Fifth TRIZ Symposium in Japan, 2009

Collection of Abstracts of All the Presentations from Japan

August 3, 2009 (2nd version)
Program Committee

JI01- Fukushima (Panasonic) (Tutorial)

Using TRIZ in an Effective Way for Problem Recognition and Solving

Yojiro Fukushima (Panasonic Corp.)

J01- Isaka (IDEA)

Blue Ocean Strategy through Concept Mining and TRIZ

Yoshiharu Isaka (IDEA Ltd.)

Blue Ocean Strategy has been applied to create uncontested market space and make the competition irrelevant. As a technique to achieve this strategy, Concept Mining has been developed in Japan and is found applicable to a variety of products. At the Third TRIZ Symposium 2007 I demonstrated that TRIZ's Technology Evolution Prediction can be applied to earlier steps of Concept Mining.
To illustrate the effectiveness of the combination of Concept Mining and TRIZ, I am going to take the cultivating machine as an example of conventional product which is supposed to be so mature in the evolution to make distinguishable differences from others in the market. By the application of the Concept Mining and TRIZ procedures, such a product has been made competitive. Concept Mining is used for finding new competitive concepts in the product, and Quality Function Deployment for converting the concepts into quality characteristics, and then TRIZ for overcoming the technology bottlenecks found in the quality characteristics.

J02- Takeuchi (Niigata IAR)

Rather "Que Solar, Solar" Than the "Systematic Innovation" on Agro-technology in Japan with TRIZ/USIT

Atsushi Takeuchi
(Niigata Institute of Agricultural Research, Japan)

We will report here the example of introducing TRIZ/USIT to agro-technology in Japan. Focusing the environment of research and development in Japanese agriculture suggests that the crop farming requires the evolution to the next stage with some inventions. As the cost earnings ratio is reducing, innovation is necessary. And the case study shows that TRIZ/USIT will work effectively on invention of rice culture method. Now we are trying to introduce USIT/TRIZ training as a R&D skill. USIT/TRIZ will be a powerful tool to promote the technology on agriculture in Japan.

J03- Adachi (SANNO Inst.)

A Design Method with TRIZ for Pursuing Ideality

Takao Adachi (The SANNO Institute of Management)

The present paper introduces a method for designing a new system, by using the Problem Formulator (developed by Ideation International Inc., USA) for avoiding contradictions and for making the ultimate use of minimal resources. Trying to improve preceding systems is the typical method we use for solving difficult technical problems. The design method, introduced here, however, intends to design a new system on the basis of a substantially different mechanism from the existing ones and to solve the same problem.
In the improvement approach we try to use existing resources in and around the system more effectively than before, but in the present new approach we try to introduce new resources selectively from outside. Designing is an activity that selects a minimum set of necessary resources, we believe. On the basis of this selection we can solve contradictions in the course of designing, make ultimate use of minimum resources, and hence realize the design pursuing the ideality.

J04- Kurosawa (SANNO Inst.)

Using “Stages of Evolution of a Technological System” The Basic Tool for Problem Solving

Kurosawa, Shinsuke (The SANNO Institute of Management)

In Japan, TRIZ has not been accepted as a System with an Organic Entity which has great assets but is still under development. The Japanese seems to think that they have the right to name any part(s) or any modification(s) of TRIZ with which they happen to come across, which they could understand or which is convenient for them, by the name of TRIZ. As a result, even the most important tools of TRIZ are not duly understood in this country.
One of such tools is the “Stages of Evolution of a Technological System” which is the most basic among the Patterns of Evolution of Technological Systems, the foundation of TRIZ. The presentation introduces basic ideas of using the “Stages of Evolution of a Technological System” for TRIZ problem solving. The presentation is no more than an introduction of some of the common understandings of the world TRIZ community, and furthermore, owes many ideas to the presentation of Boris Zlotin and Alla Zusman at the TRIZCON2009, held in March 2009 at Los Angels. It does not contain therefore original ideas of the presenter himself. However, it is still worthwhile, he believes, to present it at the TRIZ Symposium in Japan in order to improve the culture of the TRIZ community in the country

J05- Tamura (Sharp) -- Added

Adaptation Example to Engineer Education That Uses TRIZ - Aimed at Comprehensible TRIZ Training -

Toshihiro Tamura, Shigeki Nishikawa (Sharp Corporation)

Recently it is felt that the engineer is too busy to accomplish the given development business and it becomes impossible for the engineer to do an original development business, which has a technical breakthrough. Concretely, a technical discussion is insufficient and it is confronted with the following two problems. (1)When the engineer faces the technical problems, a lot of time is required to solve a technical problem. (2)Wisdom of the engineer who has a lot of expertise cannot be concentrated to solve an important problem technically. As a result, the team power cannot be demonstrated.

Then, the TRIZ training program was designed to solve such a problem. It is likely to tie to the problem solution earlier when the engineer faces the technological opportunity.
Concrete purposes are the following two and the engineer acquires the custom of thinking from various angles by executing the TRIZ training. (1)It is experienced that the idea creation in the team is more effective than one or two person when the engineer does "Idea creation". (2)When the range of the object of the thought problem is changed, the engineer experiences the difference in the solution. It was trained for a short time (for four hours) for the new employee and the mid-level employee. As a result, an effect was able to be confirmed without being conscious of TRIZ.

J06- Kasai (IDEA)

Application of TRIZ to Environmental Problems For Further Extension of TRIZ

Hajime Kasai (IDEA, Inc.)

In recent years environmental problems become more and more serious. For the sustainable development of our society, environmental problems must be solved. Thus the consideration of E (environment) is already the lifeline of the company as well as the conventional three elements of product development: Q(quality), C(cost), and D(delivery). We've been taking part in a large number of projects of JEMAI (Japan Environmental Management Association for Industry) for these nearly ten years, and demonstrated TRIZ as a very effective tool of DfE (Design for Environment). As a result, their evaluation of TRIZ has risen considerably in these several years. In the present paper, I will report specific examples and their responses so as to support your activities of applying and promoting TRIZ in your own organizations.

J07- Yoshizawa (SANNO Inst.) [TRIZ Soc., B&M SG]

Application of TRIZ Way of Thinking and Its Tools to Develop a New Business Model

**[Business & Management TRIZ Application Study Group, Japan TRIZ Society]
Ikuo YOSHIZAWA (The SANNO Institute of Management), Kazumasa YOKOYAMA (Toshiba Co), Kimihiko HASEGAWA (Sano & Associates International Patent Firm), Akira SATO (Keio University), Shigeru KUNO (NKN Consulting Co.), Yasuo MORIYA (Fujitsu Advanced Technologies), Takuo MAEDA (Takumi System Architects), Teruyuki KAMIMURA (Willfort International Patent Attorneys), Fumiko KIKUCHI (Pioneer Co.)**

Most of TRIZ applications reported so far are for solving technological problems. One of the challenges for TRIZ to be deployed in a much wider scope is to prove its capability to help solve business and management problems.
The B & M TRIZ Application Study Group of the Japan TRIZ Society was organized two years ago to address this challenge. We have been studying methods how to apply TRIZ to tackle business and management problems through analysis of real life cases, and trying to build a guidance of TRIZ application for such a purpose. The present report is about our efforts and the results obtained up to the present time. We focus on "TRIZ application for developing a new model of business that brings in the best economic performance for a given product."
The process of our study consists of the following 5 phases;
1. Selection of the target (either a product or a field of business)
2. Understanding the present situation (by interviews and analysis of available information)
3. Building a scheme for developing a new business model.
4. Developing the business model based on the scheme.

5. Presentation of the model and the evaluation (by presenting to subject matter experts and interviews)
As our first instance of target, we chose “the Large-Screen Television System”. Last year we reported our study of Phases 1 and 2. This year we report about the components of the new business model in more detail according to the study of Phases 1 and 2, and focus on the building of a scheme for developing a new business model for “the Large-Screen Television System” as the results of Phase 3.

J08- Kasuya (Pro-Engineer Inst.)

Effective Use of TRIZ, in the “Career Design” Education

Shigeru Kasuya (Pro Engineer Institute)

For motivating students in learning and employees in working, the carrier education has been found important. I have been involved in the carrier education for many years, and found that the people with little working experiences, such as students and young engineers, feel it difficult to design their life carrier. The conventional method of carrier design education is based on the students' past experiences, current interests, their sense of values, etc. In this situation I have been trying to introduce TRIZ in the carrier design education for these several years experimentally in various universities and companies. Two TRIZ tools were found effective. The first is the concept of "Ideal Final Results", which urges us to regard the goal of our own life as Ideality. The second is the Abstract thinking, which guides us to think the purpose of studying and working deeply.

J09- Nakagawa (Osaka Gakuin U.)

How to Prevent Cords and Cables from Getting Entangled: A Study of Systematic Classification of Various Solutions

Toru Nakagawa, Tomoyuki Ito, and Masanobu Tsukamoto (Osaka Gakuin University)

Cords and cables often cause troubles by getting complex and entangled, around appliances at home, around PCs at offices, around equipments in labs, etc. The present study started to think of methods of preventing cords and cables from getting entangled. Since the problem lasts so long and spreads so widely, there must be a lot of different solutions known and used in the world, we thought. Thus we first searched for various methods, tools, devices, equipments, etc. which were used for such a purpose, at home, at offices, at hardware stores, at PC shops, etc. Then we classified all these cases, in a bottom-up manner, into a hierarchical system of methods expressed in the functional terms.
Then we reorganized the system of solutions by introducing step-wise expanding scopes of the target system. A system of solutions has been found, namely: (A) As for a cord or cable, to adjust its length so as not to get entangled. (B) As for multiple cords or cables, to bundle them, to combine and unite them. (C) As for the connecting parts between devices and cords/cables, to standardize them for easy connection and disconnection and to use simple connection modules. (D) As for the system containing devices and cords and cables, to reorganize the devices in their functions, structures, methods, and arrangements, and to set and store cords and cables in appropriate places. Significance of this sort of study of classifying solutions is discussed.

J10- Takahara ( )

TRIZ as the Way of Life?

Toshio TAKAHARA ( )

TRIZ is an assemblage of methods (i.e., processes) consisting of changing attributes, solving “physical contradictions” and “technical contradictions”, segmenting and merging of attributes and objects, as I presented at the Japan TRIZ Symposium last year. TRIZ could be applicable to every area including technological area and institutional area, I believe. To live is to change objects to realize our purposes. So the way of life includes our purposes and our attitudes how to realize and change the world. This paper shows that the concepts of structure, function, and granularity (or scope) of objects can build up unified purposes and guideline of attitudes how to realize and change the world. In this sense I apply Nakagawa’s Essence of TRIZ in 50 Words to a much wider area: “TRIZ provides a dialectic way of thinking, i.e., to understand the problem as a system, to make an image of the ideal solution first, and to solve contradictions.”

J11- Sawaguchi (SANNO Inst.)

On The Roles of TRIZ at the Workshop Based on “Cross-industrial association” - TRIZ to facilitate Innovation Activities -

Dr. Manabu Sawaguchi (SANNO University)

The survey conducted by the SANNO in 2006 revealed that a majority of engineers lack confidence in both “Innovation Power” and “New Product Planning Power”. Based on the considerations of the survey results, in order to facilitate the discussion about “Innovation”, I tried to develop “the discussion oriented workshop” based on “Cross-industrial association”, with the preparations of the appropriate case examples focusing on “Innovation”. The workshop is expected to be one of the “good fields” to seize the opportunities to enforce “engineer’s innovation power”.

Therefore, in this presentation, I would like to introduce the highly-valued workshop programs and a several unique case examples, which were utilized at the workshop focusing on the technical evolutions as the empirical law in TRIZ field.

On the latter of my presentation, I’m going to introduce “attendee’s evaluation regarding the workshop”.

To conclude, the majority of respondents (37/45= about 82 %) at some workshops imply that their ways of both looking and thinking at things were changed through the workshop. What this result makes clear is that the workshop is “one of the good fields” to seize the opportunities to enforce “engineer’s innovation power”. Moreover, it is particularly worth noting that nobody had negative answer.

J12- Hasagawa (Sano Int'l Patent) [TRIZ Soc. IP SG]

Invention Analysis through the Patent Journal (Part 2)

[Intellectual Property Creation Study Group, Japan TRIZ Society]
Kimihiko Hasegawa, Hiroshi Ueda, Nozomu Takeuchi,
Teruyuki Kamimura, Toshimitsu Kataoka, Narumi Nagase,
Hirotake Makino, Mikio Suzuki, Shigeru Suzuki

We have analyzed over 100 patent documents in several technical fields since last year, in order to figure out technical contradictions involved in and principles applied to solve the contradictions. Last year we reported about fifty examples, while this year we will show over 50 new examples. For every example, we record the results of each patent analysis in a one-page summary named "Invention Analysis Sheet". Also, for many

examples, we added a supporting sheet named "Analysis Memorandum," where we describe our standpoint of analysis and the original sentences in the relating sections of the corresponding patent document. This will help TRIZ beginners understand our methodology of patent research. You may check our analyses by referring the original patent documents with these supporting materials. The report includes good IT-field examples which were analyzed on the basis of Darrel Mann's 21x21-style "IT Contradiction Matrix" and "TRIZ Principles for Information Technology (Japanese draft edition)" by Umakant Mishra.

J13- Shonai (Hitachi)

Survey on Thinking Methods for Invention and Discovery —A Step for Combining TRIZ with non-TRIZ methods—

Toru SHONAI, Junji SHIGETA

(Central Research Laboratory, Hitachi, Ltd.)

We have been assisting inventive activities in a company's laboratory for a decade. TRIZ is the only systematic methodology for inventive problem-solving, which is developing now. Although we consider it as the most dependable methodology for invention, because there are no empirical studies that TRIZ can assist for highly excellent inspirations beyond anyone's expectations in high probabilities, we should absorb and exploit non-TRIZ methodologies aggressively. Case studies of combination of QFD/Taguchi/KT methods with TRIZ have already been done, but their target isn't more powerful inspiring methods. We are now investigating various inventive and inspiring methodologies from the past and distilling their essence. This presentation will describe Aristotle's and Peirce's philosophy of science, discovery methods of geniuses in various academic fields and serendipity, inspiring methods, especially in Japan, and remarks from brain science.

J14- Katagiri (Koganei)

Case Study of Introducing and Applying TRIZ to Real Projects for Obtaining Results (= Profits) (Part 2): Having Used QFD → TRIZ → TM, What are the Results?

Tomohiko Katagiri, Toshiaki Tsuchizawa, and Shuichi Hosaka
(Koganei Co., Ltd.)

Our Company, Koganei Co., Ltd., is a manufacturer of aero-pneumatic equipments, developing, manufacturing, and selling such devices with about 800 employees. As we reported in Japan TRIZ Symposium last year, we have introduced not only TRIZ but also QFD and TM (Taguchi Method) since October 2006 to innovate our whole development process. Our target is to achieve good results (i.e., profits), of course, and we have applied these methods to the real development process of our new products.
The present paper is the second report of our introduction and application of QFD + TRIZ + TM. We will show you how we applied the methods in the actual development and what results we obtained. The following aspects will be reported with the real examples of the new products we developed.

- How to match the product strategy with the marketing strategy (with QFD)
- How to find (hidden) customers' requirements and set the target specifications of the products, which are surely well sold (with QFD)
- Breaking through the unsolved barriers of current technology (with TRIZ)
- Organizational learning by engineers with a common communication language (with TRIZ)
- Robust and optimal design and its verification without depending on KKD (i.e., experiences, simple guessing, and guts) (with TM)
- For establishing "incomparable strength" (with QFD + TRIZ + TM)

J15- Matsubara (Niigata U.)

Transitions of Japanese Manufacturing Methods from the Viewpoint of Constructing and Utilizing Explicit and Tacit Knowledge ~The Rise of New Empiricism~

Sachio Matsubara (Niigata University)

Since 2007, after receiving a Grant-in-Aid for Scientific Research (Exploratory Research) provided by MEXT, we have been performing research and promoting follow-up classes regarding the utilization of TRIZ in university education at Niigata University. Regarding the introduction of TRIZ and other creativity methods in school education, we aim to nurture extensive creativity by raising the independence of the students, as well as to introduce learner-oriented teaching methods. In this paper, upon reviewing the transitions of Japanese manufacturing methods, we discuss the rise of the new empiricism and "High-Concept" by Daniel Pink from the point of view of explicit and tacit knowledge.

J16- Maeda (Takumi System Architects) [MPUF USIT SG]

Practical USIT Workbook to Develop New Ideas on Software/IT Products

[SW/IT Working Group of MPUF USIT/TRIZ Study Group]
Takuo MAEDA (Takumi System Architects, Ltd.)
Kazushige AOKI (Yokogawa Electric Corp.), Masaaki OHOGAMI (USIT Planning), Fumiko KIKUCHI (Pioneer Corp.), Kazunori KURABAYASHI (Accenture Japan Ltd), Toru SHONAI (Central Research Laboratory, Hitachi, Ltd.), Hirotake MAKINO (Yokogawa Electric Corp.), Yuji MIHARA (Creative Technology Institute)

New products of software and with embedded software are demanded more and more. Software engineers, however, often waste their valuable time to fix bugs and they do not have enough time to develop new ideas and/or products with software, even if software constitutes key components for new products and businesses. They need to change their situations. This requires some sophisticated and practical methods. And such a method requires practical guidebooks to help engineers understand and apply the method step by step.
This Workbook (WB) is for such software engineers to create new ideas and products. We assume they be familiar with neither USIT nor TRIZ. The WB guides the process step by step, starting at defining and analyzing the problem and achieving the generation of new ideas and products. The left pages of the WB show where you are in the creation process, what you must do there, how to describe your intermediate ideas, how to move to the next steps to improve your ideas, and how to research current ideas and products, etc. The right pages of the WB remain blank and must be filled by them according to the guide on the left pages. We assume the WB is used at their discretionary time, such as while commuting in trains.

J17- Morihisa (Kyoto U.)

Spreading and Socialization Model of TRIZ by an Activity Theory Approach

Mitsuo Morihisa (SKI),
Hiroshi Kawakami, Osamu Katai（Kyoto University）

TRIZ is going to raise expectations for the technological breakthrough, as it has richer contents on invention and creative inspirations than any other problem solving methods. In this paper, benefits not only of the symbiotic systems theory that yields each full inherent characteristics with harmonious symbiosis among Man, Systems and Environment but also of the Activity Theory model by Yrjö Engeström, the world's leading researcher in learning sciences and education are shown. The Engeström's model that stands on the minimal triangle model invented by L.S.Vygotsky, the Russian psychologist was considered to give both theoretical and practical contributions to the symbiosis.

J18- Ishida (Hitachi Consulting)

Pursuing Essence of Innovation through Applying TRIZ to Problem-Solving on Business

Atsuko Ishida (Hitachi Consulting Co., Ltd.)

In 2003, the author proposed the business idea database using 40 inventive principles and the contradiction matrix for creating innovative business models and products. It suggested solutions of business problems by finding their essential subjects and contained contradictions. In 2008, the author revised the business idea database by including business contradiction statements based on improving / degrading parameters to find potential business problems before finding contradictions and a way of finding hidden technical needs. The method was applied to three business solutions and results were evaluated from three points of view, namely, abstraction, innovation and identification. As a result, next points were made clear. (1)Clear problem definition and flexible thinking affect final ideas. (2)Innovation and abstraction of final ideas affect identification of them. Finally, importance of experience of a problem to innovation is discussed.

J19- Kumasaka (Pioneer)

The Role of TRIZ in the System of Monozukuri Solution Methods

**Osamu Kumasaka, Fumiko Kikuchi, Akio Fukushima
(Pioneer Corporation)**

Complication and difficulty of the Monozukuri process in Japan has been increasing according to the change of social condition. While many subject solution tools are introduced, some engineers are frustrated to choose one for their problem. Therefore a subject indexed matrix was systematized for the benefit to related engineers. And the role of TRIZ in this system was studied by means of evaluating interrelations and synergistic effects among those tools. As a result, possibility of TRIZ contribution was indicated on wide steps of the Monozukuri process as a new idea creation tool.

J20- Ishii (Idea Plant) [Miyagi TRIZ SG]

Development of a Tool That Supports TRIZ Leaders during Idea Generation Meetings: 9-Windows Board

**[Miyagi TRIZ Study Group (Mi-TRIZ)]
Rikie Ishii (IDEAPLANT)**

We, Miyagi TRIZ Study Group (Mi-TRIZ), conducted several TRIZ study meetings open to the public. A number of participants who attended the meetings tried later to use TRIZ in their own companies during idea generation meetings. However, they had a hard time, they reported in common. So Mi-TRIZ wanted to overcome this situation and worked on the development of a tool that would make it easy to use TRIZ when running a meeting. Finally, corresponding to the highest demand, Mi-TRIZ developed a whiteboard tool that designed the “9-windows”. This presentation will introduce the real tool and report the results of the questionnaire survey on it.

J21- Tsuge (Konica-Minolta BT)

Case Study for Verifying the Effectiveness of Applying USIT

Shoichi Tsuge, Tateki Oka
(Konica Minolta Business Technologies, Inc)

In order to verify the effectiveness of applying USIT, we chose a theme which was recognized by many engineers that no more good ideas are possible after having worked for many years with conventional engineering and idea generation methods. Applying USIT to this theme, we thought we can judge the effectiveness of USIT by whether new effective ideas could be generated or not. As a result, we were able to apply for 8 patents, and none of the patent contents were able to be generated by the conventional methods. Thus we take this as an example that could verify the effectiveness of applying USIT. It became clear that especially the space/time characteristics analyses and the Particles method in USIT were effective in this case.

J22- Ueda (Osaka Gakuin U.)

TRIZ/USIT Case Study: How to Help Recall Passwords

Yutaro Ueda, Hiroki Nabeshima, and Toru Nakagawa
(Osaka Gakuin University)

This case study has been achieved by a problem solving exercise with TRIZ/USIT in Nakagawa's Seminar Class of Junior students in Faculty of Informatics of Osaka Gakuin University. Nowadays we often use passwords in computers and social procedures. Some of them were selected by ourselves in relatively simpler forms, but many others were given to us by system sides in randomly-generated lengthy forms. Since there are so many different ones we have to handle, we cannot remember them all. We need some measures which help us recall the appropriate password when required. They should be some auxiliary information ('hints') embodied in some objective form. How, in what form and in what process, should we make the hints? This is the problem of the present study. We analyzed this problem by using Function Analysis and Attribute Analysis in USIT. If the hints are disclosed and used by a malicious person, we will meet severe danger of the password(s) being broken. Thus the requirements for the hints are to be easy for myself to recall the passwords but extremely difficult for any other person to guess the passwords. In TRIZ terms this is a case of Physical Contradiction which can be separated by the Actor, we understand. Then we used 40 TRIZ Principles (with reference to Mishra's book) to enhance the generation of solution ideas. The desirable solutions, as we understand now, need to be based on several basic principles and use a combination of simple but unique coding (encrypting) methods.

J23- Shoji (Panasonic Communications)

Practical Use of Scientific Creative Techniques for the Development of Telecommunication Devices

Takahiro Shoji and Yousuke Koga (Panasonic Communications Co., Ltd.)

Panasonic Communications Co. (PCC) has already deployed the scientific methods including QFD, TRIZ, and Quality Engineering (or Taguchi Method) and utilized them in the processes of product planning, development, and manufacturing. As we reported several times already in the preceding Japan TRIZ Symposia, the effectiveness of such methods has been proved well in real projects in our company. However, such a set of scientific techniques are regularly utilized only in some divisions in our company; thus they are not yet in the stage of company-wide utilization. One of the causes, as we understand, is the fact that most of such scientific approaches require rather high skills in the manipulation and take much time in the processing.
For the purpose of overcoming this difficulty, we have developed a creativity method and a process of technical problem solving, which can be applied easily even by the beginners of scientific methods or creativity methods and even in the busy situations when the engineers need to do the development work and the problem solving in parallel. We will report such a process and method and also a case study of applying them to the development of telecommunication devices.

J24- Fukushima (Panasonic)

Engineers' Understanding of TRIZ As a Consequence of Questionnaire Survey

Yojiro Fukushima, Tsutomu Hata (Panasonic Corporation)

In Corporate R&D Division of Panasonic Corporation, we have been using TRIZ since 2003 for the purpose of solving technological problems in our real jobs. To the engineers who were involved in such problem solving, we regularly conducted a questionnaire survey. Since we got about 300 sets of answers for these 6 years, we have analyzed them recently. The contents are related to the results by using TRIZ, how to use TRIZ, difficulty in TRIZ usage, and so on. We found that by using TRIZ on their real jobs many engineers have come to think more deeply or with some different perspectives. The universal thinking process of TRIZ is found effective by the engineers. An effect using TRIZ has appeared clearly on new employees. TRIZ will produce satisfactory results by educating new employees and by serving as a stimulus to old hands.

J25- Unno (Kawasaki Heavy Industries) [VE Assn. TRIZ SG]

Study on Development-Phase-TRIZ (part 3) Case Study on Contradiction Solving Process -

**Makoto Unno, Hideaki Saegusa (Kawasaki Heavy Industries, Ltd, Japan)
Nobuhide Matsuda (Panasonic Co., Ltd, Japan)
Kazuyasu Ikeda (Sekisui Engineering Co., Ltd, Japan)**

In the Society of Japanese Value Engineering, Kansai Chapter(one of regional activities), many people are attracted to TRIZ, as the new knowledge, which shall be utilized in the creative thinking, and various problem solving processes in Value Engineering activities. Therefore, "Working Group for Effective Utilizing of TRIZ" has been established in 2003. The future target for the Working Group is the logical fusion-utilizing of VE and TRIZ.

Our Working Group expects that TRIZ tools could be utilized effectively in the new product concept planning-phase and technical development-phase, in the enterprise business process, and so various relevant tools have to be examined for finding more effective problem solving processes.
Since 2006, the case-study has been started for the precise understanding of various TRIZ tool's features and effective process , and is planned to be ended in 2011.
In this 3rd study results of the Working Group, practically useful knowledge are revealed, regarding " the contradiction solving process."

J26- Kosha (Fuji Film) [MPUF USIT SG]

Study on USIT Operators Application Examples

[MPUF USIT/TRIZ Study Group]
Hideaki Kosha (Fujifilm Corporation), Yuji Mihara, Noritaka Nakayama, Kouichi Nakamura, Hirotake Makino

The aim of our study team is to offer a guide for USIT users to utilize USIT Operators. USIT Operators were developed as clues to generate ideas from viewpoints of Object-Attribute-Function.
We tried to derive the index from relationships between technical problems and solutions by case studies of familiar examples, in which we imagined to use USIT Operators to solve the assumed problem. We will present what we obtained from those case studies we made.

J27- Tsumagari (Logo) -- New

Make an Effective Use of TRIZ Result Project Management with TOC and the Practical Use

Koji Tsumagari, Masaaki Sakai (Logo Corp.)

There would be not many problems if the products introduced to the market could be achieved with ordinary processes accustomed within our own core business. To use the TRIZ method effectively for smooth market introduction, it is necessary to involve an appropriate set up plan. In case of the product is innovative and revolutionary, the product procedures from development through production to logistics will have new tasks where nobody has experience, and it will also be inevitable that the stake-holders change. In other words, a framework like a new business establishment becomes necessary. The project management method comes invaluable for this solution.
The authors introduce "Project Management CCPM / 6 Modules with TOC," a method which they have developed for Japanese engineers including TRIZ practitioners.

J28- Ishihama (Kanagawa Inst. Tech.)

Concept Design of a Child-Seat by TRIZ Style Problem Identification

Masao Ishihama and Minami Hamada (Kanagawa Institute of Technology)

Child-seats for motor vehicles do not have good reputation in their practical usage in Japanese society. In the beginning of this study for improving their design, however, problems to solve were not so clear for the authors to start designing.

To solve this situation, expected and unexpected functions of child-seats were analyzed using TRIZ method. This analysis identified benefits to be improved as easy loading of a child and ride comfort compatible with collision safety. One of the contradictions was caused by side guards of a child-seat protecting from lateral movement. These side guards interrupt smooth child loading. Second contradiction was between allowing child move and restraining them in collision. Third contradiction was to insulate vehicle vibration and to restrain a child.
Before proceeding to problem solving stage, resource analysis was conducted. Space surrounding child-seat that is much wider than that around adult passengers was identified as a major resource that has not been properly utilized. Information on CAN (LAN on a car) was picked up as another potential resource.
From these preliminary analyses, several inventive principles and concrete design ideas were drawn. For instance, “segmentation” and “dynamicity” lead to an idea of 90 degree horizontal seat turn. “Spheroidality”, “counter-weight” and “self-service” gave an idea of a swinging motion realized by spherical hollow surface for a seat pad. “Universality” combined these two ideas into one physical design.