

‘Breaking the Silos’ of Innovation Methods

Shreyas Bakshi

Vice President, Mahindra and Mahindra Limited, Mumbai, INDIA

E-mail: bakshi.shreyas@mahindra.com

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Abstract

After having dealt with silos amongst people, we have found ways of creating silos amongst innovation methods. Each method claims to be ‘the master’ method for innovation and each new one claims to be superior to the previous ones. Many organisations that leverage multiple methods tend to do so by applying each one in specific stages of a project. While working with multiple methods in different roles of innovation, the author realises that many methods say the same thing in different words and have something unique to offer across different stages of an innovation project. With this realisation, the author has led a team of innovation managers to evolve a harmonised method which can be contextualised in diverse set of contexts. The attempt of this paper / article is to share an overview of the harmonised method, some of its key outcomes and ways in which the method became a pivot for institutionalising innovation culture across an already innovative Group of companies which is a multi-billion-dollar Indian MNC that operates in about 17 sectors in about 100 countries. For confidentiality, only sanitized data are presented in this paper.

Keywords: inspiration, interplay, mindset, systematic.

1. Introduction

There are multiple methods for innovation available across the world and then there are many ‘derived’ versions of some of these methods. A list of methods engaged with for the purpose of this work are listed in SECTION 2.0 LIST OF METHODS ENGAGED WITH of this paper along with the related references which may be accessed for further information.

Although, each method & its respective versions have unique strength in certain aspects of innovation, many methods say the same thing in different words.

This has been found to often put average innovators in a dilemma of what, when & how to use. As a result, they often end up using each one separately and thereby limiting their abilities to come up with more innovations consistently. On the other hand, top innovators, do it all intuitively without really worrying about the method from which they have achieved it.

In the context, where innovation needs to be institutionalised, the need of a common language is essential. With this intent, the Innovation Team at Automotive & Farm sector of Mahindra & Mahindra Limited, embarked on a journey to harmonise all the methods that were found to be successfully deployed in

the organisation while keep it open to include newer methods as and when these were found to be relevant.

2. List of methods engaged with

Apart from the engagements mentioned below, the understanding evolved is also based on innumerable interactions that the author has had with people at events, conference, meetings etc. While doing so, the author has also come across many other methods / approaches. A list of specific methods and their sources referred for this work are as follows.

- (1) Design Thinking (DT) by way of referring to the work of Brown Tim (2009), DesignThinking section of Ideo’s website, Ideo University website and its many variants through interactions
- (2) Orbit-shifting Innovation (OSI) by way of referring to the work of Munshi (2009), Narang et al (2013) and working with Erehwon Innovation Consulting Pvt Ltd (2008 onwards)
- (3) TRIZ by way of referring to TRIZ40 (2016-17), Systematic Innovation (2014-2020)
- (4) Systematic Inventive Thinking (SIT) by way of referring to the work of Boyd et al (2013) and the team at SIT during 2017-18

- (5) Business Model Innovation (BMI) by referring to the work of Osterwalder et al (2010a), Osterwalder et al (2014b), and interactions with the team from Strategyzer (2017-18)
- (6) BMGI India by partnering with them in 2017-18.
- (7) Biomimicry 3.8 (B3.8) partnered with their team from 2017 to 2019
- (8) Lateral Thinking (LT) through partnership with DeBono Edward in 2009
- (9) Business Experimentation by referring to the work of Thomke et al (2014)
- (10) Open Innovation / Crowd Sourcing by way of partnership with Innocentive from 2013 to 2015 and interactions with Idea Connection in 2017 but continuing to refer to their content from 2015 till date.

More details about each source is also mentioned in SECTION 7. References.

3. The approach

It has often been said that innovation is all about the mind & mindset, the Mahindra INnovation methoD evolved with an acronym MIND™. It entails a systematic approach to drive innovation projects right from identification to implementation stages.

MIND™ is not a rigid process but a flexible & customisable framework of guiding principles & templates. In true sense, it is an approach and the path to navigate it will depend upon the context. This path can be complex because of the iterative nature of innovation. However, to keep it simple it has been depicted in a sequential framework & called a method. The names of its stages also leveraged the same acronym viz. **Map**, **Ideate**, **Nurture** & **Deploy**. To highlight the fact that this

method goes deeper than most other methods, depth was highlighted in three layers which also leveraged the same acronym viz. recognise & manage **M**indset, **I**Nspire the mind to generate new possibilities and **D**evelop the outcome of each stage. Thus, forming a ‘framework’ which is all about **M-I-N-D**.

The stages and the layers are also not necessarily sequential and there is a lot back-and-forth (circularity / non-linearity) in the flow of a journey. Again, to keep it simple, these have been depicted as sequential. “**Fig. 1**” shows the pictorial representation of the MIND™ framework.

The MIND™ integrates the power of multiple methods. At the core of it are the methods like Orbit-shifting innovation (OSI), Systematic Innovation version of TRIZ (SI/TRIZ) & Biomimicry (B3.8). Other methods like Design Thinking (DT), Business Model Innovation (BMI), Systematic Inventive Thinking (SIT), Open Innovation (OI) have been integrated at relevant points in the method. MIND™ is also open & flexible enough to integrate more methods / approaches that the organisation would find relevant in future.

Although any Open Innovation platforms have not been leveraged so far while deploying MIND™, the concept was leveraged by inviting members of other businesses / sectors to help the core project team ideate further or for supporting the prototype development work.

MIND™ encourages users to use all the constituent methods together rather than leveraging each only in the stage where it is stronger. The way MIND™ leverages different methods at each of the stages is mentioned here-below.

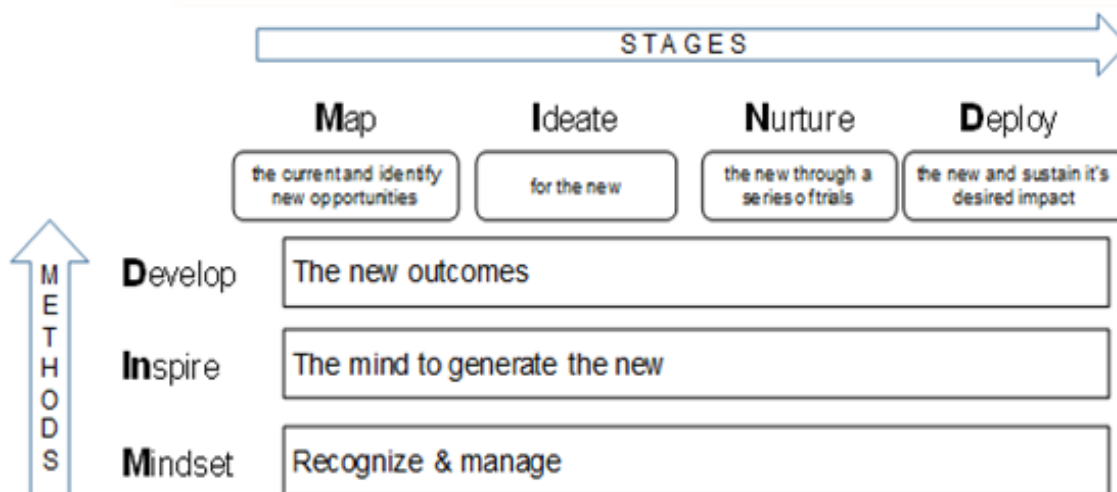


Fig. 1 MIND™ framework.

3.1 Map

While most methods have a well-documented set of trigger questions for mapping the current and the desired end state, OSI is the strongest in this area with its techniques like Mental-Model-Mapping, Orbit-shift-Insighting, Breaking-Through-Gravity and Co-creating-an-Orbit-shift-Aspiration.

These techniques inspire the team to co-own a goal that seems impossible from their current ways of thinking. The Mental Model Maps bring out the current ways of thinking. With this the entire team can visualise the 'box' in which they are operating.

While TRIZ/SI provide triggers like the Ideal Final Result & Identify Contradictions and Biomimicry provides triggers based on the documented examples of some of the nature's ways of doing things.

Open Innovation / Crowd sourcing platforms like Innocentive have a separate offering for ideation only and can be leveraged for a high volume of ideas. The only challenge is for the project team to review & prioritise these ideas. OSI's Mental Model Mapping techniques are helpful here too.

Orbit-shift-insighting enables uncovering of latent / unstated needs of the stakeholders. Apart from listening to the 'voice-of-the-person, it is also geared for capturing the emotions / 'silence-of-the-person'.

OSI has provision to take triggers from all methods as inputs into evolving a comprehensive Mental Model Map. The Breaking-Through-Gravity techniques enables the teams to set an aspiration that is 'out-of-the-box' which then lead to 'out-of-the-box' ideas.

The typical response from the traditional minded people is that we may never reach there. While this may be true in many cases, there have been quite a few instances when the teams have gone even beyond such impossible goals. Most of those who have not succeeded in doing so, have at least gone well beyond their usual ways of generating ideas.

While OSI is strongest in this stage, other methods also provide many inputs to complete this stage and build the belief that pursuing the impossible will still yield possible outcomes and the efforts will certainly not be totally wasted. Some techniques from other methods that are useful are:

- SI/TRIZ: Ideal-Final-Result, Evolution Potential Trends, Perception Mapping
- B3.8: Taxonomy & Life Principles that bridge functions of nature with those of other domains

Integrating many approaches like the BMI, OSI etc., MIND™ has also evolved its own approach for mapping

the eco-system which is useful when the starting intent is to find opportunities to either innovate a new eco-system or a new business / operating model in the current eco-system.

3.2 Ideate

Most methods rely a lot on the team's natural ways of ideation supported by fixed set of triggers like words, phrases, cards based on research studies etc. Some of them also have generic principles that suggest the teams to hold back their thoughts which would limit the ideation process e.g. Park-your- Judgement (OSI), Quieting-the-cleverness (B3.8) etc.

The most powerful and systematic way of ideation has been observed through a combination of three methods:

- OSI: 3-gear ideation techniques provide ways to recognise and shift mindset through systematically going deeper into own ways of ideation, identifying & questioning the fundamental ways of thinking and learning from other domains. This also includes the Orbit-shift-insighting mentioned earlier but at this stage the technique is setup to uncover the insights that would trigger a solution that would be adopted by stakeholders.
- SI/TRIZ: 40-principles supported by Contradiction Matrix database and Patent Inspiration provide ways to identify the right patents to review for direct solution or at least trigger a new direction of thinking for the solution.
- B3.8: Taxonomy supported by their sister non-profit-organisation, Ask Nature's database of solution strategies provide triggers for new solution directions which may have never been thought of before by mankind.
- Open Innovation / Crowd sourcing platforms have a separate offering for getting a theoretical solution only and can be leveraged at this stage.

As it is said, 'ideas are available a dime a dozen' and although powerful are not useful until and unless these are converted in solutions that meet the stated or unstated needs of all stakeholders. In line with this philosophy, MIND™ has integrated frameworks & templates from multiple sources to hold a consolidated set and leverage the most relevant set for the context. Some examples of these are Stakeholder segmentation / profiling /persona, Proposition Modelling including visual representation of existing and new solutions etc.

3.3 Nurture

This stage is often referred to prototyping / testing / validating / many other variants of these. For MIND™, we have chosen to call it nurturing as a new & innovative solution would rarely be right the first time and hence will have to be evolved through many iterations which may or may not include pivoting to a completely different avatar.

Unlike the previous stages which focus heavily on the thinking process which is domain-agnostic, Nurture is the stage where domain knowledge begins to play a critical role and hence needs to complement the innovation methods. Most methods have very generic principles for this stage e.g. Fail-early-safe-cheap, Do-it-in-stages-Best-Real-Scaleup, Build-low-fidelity / frugal prototypes, Leverage-the-Positives, Amazon's 'Two-pizza' theory etc. Then there are some methods like the Design of Experiments which need to be contextualised to each task specifically.

Apart from all the above, MIND™ has evolved its own experiential principle of 1-2-5 stages of evolution wherein the solution needs to be nurtured in steps of 1-2-5 in each range of scale e.g. do what can be done by:

- People: First by 1 person, then by 2 people and then 5. Thereafter by 10-20-50 and so on.
- Money: 10k-20k-50k, 100k-200k-500k
- Time: 1-2-5 days, weeks, months years

Each team in alignment with their key sponsor can decide on the starting & ending scales. This principle has helped teams to focus on following all the principles effectively.

Open Innovation approaches would be useful for evolving a technology prototype. However, the project team will have to take full responsibility of doing the consumer acceptance prototyping & evolution.

Also useful is OSI's Orbit-shift-insighting techniques which at this stage is required to be setup to evolve the solution that all the stakeholders would easily adopt. The end outcome of this stage is a working model which needs to be scaled-up in the Deploy stage.

3.4 Deploy

This is the stage where the most domain and operations management methods take-over the dominant role. The innovation methods play a very limited role. Some areas where MIND™ has been able find space are gradual scale-up where Orbit-shift-insighting of OSI is has played a key role to uncover finer insights that are specific to the stakeholders of the areas where the scale-up is intended or has not achieved aspired impact.

Once the finer insights are uncovered, Ideation & Nurturing methods are again leveraged to generate & evolve solutions to meet the specific requirements of that area.

3.5 Project navigation

While most methods focus on each of the stages discreetly, the overall navigation is often left to 'stage-gate' like processes. OSI emphasises on periodic stakeholder alignment with an intent to prioritise and evolve the new concept to its maturity. Apart from the flow, OSI also covers techniques to build such alignments.

Another principle that is often mentioned while managing the overall flow of a project is diverge-converge-repeat. This is also covered with relevant & guiding techniques of ideation & synthesis which also gives a sense of closure to each stage giving a sense of progress in the inherently iterative & seemingly unending loops.

4. Impact / Outcomes

Note: For confidentiality, the sanitized data are presented in this paper. The outcomes mentioned here are only from the period of January 2017 till March 2020.

Over the past 3 years since this method has been evolved, over 2,000 out of the 10,000 officers have leveraged MIND™ to deliver over 100 projects.

Amongst these are two internal start-ups viz. Road Trippers Co (www.theroadtrips.co) & Glyd (www.myglyd.com), were shaped during their early stages. Apart from these, at least five new patents are filed & many high-potential concepts evolved, which are in various stages of development.

Also, as a part of this initiative, more than 150 officers have registered to become Innovation Ambassadors and about 20 have registered to become Innovation Multipliers. Two units have established Innovation Cells and more have expressed interest.

MIND™ has also been successfully integrated with other initiatives e.g. the Mahindra Black Belt program – a customised Six-Sigma based program, Talent Management Programs etc. Some leaders are establishing MIND™ based awards across all their units.

A summary of the key realizations synthesized from of the ones share by those who have experienced MIND™ is as follows. According to them, MIND™ has helped to:

- systematically reframe the problem statement & question the status quo

- get clarity & direction on ambiguous projects
- uncover deeper understanding of needs from people in the ecosystem
- reactivate of some projects that were about to be shelved
- voluntarily raise targets; often well beyond the stretched level of performance measures
- generate immediately implementable ideas and savings have already accrued
- generate an of average 2x more solutions than other methods

4.1 Some sanitized examples are:

While working on a design for a seat on a field equipment, a team had identified a contradiction for reach vs comfort. By applying OSI, the need for seat itself was questioned and at a higher level of abstraction, the need for a person to be on the equipment was questioned. Both these set of questions enabled the team to look for a different way to provide comfort to the operator and identify another project with a design where no operator would be required to travel on the equipment.

While working on a project to improve strength of sheet metal parts, Biomimicry resources were being leveraged to find solution strategies from nature's ways of doing so. During the search, the team came across a strategy where a pigment provides strength to the base material. Though the strategy was not very relevant to the context of the project, it shifted the mindset of the team that pigment can also be used for strengthening a base material. So far, it was being used only for protection and aesthetics purpose and a new project was launched to leverage this strategy.

While working on a project to reduce material cost of an equipment, the usual ideation process had just about 25% of the required target reduction. MIND™ techniques enabled the team to bridge the gap. Then, OSI helped the team to pick-up a fundamental way of designing that equipment which the entire industry was following. Then TRIZ & Biomimicry helped the team to identify at least 10 different ways in which the same purpose of the equipment can be achieved. About 5 of these were prototyped and were found to yield better performance than the industry standard way of doing it.

4.2 Testimonials

From leaders of bu sinesses / functions that leveraged MIND™:

Aravind Bharadwaj, Chief Technology Officer, Automotive & Farm Equipment Sectors:

“Our Advanced Technology team has been dealing with the pipeline of projects which focus on getting into the mainstream within 2 to 3 years. While we manage the pipeline well, the MIND™ team has been a critical enabler in continuously feeding it so that we never run dry. We are also seeing traction for the method by our technology & product development teams for questioning the fundamentals & understanding the consumers at a deeper level.”

Rustom Vesavevala, Vice President – Human Resources & Business Excellence, Mahindra Partners Sector:

“MIND™ has been successful across many businesses of the Group which are diverse in terms of size, life-cycle and industries. While the businesses are experiencing higher outcomes with MIND™, we have also initiated the development of people who can enable us to cascade these benefits faster. The outcomes are giving us confidence that our intent of institutionalizing innovation culture will soon become a reality in our organization.”

Ashok Sharma, President Agri Sector & Head of Innovation for Automotive & Farm Equipment Sectors:

“MIND™ is a very comprehensive and easy to understand approach to innovation. We have been able to democratise innovation across a very diverse set of businesses. The feedback received from every business for this approach has been very positive and they have been able to deliver higher business results with MIND™” –

Dr Pawan Goenka, Managing Director, Mahindra & Mahindra Limited:

“I have always wanted innovation not to be limited to a select few, but something that everyone in the organisation has to be doing in their own way & space. MIND™ has enabled that to happen. I see some fascinating work being done. While the core innovation team is driving few critical projects, there is a visible pull for the MIND™ approach from across the organisation.”

5. Conclusions

Using each method independently or discreetly at relevant stages of innovation does yield good results. Integrating these seamlessly and customising to suit each context yields higher impact and eases the ability to institutionalise it.

It will be futile to compare the methods to find the strengths and weakness as the intent it to leverage the strengths of each in the particular context and as it is said in innovation, one must operate with a ‘need back’ approach rather than a ‘process or solution forward’ one.

6. Acknowledgements

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AUTHOR BIOGRAPHY



Shreyas Bakshi is the Vice President – Innovation for Mahindra and Mahindra Limited since 2016. Before then, he has 7.5 years of experience facilitating corporates to leverage innovation to drive projects, train people and architect the organizational journey to institutionalise innovation. Prior to then, he has over 20 years of experience of leading ventures based on ahead of its time technologies and managing innovations done by others. This experience in across industrial domains in private & public sectors of India & UK. He holds a master's degree in mechanical engineering from the University of Bombay (now, Mumbai) and has undertaken Post Graduate Courses in Software Technology from National Centre for Software Technology, India and Technology Management Module from the Engineering Business Management program of the University of Warwick, UK. More info about him are available on his LinkedIn profile <http://linkedin.com/in/shreyasbakshi>