

The Contribution to TRIZ by the Inventor Schools in the GDR

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Inventor School Movement in the GDR (ISM) – The Facts

Size: Between 1981 and 1990 in the GDR there were about 300 inventor schools with about 7 000 participants. The model for the implementation of inventor schools was realized along a standard methodology based on TRIZ ideas constantly evolving since 1982.

Outcome: There is no precise statistics but it can be estimated that nevertheless 600 patent applications and 1 000 practical problem solutions were achieved.

Materials: From 1982, the participants were provided with a specially developed methodical hand material – a small book. Authors: Michael Herrlich and others. In 1988/89, the material was significantly enhanced and was now available in two small books, both very demanding. Authors: Hans-Jochen Rindfleisch and Rainer Thiel.

ISM – Methodology

One to two dozen engineers from an industrial plant gather two courses in a rural place, each for a week, to learn innovative problem-solving methods and to inventively solve one to three business problems into one to three groups of community work.

In the first week about 12 hours lectures are offered. In about 40 hours of teamwork, a problem is exposed and a solution is created. The moderation of each group – ideally 7 participants – is done by an experienced inventor, he acts as a methodologist and trainer.

In the following weeks, the patent study is deepened in the company, calculations and hand tests, also laboratory tests are made.

Finally, a second week follows in the rural place to complete patent applications and initiate the start of the pilot series.

ARIZ and Analysis of Social Processes

How methodologically analyze that development, highly driven by social and societal contradictions on several levels?

My ARIZ based approach cannot be explained here due to time restrictions. I refer to my papers and present only the application to the analysis of the history of the Inventor School Movement in the GDR.

ISM – Periodization

The Inventor School Movement (IS) grew up in the highly contradictorily developing socio-political conditions within the socio-political system (SPS) of “real socialism”.

Phase A: 1962 – 1970

IS: Incubation phase of ideas that later lead to inventor schools.
Leeway for protagonists to propagate these ideas.

SPS: Encouraging socio-political conditions on the background of ongoing ideological narrowness: half-hearted political experiments on economic mechanisms using modern scientific ways of thinking (cybernetics, prognostics, operations research, mathematical modeling, computer use) within the “New Economic System of Planning and Management” (NÖSPL).

ISM – Periodization

Phase B: 1971 – 1978

IS: Formation of the plans of the inventor school concept and formation of a network of enthusiasts.

SPS: Restoration of a rigid centralism under Honecker. Degradation of the timid turn to modern ways of thinking. The concept of the “Unity of Economic and Social Policy” replaces NÖSPL.

Phase C: 1979 – 1982

IS: Creation of organizational structures for inventor schools within the Engineering Association (KDT). First practical tests and business contacts via trusts (“Kombinate”). First teaching material, mainly due to Michael Herrlich as author.

SPS: Increasing oppressive feelings in parts of the political establishment given by the low growth rates of the economy. Within the intelligence grows the feeling of the need for profound reforms, but this is abandoned by the establishment.

ISM – Periodization

Phase D: 1983 – 1989

IS: Inventor school movement enters the industry. The number of trainers and participants grow. Efforts, the breadth and depth effect increase rapidly. The second generation of teaching material and also coaching material is written.

SPS: Increasing self-deception and political fraud by the political leadership. Hectic attempts, by concentration of all reserves in the high-tech sector despite the tightening of the trade embargo (COCOM lists) and ongoing currency shortages to achieve breakthroughs to the world class level.

ISM – Components

During an **ARIZ-like component analysis** of the inventive system we identified

- the trainers, many of them from the group of *Honored Inventors*,
- inventive practices in the industry,
- dialectical traditions of thought in contradictions coming from cybernetics,
- structural relicts from the “Systematic Heuristics”, an innovation theory developed by Johannes Müller and strongly pushed by the establishment until the early 1970th.

The System of Honored Inventors

Honored inventor was a state honorary title of the GDR, which was awarded from 1950 in conjunction with a badge of honor and a monetary bonus.

There existed a system of strong social ties between them that worked independently of all political changes, mainly inspired by Michael Herrlich.

Theoretical Contributions of the Inventor School Movement

Three Theoretical Frameworks

- WOIS – Contradiction Oriented Innovation Strategies (Linde, TU Dresden 1988)
- PROHEAL – Program for the Development of Inventive Approaches and Solutions (Rindfleisch, Thiel 1988)
- Inventing as process of information processing and generation, presented at the own innovative work and at the approaches within the KDT inventor schools. (Herrlich, TU Ilmenau 1988)

Theoretical Contributions of the Inventor School Movement

Main Contributions

- The PROHEAL Path Model
- Closer analysis of administrative contradictions on a technical-economic level (TÖW), thus already close to today's challenges of the inventor's everyday life in *TRIZ for Business*.
- Differentiation of contradictions on the three levels TÖW, TTW, TNW
- The ABER¹ matrix as a unified analysis approach on these three levels in three different versions adapted to the needs of the respective level.

¹**A**nforderungen, **B**edingungen, **E**rwartungen, **R**estriktionen. = Requirements, Conditions, Expectations, Restrictions.