

# The Heritage of the Inventor School Movement in the GDR

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# Inventor School Movement in the GDR – 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.

# Inventor School Movement in the GDR – Their 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 as Method in the Analysis of Social Processes

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

Method = the consciousness of the form of the inner self-movement of the content. (Hegel)

From an **ARIZ-like system approach** we get as first approximation

- The socio-political system (SPS) as *supersystem*
- The inventive system (IS)
- The particular inventory schools as *subsystems*.

# Inventor School Movement in the GDR – Periodization

The Inventor School Movement grew up in the in the highly contradictorily developing socio-political conditions within the 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).

# Inventor School Movement in the GDR – 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.

# Inventor School Movement in the GDR – 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.

# ARIZ as Method in the Analysis of Social Processes

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

- 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.

# Social Contradictions of the First Kind

## Observations

- Small, often evolutionary changes in the SPS often lead to disruptive changes in the IS.
- Cybernetics and MLO (ML Organizational Science) were heavily driven out of the SPS (“planned development”).
- There is a main contradiction between real socialist development concepts (SPS) and the practical dynamics of the economy, that limit the possibilities of the SPS.
- In the 1980s, the SPS lost its ruling capabilities, the practical management of the processes passed over to economic forces, thus to the Socio-Economic System (SES). Hence **we put the SES into role of the subsystem.**

All this is highly relevant for the history of ideas in TRIZ, but can be worked up in this complexity only in a larger historical project.

## Social Contradictions of the Second Kind

**Yet another observation:** All components of the IS as parts of the SPS were subject to strongly changing restrictions – only the System of Honored Inventors as part of the SES remained constantly visible over the entire 30 years.

**Change the approach:** Consider *TRIZ Theory* and *TRIZ Practices* as two poles between which the IS mediates.

Consider IS as mediating structure (field) between these two poles (substances). The poles themselves are embedded in the contradictory structures of the SPS (TRIZ Theory) and the practices of the SES (TRIZ Practices).

## Social Contradictions of the Second Kind

We applied a **Substance Field Swap**, a common method of nounification of verbs in philosophy, not contained in the 76 TRIZ Standard Solutions.

A **contradiction of the 2nd kind** is a contradiction between the contradictions of the SPS and those of the SES.

Only from such an approach, the contradictions of the GDR Inventor School Movement can readily be explained.

# 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)
- Michael Herrlich: Inventing as process of information processing and generation, presented at the own innovative work and at the approaches within the KDT inventor schools. (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 business.
- Differentiation of contradictions on the three levels TÖW, TTW, TNW
- The ABER<sup>1</sup> matrix in three versions as a unified analysis tool on these three levels.

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