



TRIZ

TRIZ was developed by the Russian Genrich S. Altshuller, who worked on reviewing patents to derive his principles around which a wide range of apparently different problems can be solved. His approach classified solutions into five groups:

- **Level one.** Routine design problems solved by methods well-known within the specialty. No invention needed. About 32% of the solutions fell into this level.
- **Level two.** Minor improvements to an existing system, by methods known within the industry. Usually with some compromise. About 45% of the solutions fell into this level.
- **Level three.** Fundamental improvement to an existing system, by methods known outside the industry. Contradictions resolved. About 18% of the solutions fell into this category.
- **Level four.** A new generation that uses a new principle to perform the primary functions of the system. Solution found more in science than in technology. About 4% of the solutions fell into this category.
- **Level five.** A rare scientific discovery or pioneering invention of essentially a new system. About 1% of the solutions fell into this category.

From this analysis he suggested that over 90% of the problems engineers faced had been solved somewhere before. If engineers could follow a path to an ideal solution, starting with the lowest level, their personal knowledge and experience, and working their way to higher levels, most of the solutions could be derived from knowledge already present in the company, industry or in another industry.

Why and When Is It Used?

TRIZ is a suite of creative thinking tools which help explore in systematic fashion a wide range of problems and potential solutions. These could involve product, process, market, organizational innovation – essentially TRIZ offers some support for structured and systematic thinking along a number of different pathways.

How Does It Work?

TRIZ was developed from a review of engineering problems and solutions and the observation that there seemed to be patterns in different methods. These were assembled into a set of 'rules' or heuristics which can be systematically applied to different problems. There are now many consultants specialising in the TRIZ approach and combining it with other creative problem-finding and solving techniques.

Further Information

<http://www.mazur.net/triz/>

<http://www.triz.org/triz.htm>