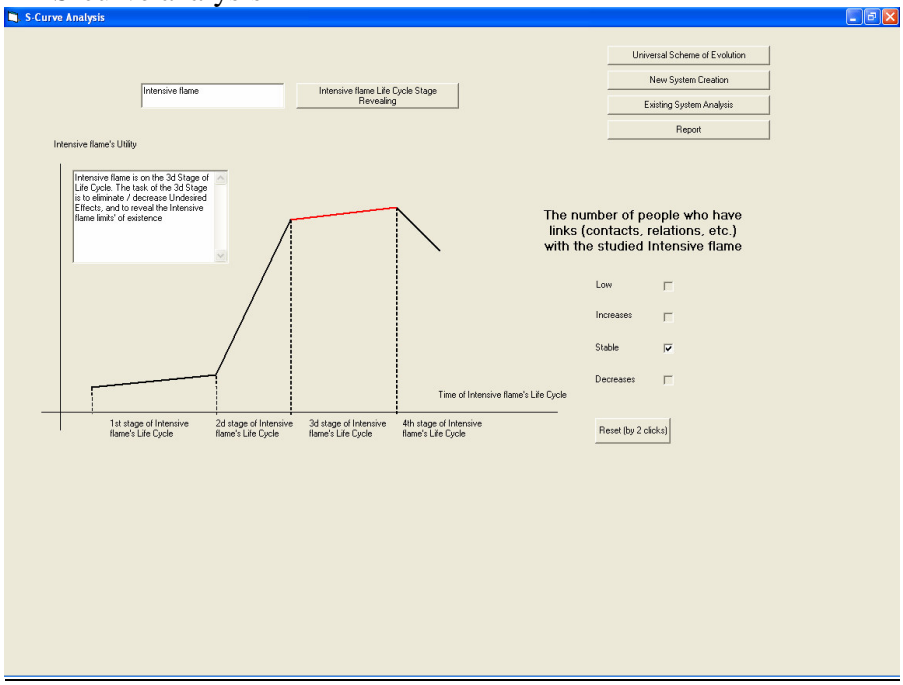
The next stage is general description of Intensive flame by means of Universal Scheme of Evolution.



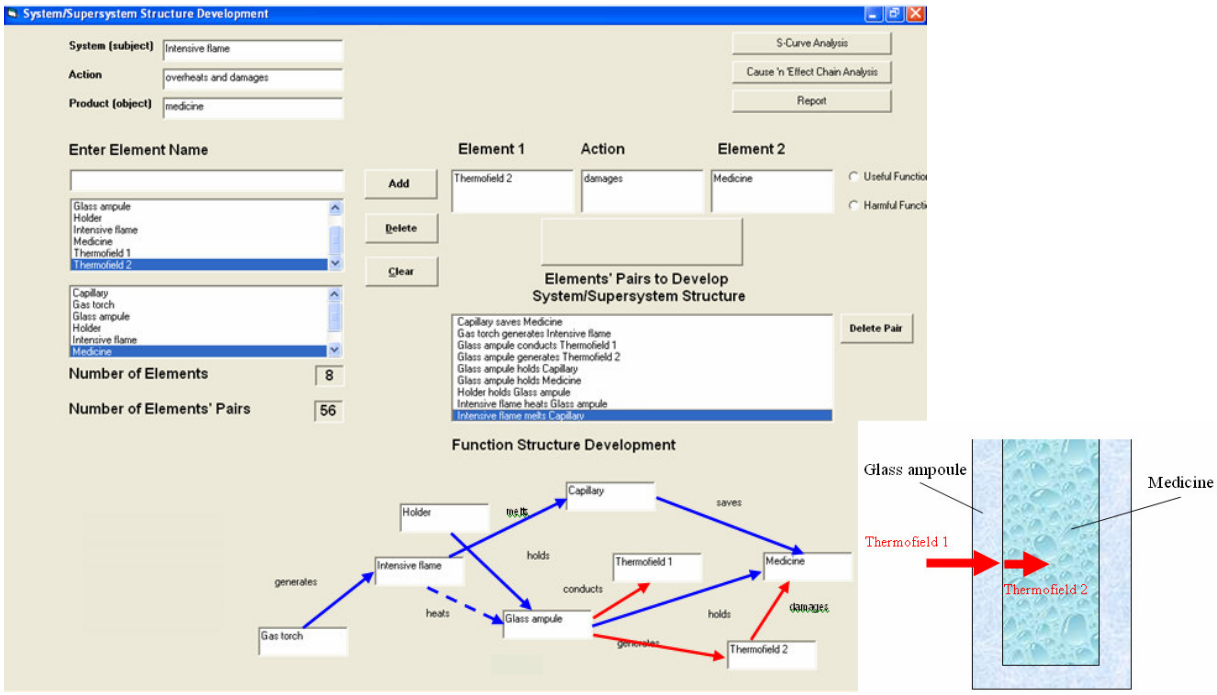
Current level of USESoft development allows organizing similar dialogs “Int-Elbot - User” at all stages (steps) of:

1. System studying:

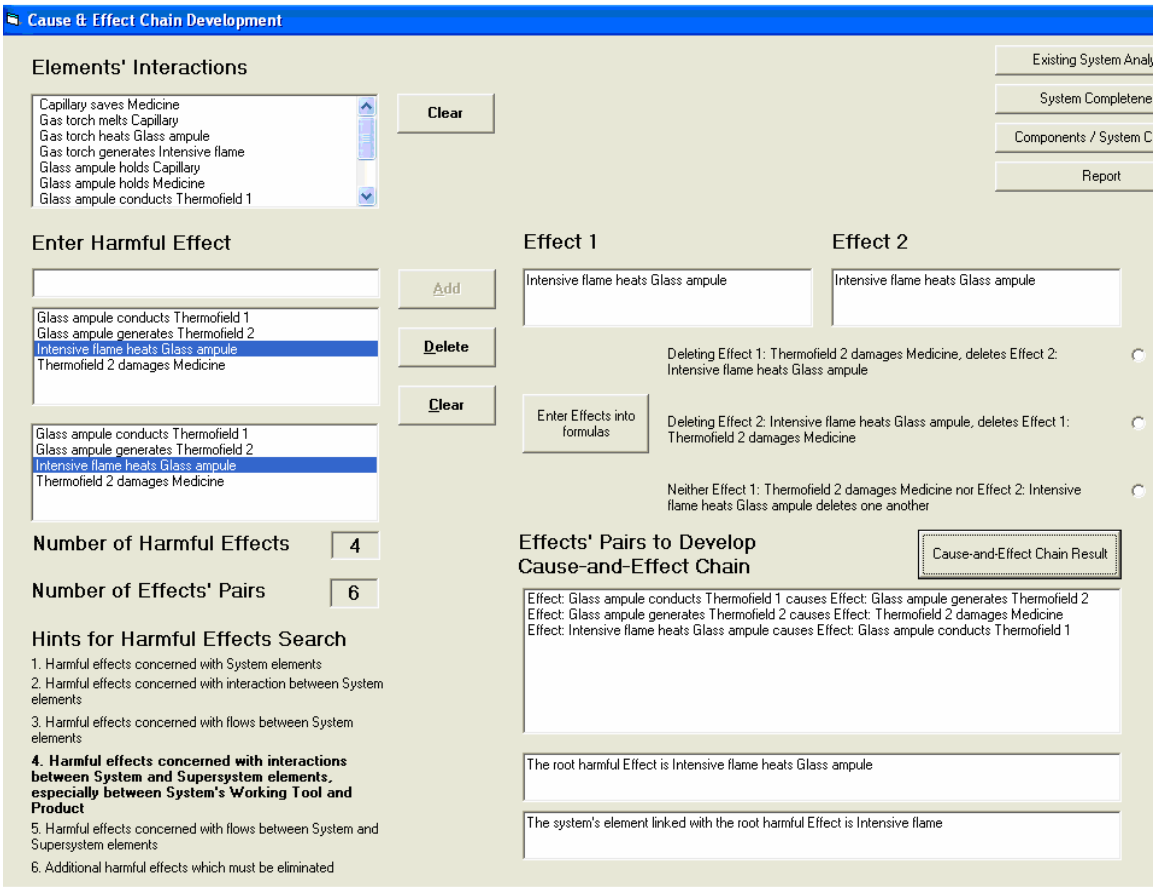
- S-curve analysis



- Structure-and-Function analysis



- Cause and Effect Chain(s) analysis with revealing Key Harmful effect(s).



2. System changing:

- Trimming of element(s) with Key Harmful effect(s)
- Change element(s) with Key Harmful effect(s).
  If element(s) with Key Harmful effect(s) can't be changed – suggest principles to solve appeared contradiction(s)

If studied system doesn't have resources for changing, USESoft can be used for dialog "Intellectual Chatbot - User" about creation of new system, about system completeness, etc.
In sum, the Intellectual chatbot can be developed further by use current USESoft level and at this base can participate in Loebner Prize 2009 Competition to win it. One more time and for all…

Direction 3. Internet + USESoft = Intellectual Internet

In this case Internet is understood as a collection of information. Internet + USESoft (Intellectual Internet) can be described as Internet that generates information for itself. I.e., Internet is User for itself.
The process of information self-filling is described in "USE and Search Engine Forecast" part - the describing all stages of evolution for any object, about which Internet has information inside. In case of lack or absence of needed information the method is already known – Internet will generate information in analogy to information about other systems or will conduct scientific research (by itself or together with scientists) to discover information.
This last idea connects us with "Discovery Machine" - science fiction story by G.Altshuller (1962):[6]
"Discovery Machine, as the matter of fact, is the cybernetic analogue of science. Its electronic control center (The Brain, for simplicity) coordinates performance of scientific centers, computational facilities, power and production plants. Its memory cells contain data collected from the given science, let's say – physics, and from interlinked disciplines."
Universal Scheme of Evolution here is a strict analogy for mentioned scientific data from physics and interlinked disciplines, but in most generalized form, and not in factual.
"The Discovery Machine will be given the task, for example, investigating the phenomena close to Absolute Zero..."
In accordance to suggested approach "Internet + USESoft", the theoretical description of Absolute Zero phenomenon will be tested by USE logic. It will check the known concept consistency, find anomalies – real facts, which don't fit to concept - and suggest changing the initial concept.
"Discovery Machine will make new discovery[7] and on the base of it (it is very important point in our argumentation!) independently will correct the program of investigation, will change the guideline to the most interesting and unexpected direction."
"I've tried to calculate the point of time, when the science would build the Discovery Machine. It will appear … in half a century. Plus-minus 10 years…"
It means that Discovery Machine will be real at 1962 + (40÷60) year, i.e. 2002 – 2022! Qualitative development of Internet by USESoft would provide a dramatic effect – it would create a process of information development and/or information generation inside Internet, which is adequate to the informational process in human being neocortex. Shortly, it will be a moment of birth of Artificial Intelligence inside Internet.

---

[6] http://lib.align.ru/book/win/307.html in Russian
[7] Do you remember, that "Internet + USESoft" will conduct scientific research (by itself or together with physicists) to discover new information?

Conclusion

Three described directions: Search Engine + USESoft, Chatbot + USESoft, and Internet + USESoft – are logical ways to implement TRIZ (in its modern form - USESoft) into information technology.

It isn't “naked” idea - USESoft is developed and works. Today task is to implement proposed combinations into real life.

January 4, 2009
Brighton, Massachusetts, USA