Using the TRIZ Crossover QMS Android Application to Improve Quality

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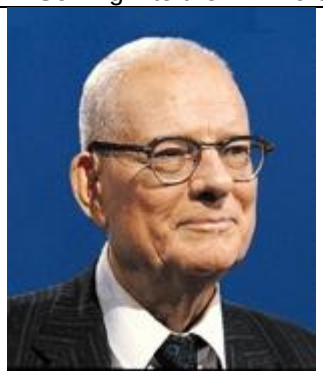
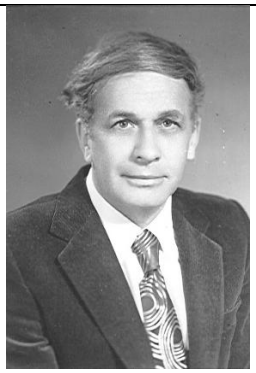
Short presentation of the TRIZ crossover QMS application

The **TRIZ Crossover QMS** mobile application enables the application of TRIZ tools and techniques in the world of quality management. It was developed to improve the creativity of managers and Quality practitioners. Business and management innovation has always been among the most crucial drivers of success, but today innovation is essential for competitiveness in global markets. We strongly believe that creativity leads to the innovation required to improve our systems, processes, products and services. Today TRIZ is recognized as one of best tools for problem-solving – especially ones that require innovative solutions for system evolution prediction and discovering new approaches with minimal consumption of resources. This application provides a selection of powerful solution techniques, while the Instructions for Use manual provides basic TRIZ fundamentals and analytical methods that creates a new mindset needed to enable the practitioner to improve Quality and other management systems.

Why use TRIZ crossover QMS?

Today Quality practitioners are placing considerable emphasis on achieving compliance with QMS standards (i.e. ISO 9001, EN 15224, ISO/TS16949, etc.) which is essential to ensure compatibility in the supply chain. TRIZ is a tool to improve creativity which is needed to help solve difficult problems or predict the future development of systems. Most often it is helpful in situations that present a serious threat to the organization's survival (i.e. a competitor has better products or services at lower prices, the cost of materials is increasing faster than the prices of our products, or we could improve our market position if we could improve xxx). Predictions about the future form the bases upon which all decisions are made. Any improvement requires the prediction of evolution. To find the best solution the cooperation of interdisciplinary teams is required, which is why we decided to develop a tool based on merging Deming's System of Profound Knowledge with Altshuller's Theory of Inventive Problem-Solving. Such a tool will enable us to fulfill Fignebaum's foundation for business success: Innovate in product and service leadership and cycle-time management [1]

Merging Deming's System of Profound Knowledge with Altshuller's Theory of Inventive Problem-Solving into the TRIZ crossover QMS application		
Area	 Four elements of Deming's System of Profound Knowledge [3]	 Altshuller's Theory of Inventive Problem-Solving – TRIZ – basic elements [4]
System	Focus is on the system	Problems are always solved by treating the system as a whole.
Variation	Recognition of variability	-
Knowledge	Theory of knowledge	Knowledge base for problem-solving: - 39 × 39 contradiction matrix - 40 inventive and 4 separation principles - 76 standard solutions

		- 17 generic evolution trends - Impact databases
Psychology	Psychology	-
Creativity and innovation	-	Tools for improvements in creativity and inventive problem-solving algorithm – ARIZ.

Table 1

To use TRIZ tools for improving your QMS, consider your organization as a system generating value. The concept of value can be used as a quality measurement indicator.

$$Q_{indicator} = \frac{\text{Value}_{\text{ for customer}}}{\text{Cost}_{\text{ for organization}}}$$

In the modern management approach, the strategic focus is on the ratio of value and costs. The difference between value and costs creates a variety of strategic options for setting the competitive price.

To be competitive in the new global economy we have to invent products and services that are of high value to customers and are generated by cheaper processes and systems. TRIZ crossover QMS is a tool that can help quality practitioners think outside the box in order to find solutions best fitted to customers and organizational needs and be implemented by available resources.

For whom is TRIZ crossover QMS intended?
It is intended to be used by Quality managers and practitioners and other process owners and experts participating in cross-functional teams for improvement.

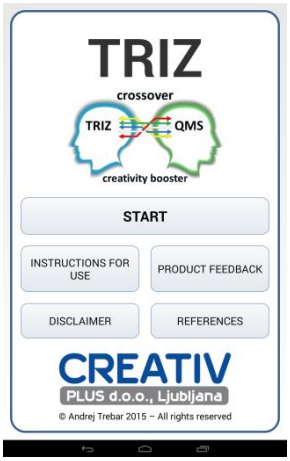
The tool was designed to improve creative thinking for teams and individuals. It has the role of being a creative booster encouraging users to select inventive principles for solutions and implement the right method for their implementation.

How it works?
After installation and start of the application, the front page appears on the screen. Press the START button and the MENU screen will appear showing possible selections:

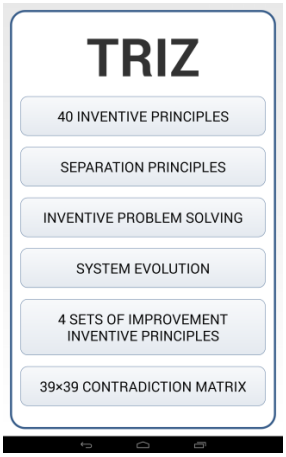
a) 40 inventive principles
b) 4 separation principles
c) 7-step inventive problem-solving algorithm
d) 8-step system evolution algorithm
e) 4 sets of improvement inventive principles
f) 39×39 contradiction matrix

Follow the selected algorithm and use the inventive and separation principles to determine the solution you are looking for according to the instructions in various steps of the selected algorithm. Four sets of inventive principles are selected for fast-track improvement according to S. Fayer who recommends 4 groups of problems where the inventive principles can be related to: substances, harmful factors, increase in effectiveness and ideality, and using scientific effects. The Contradiction Matrix or Altshuller Matrix suggests Inventive Principles to solve contradictions arising while trying to improve a feature of any product, process or system.

Screen shots

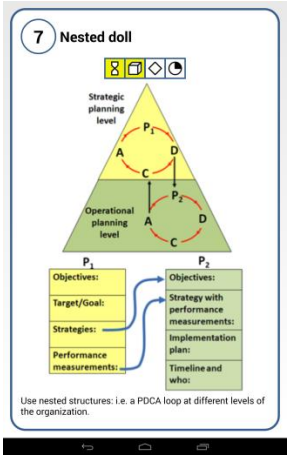


Title page

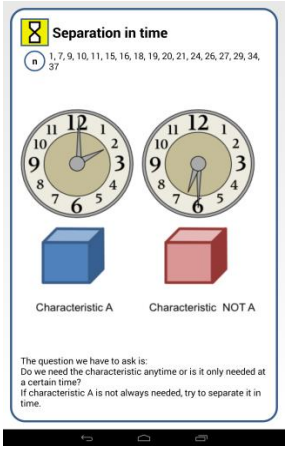


Selection menu

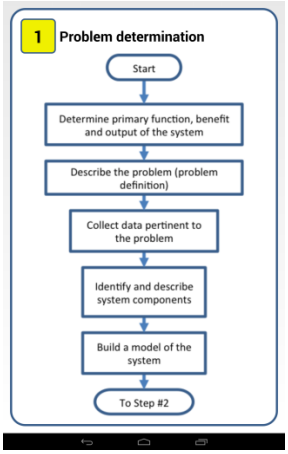
40 inventive principles



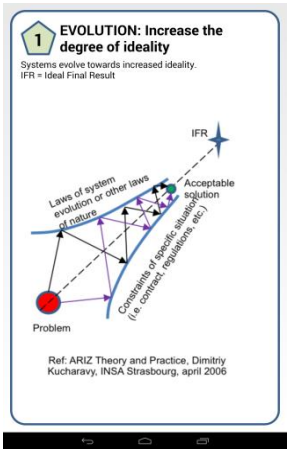
Single inventive principle



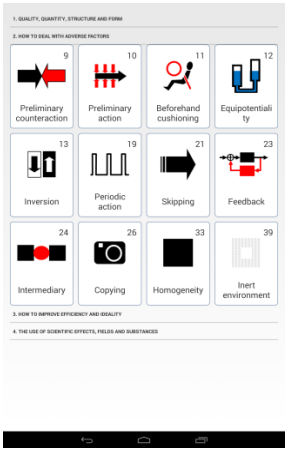
Separation principles



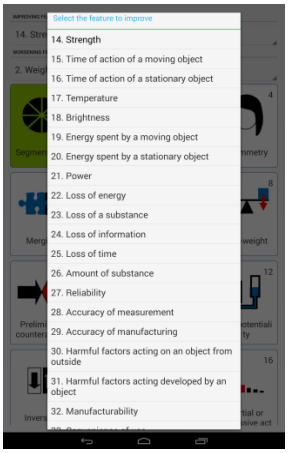
Inventive problem-solving algorithm



Evolution algorithm



4 sets of improvement inventive principles



Contradiction matrix

Accessibility

The TRIZ crossover QMS application is available for free at:
https://play.google.com/store/search?q=QMS&hl=en
Instructions for use available at:
http://www.creativ-plus.si/triz/Instructions%20for%20use%20TRIZ%C3%97QMS%20application.pdf

Instructions to work with teams and practical examples are available at:
http://www.creativ-plus.si/triz/CX-TRIZ%20Users%20Manual.pdf

References

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