

TRIZ, ASIT, CK Connections and Disconnections between Three Major Theoretical Frameworks on Creativity

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Abstract

This paper intend to propose a comparative analysis of three major theoretical framework engineers and creative companies frequently use. All of them propose to help users to break psychological walls hiding creative solutions. Beyond the individual preferences and the mimesis effect, studying what is the DNA,

Key Words: triz, asit, ck theory, Creativity

Introduction

Creativity theories are not recent, they just changed their name and research field, from philosophy of science to management studies. We can analyze three of them, among the most used by operational R&D managers in various companies and countries, to assess how they are, or not, connected with the philosophical state-of-the-art as well as their connections between them. In this paper, I'll just take into account the philosophical framework, and not the psychological point of view. Human creativity becomes a major challenge in Occident because it is considered, especially by European Union post-Lisbon treaty, as the relevant response to a multi-polar world where the Balassa-Samuelson effect ranks productivity at the center of the destiny of civilizations. In a first part, I'll propose a philosophical framework about what contributes to the lack of creativity of a large human group. In a second part, I'll compare the way TRIZ, ASIT and CK theories propose solutions and tools to solve these issues.

What do we know about us ?

Creativity prospers where the concentration of creativity poisons is low. I'd especially highlight three of them: Mimesis, Cargo and Dissonance.

Mimesis has been discovered by a philosopher of social sciences, René Girard (Girard,1987). He describes how we are not masters of our own desires, but depend on what special people want, the prescribers. Main motor and fuel for advertising industry, the mimetic desire is the exact opposite of creativity, because it always leads to conformity.

Cargo cult (Long,1974) is a pleasant name given to the general trends of using something we don't understand that we saw working elsewhere, hoping it will also work for us. The expression was popularized during the Second World War, when unsophisticated islanders from the Pacific area bewildered that harbors attracted cargos, and thought it was sufficient to build infrastructures to duplicate this magical event. Pure product of societies in which the elite are unaware that cultural processes must precede success, Cargo Cult, which consists of investing in an infrastructure with which a prosperous society is equipped hoping that this investment will produce the same effects for oneself, was one of the engines for local authorities' toxic loans. Cargo Cult is also the exact opposite of creativity, which requires knowledge and not magic nor incantations.

Dissonance has been formalized by Festinger in 1956 (Festinger,1957). It simply highlights that people who invest a lot of time, resources and energy into something, are extremely uncomfortable about recognizing this work was useless, and prefer to fool themselves rather than change their view. In order to comfort this choice, they will also try to convince other people to follow the same way. Knowledge dissonance is a major motor of obstinacy on hopeless projects, and thus a poison for creativity.

I propose to analyze TRIZ, ASIT and CK as remedies against these three unexhaustive poisons.

Creativity theories

Historically, TRIZ (теориярешенияизобретательскихзадач) is a Russian theory post-ww2 especially formalized by an engineer: GenrichAltshuller (Cavalucci, 1999). This theory is based on an algorithm using several tools, but is mainly based on the idea of transforming a real technical object into a generic problem that can be solved by a large number of rules he discovered by analyzing patents. The matrix of contradiction proposes standard solutions that can inspire the inventor, about how to solve the problem in the real world. Brilliantly used by many major industrial companies, TRIZ addresses properly industrial objects, but shows its limits when it comes to more abstract activities. The fact the contradiction matrix, for example, didn't change since 70s leads to a lack of consideration for new technologies, including biotechnology, nanotechnology, computer sciences. TRIZ remains however the most complete toolbox for industrial creativity. The author claims to remove psychological blockage, by reformulating the problem to get rid of generic professional words that reduce the area of thinking. According to our three poisons model, TRIZ actively struggles with mimesis (removing "jargon") and dissonance due to the questioning about the problem with various tools (nine screens, contradictions, FPU...).

ASIT (advanced systematic inventive thinking) claims to be a derivative and a simplification of TRIZ. Roni Horowitz, a university professor in Tel-Aviv, proposes to simplify TRIZ by using an hypothesis (called “closed-world”) then apply five creative tools (unification, multiplication, division, symmetry breakdown and object removal). There also, the end-user will produce a set of generic sentences that could inspire him to solve the real problem. As operators are more general, ASIT can likely be applied to a lot of real or virtual objects. As a derivative of TRIZ, ASIT also remedies to dissonance and mimesis.

CK theory (for Concept/Knowledge) has been proposed by Hatchuel & Weil (Hatchuel, 2009) and is basically a theory of management. It considers the object in the C-Space of concepts, and adds attributes that come from the K-space of knowledge. That means the wider your initial knowledge is, the higher the number of concepts are feasible. CK considers the final result of the creation process as initially undecidable. So, the concepts will generate questions, research then new knowledge that will provide new attributes for new concepts. Oppositely to TRIZ and ASIT, CK is considered as a permanent process that has to be embedded in the usual process of the company. More recent, CK does not propose tools as easy to use as TRIZ and ASIT, but tends to create condition to reduce fixation and improve the knowledge tank of people involved in creativity.

All these theories propose to apply their principles to operational problems through tools that can be used in groups, during creativity sessions managed by a consultant.

Historically, we can make a parallel between creativity theories timeline and the evolution of economic activity in the western world. TRIZ is made by and for engineers, in an after war’s world where manufacturing industry was dominant. ASIT is made by and for creative people in an end-of-century world where more and more value is created by non-industrial initiatives (NTIC...). CK is made by and for managers, in a 21st century world where knowledge is strategic, and focuses on business and growth.

TRIZ and ASIT mainly focus on “one-shot” creativity, when a specific solution has to be found. CK is embedded in the management process of the company, and its ambition is to create a permanent creativity process in the company (Maimon,1999).

For practical problems, TRIZ and ASIT propose very simple tools based on language and using reformulation. CK, more recent, proposes a management framework that requires the implication of governance as well as R&D staff.

Elements of choice

We can analyze how the three considered theories are acting against the creativity poisons.

Tab1: Comparison of theories vs poisons

	Mimesis	Cargo	Dissonance
TRIZ	+	-	+
ASIT	+	-	+
CK	-	+	+

I propose the comparison in Tab1. This comparison is of course subjective, but we can observe that CK explicitly promoting the increase of knowledge in relation with new concepts thus contributes to fight against Cargo Cult poison, but is likely more sensitive to mimesis, as other management theories that are often influenced by prescribers. ASIT derives from TRIZ and is also connected to CK (Reich, 2010).

I would like to highlight a hidden hypothesis behind these creativity theories. Environment is not considered as a major difference between creativity teams. Even if, especially for CK, the awareness-raising to out-of-the-field knowledge is implicit, we can experimentally observe cities or places where creativity is intense, and that are comparable to other places that are less innovative. It is however clear that global network changes also the definition of the word “location” and we shall likely see in the future new approaches inspired by these theories, but taking into account this new definition of the creator’s workshop.

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