TRIZICS works by directing the user to the appropriate specific TRIZ (and non-TRIZ) tools to apply for the type of technical problem to be solved (TRIZICS defines four types of technical problem) and at which stage of the problem-solving process to use each tool. TRIZICS enables TRIZ users to systematically apply TRIZ right away by providing a structured framework for using TRIZ tools and removes the need to accumulate years of TRIZ experience to know how to coordinate and apply the tools of TRIZ (and other non-TRIZ tools) with proficiency.

Inventing is not an algorithmic process; it is a result of unrestricted creative thinking—inspiration.

Psychologists have found that a high IQ alone does not guarantee creativity. Instead, personality traits that promote divergent thinking are more important. Divergent thinking is found among people with personality traits such as nonconformity, curiosity, willingness to take risks, and persistence.[[2]](http://en.wikipedia.org/wiki/Divergent_thinking#cite_note-2)

<http://en.wikipedia.org/wiki/Divergent_thinking>

<http://www.wikihow.com/Choose-Between-Different-Styles-of-Thinking-Maps>

**Substance-field analysis**

* [*Ideal final result*](http://en.wikipedia.org/wiki/Ideal_final_result) (IFR) - the ultimate idealistic solution of a problem when the desired result is achieved by itself;
* [*Administrative contradiction*](http://en.wikipedia.org/w/index.php?title=Administrative_contradiction&action=edit&redlink=1) - contradiction between the needs and abilities;
* [*Technical contradiction*](http://en.wikipedia.org/w/index.php?title=Technical_contradiction&action=edit&redlink=1) - an inverse dependence between parameters/characteristics of a machine or technology;
* [*Physical contradiction*](http://en.wikipedia.org/w/index.php?title=Physical_contradiction&action=edit&redlink=1) - opposite/contradictory physical requirements to an object;
* [*Separation principle*](http://en.wikipedia.org/w/index.php?title=Separation_principle_(TRIZ)&action=edit&redlink=1) - a method of resolving physical contradictions by separating contradictory requirements;
* [*VePol*](http://en.wikipedia.org/w/index.php?title=VePol&action=edit&redlink=1) or *[SuField](http://en.wikipedia.org/w/index.php?title=SuField&action=edit&redlink=1" \o "SuField (page does not exist))* - a minimal technical system consisting of two material objects (substances) and a "field". "Field" is the source of energy whereas one of the substances is "transmission" and the other one is the "tool";
* [*FePol*](http://en.wikipedia.org/w/index.php?title=FePol&action=edit&redlink=1) - a sort of VePol where "substances" are ferromagnetic objects;
* [*Level of invention*](http://en.wikipedia.org/wiki/Level_of_invention);
* [*Standard solution*](http://en.wikipedia.org/w/index.php?title=Standard_solution_(TRIZ)&action=edit&redlink=1) - a standard inventive solution of a higher level;
* [*Laws of technical systems evolution*](http://en.wikipedia.org/wiki/Laws_of_technical_systems_evolution);
* *Algorithm of inventive problems solving* (ARIZ), which combines various specialized methods of TRIZ into one universal tool;
* and a "field". "Field" is the source of energy whereas one of the substances is "transmission" and the other one is the "tool";

Su-Field Analysis - Model Solutions

<http://www.triz-journal.com/content/c070409a.asp>

**he most important components of TRIZ**

|  |  |  |
| --- | --- | --- |
| **Nr.** | **TRIZ - tools, methods** | **Fields of application** |
| 1. | 40 Inventive Principles for eliminating technical contradictions; system of their application in form of the Contradictions Table. | Simple to moderately difficult tasks, recommended for newcomers to TRIZ. |
| 2. | System of 76 Standards for solving technical problems: 5 classes / 76 Standards. | Simple to difficult tasks. |
| 3. | Step-by-step techniques or algorithms for inventive problem solving (abbr.: ARIZ). Universal tool for solving all kinds of problems. | Extremely difficult problems, comprehensive search for solutions. |
| 4. | Substance-Field analysis of technical systems. | Tools for methods nos. 2 and 3. |
| 5. | Separation principles for eliminating physical contradictions. | ARIZ tool (no.3). |
| 6. | Methods for analysing of system resources. | Tool for nos.2 and 3. |
| 7. | Database of physical, chemical, geometrical and other effects and their technical applications. | TRIZ knowledge base; tools for components nos. 1 to 5. |
| 8. | Methods to increase creative thinking, to reduce psychological inertia and to "leave beaten tracks": operator DTC (dimensions-time-cost), simulation with "Little People" etc. | Psychological aids for all TRIZ components. |
| 9. | Method of Anticipatory Failure Identification (AFI) in technical systems. | Analysis and prediction of possible sources of failures. |
| 10. | Patterns of evolution of technical systems (TS). | Prediction for the development of technical systems, creation of patent fences. |

**TRIZ Components overview**

<http://www.trisolver.eu/methoden/triz_anwendung.htm>

Lean and Six Sigma

<http://www.inventioneeringco.com/commentaries/?p=59>

You’ve read articles about Proctor & Gamble’s innovative efforts in Harvard Business Review. You’ve probably read about innovation at Intel and IBM. Those companies do not practice REAL innovation. Acquiring a profitable company is not innovation. Hiring smart people is not innovation. Spitting out patents like my daughter spits out sunflower seeds is not innovation. These may be important but they are not innovation. Not REAL innovation, but RHETORICAL innovation. And we don’t need anymore rhetoric. We need reality. We need an actionable set of principles and practices that can reduce innovation to an exact science. We need the fuzzy front end to be brought into focus. We need democratization of the creative process so that its application becomes predictable, repeatable, and reliable.

<http://www.realinnovation.com/theories_strategies/breakthrough_disruptive_innovation.html>

TRIZ LIMITATIONS

<http://www.triz-journal.com/archives/1998/03/d/>

TimeLine of Triz

<http://www.ideationtriz.com/history.asp>

Benefits of Triz

<http://www.aitriz.org/triz/14-triz/triz/610-benefits>

Social Science Research Network

<http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2282002>

<http://hal.archives-ouvertes.fr/docs/00/34/09/89/PDF/Dubois_2005_ICED.pdf>

The Substance-Field Analysis

<http://www.triz-journal.com/content/c070409a.asp>

# **Morphological analysis (problem-solving)**

http://en.wikipedia.org/wiki/Morphological\_analysis\_(problem-solving)

<http://www.swemorph.com/ma.html>

# **Axiomatic product development lifecycle**

<http://en.wikipedia.org/wiki/Axiomatic_product_development_lifecycle>

## **Alternative Methodology for TRIZ Implementation**

<http://search.proquest.com.library.sheridanc.on.ca/docview/1471958964?pq-origsite=summon>

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<http://library.books24x7.com.library.sheridanc.on.ca/assetviewer.aspx?bookid=41714&chunkid=297427889&rowid=7>

## Advanced Systematic Inventive Thinking (ASIT)

http://systemicthinking.com/origins/asit.html