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History

ASIT (Advanced Systematic Inventive Thinking) is a creative thinking method developed, from TRIZ, by Roni Horowitz.

I discovered ASIT in the early 00's and was immediately fascinated by its potential. After managing creative people for over 20 years in several countries, I was finally reading the obvious: "Simple is efficient; this is how it works, it's called ASIT".

I first applied ASIT to a hobby domain and planned on registering one patent per month for a year in the bicycle domain. I registered ten patents in a year and one product eventually hit the street: an innovative bicycle lock (www.i-lock.net).

Then, I used ASIT in my consulting activity: generating new ideas and solving problems in video game companies. It worked so well that people asked me to train them.

This is how SolidCreativity was founded in 2004, now working with a pool of 6 consultants across France and Europe in all domains.

Adaptation of ASIT

Between 2002-2004 (first uses) and 2012 we have used ASIT intensively during creativity workshops and we have trained hundreds of people in various companies, from the smallest to majors like Michelin, Thales or EADS to name a few.

Transforming the stimulating readings from Horowitz into a day-to-day usable method required some work: We first had to translate it in French (as ASIT is based on writing stimulating sentences) but we also had to slightly adapt the method:

1) Number of tools used during the session

According to the problem, Horowitz proposes to choose between the 5 ASIT tools. We understood quickly that a strong point of ASIT was its "S", so we decided to go Systematically through the 5 tools. It works very well: We obtain some redundant ideas but we definitely reach comprehensiveness; at the end of an ASIT creative session, we know we found everything that we could have.

2) Elaboration phase

During an ASIT creative session, Horowitz proposes to spend some time elaborating on generated ideas. At SolidCreativity we ask people not to do so, as we consider that:

- Elaborating is an "easy and natural" process and we prefer to use ASIT sessions for more demanding and promising actions. As a fact, when you have 8 experts in a room for several hours, you want to get the best out of it.



- ASIT creativity sessions are not the best place to dig into ideas and make them completely detailed. People can elaborate anytime so, during ASIT sessions, we prefer focusing on ideation, helping people getting what they don't reach easily: fresh new ideas.

We stop elaborating when people understand the idea. At that time the idea can be global or precise, feasible or not...

It means that we need some time to elaborate on ideas and we do that AFTER the ideation session: when we evaluate and/or sort ideas for example (ideation can still occur then by the way) or even later, with different teams.

One might say that mixing ideation and elaboration is good for creativity and we kind of agree: new ideas may occur when elaborating on other's ideas (bouncing, rephrasing...). This "building on" phenomenon is well known and used with more diverging creativity tools like brainstorming but is still happening anyway during ASIT sessions (can't keep people from thinking, that's a good point), even when avoiding elaboration.

We simply prefer focusing on ideation based on ASIT sentences to get the best out of this converging approach.

Important to say: removing systematic elaboration from ASIT sessions did not generate any loss in quality and it helped us saving valuable time (less time per generated idea). We use this time to run all 5 tools.

Evolution of ASIT

In his paper "From TRIZ to ASIT", Horowitz brilliantly explained how the 40 TRIZ principles can be summarized into 5 tools and 2 conditions.

We have been using ASIT for almost 10 years now, and we have never detected any flaw in this approach. We even extended it to services and product generation. We believe that any new product or services can be analyzed with one of the 5 ASIT Tools or a combination thereof.

Analyzing an idea AFTER it was generated is a pleasant work but generating the said idea can be considered as another story. The ASIT preparation phase (selection of the problem angle, zoom level and wording, selection of the objects of the problem world) and the grammar of the displayed sentences play a fundamental part in the chances to see the idea actually generated.

Session after session, month after month and year after year we made the preparation phase syntax and the grammar of the 5 tools evolve.

1) Problem world

People are often confused by the fact that the "problem world" is made of "problem objects" and "environment objects". The difference between the two is hard to make and, even worse, one could wonder why the "problem world" is not only made of "problem objects" (and a potential "environmental world" filled with "environment objects").

- ⇒ We decided to rephrase it. Now, for us, the "problem world" is made of "involved objects" and "environment objects". This kind of very



small changes has a huge efficiency impact on both the creativity sessions we animate and the trainings we run.

2) Wanted action

Originally, to build the wanted action, one had to:

- a. Determine the unwanted phenomenon.
- b. Derive the wanted action from the definition of the unwanted phenomenon.

To quote a famous ASIT example, it can be:

- a. Unwanted phenomenon: the pole of the antenna breaks
- b. Wanted action: strengthen the pole OR avoid the pole to break OR several other possibilities.

Here, the user is meant to make a choice; therefore, there is a danger of sliding away from the original unwanted phenomenon. As we noticed frequently during the first sessions, this can produce a nice set of solutions anyway, but solving the wrong problem.

- ⇒ To help people build a proper wanted action, we suggest using one of the following verbs: "prevent", "reduce", "guarantee", "increase" or "maximize". Five verbs, five levels of action to choose from instead of so many possible actions. In this case we can choose: "prevent the mast to break" as a wanted action.

Strangely, reducing the possible starting verb list helps the team to be more accurate and cuts the long useless discussions.

Another advantage is the sharpness of the ASIT sessions as the wanted action is clearly facing the unwanted phenomenon (no more free adaptation of the problem, no more drifting away).

3) Creative session itself

The grammar of the sentences also evolved in the same way. We apply this for the 2 aspects of ASIT we develop and use: ASITr to solve problems and ASITc to conceive products or services (without any problem to start from).

A need for FASiT

A few people we work with, and students, are surprised by the involvement required by an ASIT creativity session (compared to a brainstorming session in the cafeteria): You need a preparation phase, you spend half a day to a day in a session to solve only one problem... it's a lot. Then you still have to manipulate the generated ideas for hours.

For professionals working on real problems that have sometimes blocked the company for several years, a few hours is a very small price to pay and they are very glad to obtain such results with such a small investment (for example compared to a full TRIZ approach).

The easy way for SolidCreativity could have been to keep on using ASIT the same way and only for people having real problems (and means) to solve. Asking ourselves if people being scared by the weight of ASIT (sounds funny when you know ASIT ☺) could anyway benefit from a part

of ASIT with a lighter version, we developed FASiT (Fast ASIT = FASiT with a small i to look more like the word FAST).

From ASIT to FASiT

To create FASiT, we used ASIT on ASIT.

- 1) Inspired by the "from TRIZ to ASIT" approach, we tried to find some similarities between the tools to group them.
- 2) We added some restrictions and simplifications to the preparation phases.

Important to state: We accepted to lose some efficiency in this approach, unlike Horowitz when he created ASIT from TRIZ.

FASiT Preparation phase

For both ASIT and FASiT the preparation stage is important. A "bad" preparation phase will not damage the ideation, but it may result in solving the wrong problem.

ASIT preparation phase requires writing down the following:

1. A problem world made of *involved* objects and environmental objects (this differentiation has an impact as three out of five tools don't manipulate environmental objects)
2. An unwanted phenomenon
3. A wanted action which is derived from the specific problem, *using one of the following verbs*: "prevent", "reduce", "guarantee", "increase" or "maximize" (five levels).

FASiT preparation phase requires writing down the following:

1. A problem world made of objects (no more distinction in objects)
2. A specific problem (meaning that we might encounter several)
3. A wanted action starting by "prevent" and mainly using the words of the problem itself.

The main difference is on the wanted action, as FASiT requires using only the "Prevent" verb to start with. Various examples and comparison:

Specific problem / unwanted phenomenon	Possible ASIT wanted action	FASiT wanted action before adaptation
The pole breaks	Prevent the pole to break.	Prevent the pole to break.
Too much weight on the antenna	Reduce the weight on the antenna	Prevent the weight on the antenna
Size of the antenna can vary	Guarantee the size of the antenna	Prevent the antenna size to vary
Frequency of the antenna is low	Increase antenna frequency	Prevent antenna frequency to be low



Reading this list, the ASiT wanted action (helped with the five verbs) seems very easy to build but experience shows that, on the contrary, people spend a great deal of time building it, and (before training) building it wrong. For example, if the unwanted phenomenon is "Frequency of the antenna is too low", proposed wanted action can be anything like:

- adapt frequency parameters
- detect frequency drops
- get better frequency chips
- learn why frequency is dropping...

Or, using the proposed verbs:

- prevent frequency components to fail
- increase frequency checks...

In other words, people tend to jump into the solution world or problem roots instead of just inverting a problem into a wanted action. This is more visible with non-trained people or the first day of training.

The FASiT wanted action seems less accurate and it might be, but this apparent lack of accuracy is countered by:

- The safety from falling into the problem world too early and to miss the session.
- The possibility to rephrase and adapt the wanted action: transforming "Prevent antenna frequency to be too low" into "Increase antenna frequency" is naturally made.
- The time saved on these discussions allows to spend more time on important parts like selecting the correct problem.
- The possibility to use FASiT with less guidance and before an ASiT training.

FASiT 3 tools

ASiT has 5 tools:

ASiT Tool	Effect	Syntax
Unification	Agent change, use the resources	"The object" will "wanted action"
Multiplication	Add an object, respecting the closed world condition	Another object, of the same kind as "the object" will "wanted action"
Division	Move parts along	We divide the "object" into parts that we reorganize in time or space
Breaking symmetry	Changing constancies into variables	Several syntaxes like at different <i>times</i> , "the object" will have different "characteristic"
Removal	Suppressing parts	"The object" will be removed



We have worked on summarizing these five tools after we analyzed in depth how they worked. This is the result:

ASIT Tool	FASiT Tool
Unification	Action
Multiplication	
Division	Variation
Breaking symmetry	
Removal	Removal

1) FASiT ACTION tool

“Unification” and “multiplication” use an existing object or add something similar to an existing object of the problem world. This existing or added object acts on the problem, trying to solve it.

We frequently notice redundancy between solutions provided by the two tools, but far enough difference to keep them split in ASIT.

FASiT summarizes those two tools into one: “ACTION”

“Action” FASiT tool uses existing or added objects to act on the problem.

2) FASiT VARIATION tool

“Division” ASIT tool changes objects and object part positions to solve the problem. “Breaking symmetry” ASIT tool transforms fix parameters into variable ones. “Breaking symmetry” ASIT tool can manipulate positions, as “Division” tool does.

These two tools propose to vary parameters (position or other parameters like material or size); “Variation” FASiT tool will vary parameters.

Both “Division” ASIT tool and “Breaking symmetry” ASIT tool don’t consider the wanted action while writing the sentence (people just keep them in mind). With FASiT we write down the wanted action at the end.

Both “Division” ASIT tool and “Breaking symmetry” ASIT tool can be used in space or time (even group with symmetry), FASiT only considers the time axis (but time and space are linked in the physical world as in the services world, so it is linked in our mind as well).

3) FASiT REMOVAL tool

No change has been made to this tool but the fact that, here again, we add the wanted action at the end of the FASiT sentence.

4) FASiT tools summary

FASiT Tool	Effect	Syntax
Action	Objects act on the problem	The [object] or something similar will prevent the [problem].
Variation	Parameters (size, material, position) are changed	At different times, at least one [object] characteristic will vary to prevent the [problem].
Removal	Suppressing parts	The [object] will be removed to prevent the [problem].

First academic results

We ran ASIT and FASiT sessions on different groups of a same population profile (students). Both sessions had the same subjects and preparation phases so we could compare the results. The differences between the 2 sets of generated ideas were extremely small. In the additional ideas generated by ASIT only (not generated by FASiT) most were "away from the problem scope".

First professional results

During seminars with large companies, some specific days (arrival or departure days) can't be used for a full ASIT session as we do not have enough available working time. Several times, we ran FASiT sessions instead of ASIT sessions during those days. On one occasion we had the chance to compare a FASiT and ASIT session on the same problem with similar people profiles. We discovered some differences:

- Timing:
The FASiT session lasted 2h30 while the ASIT session lasted 4h00 (the FASiT session lasted 62.5% as long as the classic ASIT session)
- Quantity:
The FASiT group generated 82 ideas, the ASIT group generated 107 ideas (FASiT generated 76.6% as many ideas as ASIT)
- Quality:
Both ASIT and FASiT generated what we qualify "top ideas" (never seen before, strong potential and so...). Some of those ideas were only generated by ASIT and not by FASiT. None was generated by FASiT and not by ASIT. FASiT does not challenge ASIT's comprehensiveness.

Efficiency of FASiT and conclusion?

At this step we consider that:

- We could benefit from more tests to characterize FASiT.
- FASiT loses in quality and quantity (no more comprehensiveness) but not in "efficiency" if we refer to the current figures (62.5% of the time for 76.6% of the results in quantity).
- We could profile specific uses for FASiT (targets, subjects, conditions...).
- We must think about adapting FASiT to conception (it's currently on solving only).

Next?

Of course we will continue to develop, promote and use ASIT, but we will now also propose FASiT to our partners. We are open to feedbacks and are willing to share our knowledge on both ASIT and FASiT.

As this may interest the British readers, we are looking for partners in the UK.

References:

Roni Horowitz thesis:

www.ASIT.info/Creative%20Problem%20Solving%20in%20Engineering%20Design,%20thesis%20by%20Roni%20Horowitz.pdf

Roni Horowitz paper "From TRIZ to ASIT":

<http://www.triz-journal.com/triz-asit-4-steps/>

SolidCreativity:

www.SolidCreativity.com

www.TRIZ40.com

www.ASIT.info

www.FASiT.fr