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TRIZ and Intellectual Property Management

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8.1 Introduction

The capability to manage Intellectual Property is becoming essential, especially for SMEs that actively try to face competition of emerging countries and Far East (China, India, etc.). Whether a company is a small, mid, or large one, a strong intellectual property portfolio will provide the company with the ability to become a more effective competitor and enhance shareholder value. Nevertheless, some aspects are often neglected, such as the importance of patents, not only as a legal protection from unauthorized copying of inventions, but also as a tool for the innovation of both product and process. Establishing a strategy for Intellectual Property Management is important for every company that uses technology to secure a significant competitive advantage. In such a context, methodologies and tools for systematic innovation, such as TRIZ, can help to deal with specific issues of Intellectual Property Management (IPM) and are key issues to systematically innovate product/process/service. These themes are really actual and are attracting more and more interest from both industrial and academic communities.

The worldwide patents database is the widest collection of technical knowledge ever formalised, on the base of which, since 1946, Genrich
Altshuller developed TRIZ theory. Actually, the pillars of TRIZ were stated after a merely scientific observation of the inventions described in patents, and became, after decades of refinement, the structured methodology for inventive problem solving we know today. On the other hand, TRIZ tools are used to speed up product/process innovation activities and patents represent the final step of research and development of successful ideas. TRIZ underlying concept is that invention has logical rules and principles that lead from problem to solution, i.e. there are common patterns in ways of solving problems that, extracted and coded, technologists and researchers can use to obtain the capability to solve problems creatively. Summarizing, the basic axiom of TRIZ is: objective laws govern the evolution of any technical system. TRIZ has built a system made of abstract principles and laws, together with a huge collection of facts and applications examples in a readably applicable manner. Figure 1 shows at high level how solve problems using TRIZ methodology: once acquired problem specifications,

1. the problem is first generalized and formalized defining a structural-functional model,

2. then analyzing world of science and technology, general solutions are found,

3. and then specialized for the specific problem.

TRIZ comprehends a set of tools for generating innovative ideas and solutions; some of the most popular are:

- Ideal Final Result (IFR),
- Resources,
- Substance-Field (SU-Field) modeling,
- The Contradiction Matrix to solve technical contradictions,
- The Separations Principles to solve physical contradictions,
- Inventive principles and standard solutions,
- ARIZ algorithm,
- Laws of technical system evolution.