

Improving 'Focus' towards Innovation in R&D Teams: Recommendations for Top Management Teams

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Key words

Team-level Innovation Capability, Academic and Industrial research teams

Abstract

Maintaining an unwavering 'focus' towards innovation is one of the most challenging tasks in front of any technology-driven organization. Top Management Teams (TMTs) in such organizations are increasingly finding it difficult to properly align the 'focus' of their R&D teams towards organizational goals. This paper examines the emerging role of 'team focus' towards innovation and its dependence on the organizational context. 'Team Focus' constitutes three aspects – 'Inner Focus', 'Other Focus' and 'Outer Focus' of team-members towards innovation-related activities, in an organizational setting. An online questionnaire consisting of 30 items was developed to seek responses from academic as well as industrial research teams belonging to some of the most 'elite' publicly-funded research laboratories in India. Comparison using independent sample t-test showed how academic R&D teams (N=80 teams; 363 researchers) differ from industrial R&D teams (N=80 teams; 363 researchers).

Analysis revealed that academic and industrial research teams differ from each other on 'inner focus' related aspects such as 'clear understanding' and 'total dedication' towards achieving organizational goals and 'other focus' related aspects such as proper co-ordination and communication with stakeholders. Teams belonging to large-sized organizations differ from the ones belonging to small-sized ones on aspects such as 'trust', exploring new opportunities to learn and incorporate new ideas from different domains. Age-wise comparison revealed that young researchers significantly differ from experienced researchers on almost all aspects of inner, other and outer focus. There is wide disagreement among the researchers regarding 'awards and recognition', 'co-creation' and 'willingness of customers to pay more for additional features'. A deeper understanding about these similarities and differences can help the Top Management Teams (TMTs) to design their organizational policies in a better way, as recommended in the subsequent paper

Introduction

Innovation, is increasingly becoming important as well as difficult for technology-driven organizations to manage. Due to its demanding nature, managing innovation successfully at a continual basis is challenging. Constantly generating high-quality ideas for new products and services requires a focused approach at various levels. The onus of creating an environment rests with the top leadership in an organization to encourage their teams to collectively focus on problem-solving and generating new solutions. Top leaders must lead by example and themselves display high levels of 'focus' towards innovation and creativity. This top-down approach can help the teams working under the 'focused leader' to perform to the best of their potential and feel safe while innovating. It is important for each and every team member to feel safe, comfortable and valued in order to invest his/her personal effort into innovation. This requires high levels of 'focus' at an 'individual' level.

Mental focus, is one of the most complex functions of the human brain (Pascual-Leone & Baillargeon, 1994). At an individual level, 'Focus' has been defined as the ability of an individual to direct one's 'mental' attention and effort towards one thing by filtering out unnecessary distractions.

This ability to 'focus' varies from individual to individual. Different factors trigger this ability in different ways for different individuals. Some individuals use music to help them focus better while some tend to meditate. For some, travelling from one place to another helps them achieve a better understanding about themselves while for some playing outdoor sports and adventure helps them to connect with their inner spirit. A better understanding about how individuals achieve 'focus' can help us provide a better perspective about how 'teams' can collectively focus. A deeper understanding about how teams are able to focus 'collectively' can help us unlock their collective potential. This can have far-reaching implications in terms of their ability to collectively solve problems and generate new ideas.

Team Focus

Past research on 'mental focus' largely revolved around how 'individual-level' aspects such as 'mental attention and effort' (Lohse & Sherwood 2011), 'mental capacity' (Baillargeon et al. 1998) and 'goal striving process' (Lee et al. 2003) etc. Lee et al (2003) also posited that 'mental focus' is vital during the goal-striving process. If the goal of an R&D team is to innovate on a regular basis then it requires them to direct their mental attention towards generating new ideas to solve a particular problem in a collective manner. This ability within teams to collectively 'focus' their mental attention towards problem solving and generating new ideas to develop innovative products or solutions can be defined as 'team focus'. Goleman (2013) describes this 'focus' as an ability (at an individual level) to filter (unnecessary) distractions and concentrate on one thing.

According to Goleman (2013), at an individual level this requires a 'fine balance' between three types of focus, at an individual level (1) Inner-focus: focus within the team (2) Other-focus: focus on some other teams in the same organization (3) Outer-focus: focus on teams outside their organization. In our study we wish to extrapolate the same concept to team-level and understand how R&D teams can maintain a healthy balance between these three types of 'focus'. 'Focused teams' are able to master all three kinds of 'focus' by maintaining a balance between internal as well as external awareness. Especially, when it comes to creating innovations, 'R&D teams' to expected to maintain a strong awareness about their capabilities and the output desired from them. Under such conditions, 'Internal awareness' helps team members to achieve high levels of 'inner focus' through better understanding of each other's strengths and weaknesses. External awareness helps teams to achieve high levels of 'other focus' and 'outer focus'. A sharp focus on 'target' customers helps teams to identify their 'unmet' needs. Developing products and services according to these 'unmet' needs, might increase their probability of market success.

Inner Focus

Inner focus also allows teams to introspect and be aware about their opportunities, threats, strengths and weaknesses. Focusing inwards and other team members in one's team, helps in creating 'emotional intelligence' at team level. Team leaders should appreciate such kind of initiatives which lead to higher levels of 'emotional intelligence' as it helps team members to come together and closely bond with each other. Such bonding levels helps in easy creation of trust and positive energy levels in the team. Constructive criticism can also help team members to collectively raise the standard of their work and generate more ideas. A strong inner focus can help team members to improve their ability to strategize, innovate and accomplish their goals.

In order to create a strong inner focus, leaders should encourage their team members to maintain high levels of 'self awareness'. This involves convincing their team members to get in touch with their inner souls and carefully listening to their inner voices. These inner voices can be subtle psychological signals generated from the inner part of human brain called 'insula'. Gut feelings are also some of the latent messages generated by the insula and the amygdala part of human brain, which also known as somatic markers (Goleman 2014). These sensations seem to have a strong influence on our decision making ability especially in an uncertain

era, with limited information. Apart from self-awareness, team members should also be good at exercising 'self-control'. This helps them to focus on the given task at hand and finishing it without getting distracted by undesirable noise. Such kind of 'cognitive control' or 'will-power' may also help teams to achieve their goals despite tough hurdles or roadblocks in their way. A good 'cognitive control' can also help teams to stay calm, control their agitation and even overcome their initial setbacks. A strong inner focus holds the key to success, especially in 'innovation'.

Other Focus

Other focus deals with being aware about other teams inside and outside their organization. This outward awareness can also help teams during opportunity exploration and exploitation phase. It is important for creating a feeling of 'empathy' among team members which is considered vital for building social relationships. Leaders should proactively engage with their teams to develop such kind of 'empathy' in their team members. This can help team members to think about others in their teams and their perspectives. In doing so leaders can help inculcate three important aspects of 'empathy' in their team members - (1) cognitive empathy (2) emotional empathy (3) empathetic concern.

Cognitive empathy is the ability to understand things from another person's perspective whereas emotional empathy deals with the ability to feel what another person feels. For R&D teams especially dealing with new product development, such qualities will help teams understand the pain points of their target customers and then design solutions accordingly. Empathetic concern deals with the ability to comprehend what others need from you. Cognitive empathy enables teams to express themselves in meaningful ways which can help them achieve their personal best performance. Emotional empathy is essential for effective and efficient mentoring, client management and understanding their group dynamics. Empathetic concern helps team members to sense other's feelings and what they need. The ability to analyze the needs of others and their pain-points can be the first things that R&D teams should investigate before starting their actual product development exercise.

Outer Focus

Outer focus helps teams to be aware about teams operating in similar domain at other organizations or domains completely different from theirs. The idea is to understand some of the best practices that they follow in managing their performance. A strong outward focus on how some of the best teams operate can help a team leader to build good listening skills and questioning skills in their team members. Active listening, questioning and reflecting are important skill-sets that should be valued in team members. Outward focus can help team leaders to develop such skills in their members, especially new members. Outward focus can also help team leaders themselves in analyzing and anticipating the future consequences of today's decisions. This is an important quality to possess in team leaders because it helps them being visionary.

Open-mindedness can also be an important ability that can help team leaders to be open to new possibilities, opportunities and challenges. Outward focus can help them generate such opportunities which they can thoughtfully explore. It can also help them in creating new solutions to existing problems which are difficult to solve through regular approaches. An ability to draw meaningful insights from far unrelated domains, improves the team leaders ability to generate new innovative approaches to solving traditional approaches. Outward focus can even help teams in improving their ambidexterity in terms of their opportunities to explore and exploit their knowledge and capabilities. Constantly exploring new areas to venture into and attempting to understand how new value can be created in order to positively exploit them in order to develop innovative solutions to existing problems is an important asset for a team.

Innovation Capability of Teams

Innovation capability of teams deserves a more careful attention from management scholars as well as practitioners. A detailed study is required to understand the nature of such long-term capabilities and how they can be built in product development teams. Since the nature of such capabilities is abstract, dynamic and interdependent on multiple factors, it is difficult to improve them. The first step towards improving such complex capabilities is correct understanding and accurate measurement of such capabilities. In this direction, it is important to have a clear understanding about which factors critically influence innovation capability at team level. It is also important to understand how a particular set of organizational, team-level or individual-level factors in combination or isolation, impact innovation capability of product development teams. It is important to study the impact of team-level factors on innovation from a (organizational) capability point-of-view in order to develop a long-term sustainable competitive advantage.

With the emerging importance of teams in today's organizational set-up, it is important for Top Management Teams to perceive 'teams' as a source of competitive advantage. Hence, we wish to define 'team-level' innovation capability as an ability of a team to transform its knowledge, skill and resources into new products (services) through co-creation and manifestation. Co-creation of products play a vital role in determining the success or failure of innovations in today's globally competitive market. It is increasingly becoming 'strategic' for product development teams to work in closely with their target customers in order to understand their real pain-points Kandampully (2002b). Customizing solutions to overcome the real pain-points of the customers can ensure instant commercial success for an innovation.

Manifestation of such customer-oriented innovation capability can play a vital role in successful commercialization of research. Manifestation of such capabilities can be used as a tactic by organizations to demonstrate their abilities and achievements in a particular technology. It can open up new business opportunities for that particular organization. It allows R&D teams to display their capabilities through operational prototypes so that they can invite suggestions and comments from their 'target' customers, collaborators or competitors.

Methodology and Analysis

An online survey containing of 30 items was developed and distributed among product development teams operating in various public-funded academic as well as industrial research labs in India. Responses from 80 academic teams and 56 industrial teams were collected. To eliminate individual bias, four to five researchers (along with the team leader) from each team were asked to participate in the online survey. A five-point 'Likert' scale was utilized to scale the responses. Comparison using independent sample t-test showed how academic R&D teams (N=80 teams; 363 researchers) differ from industrial R&D teams (N=80 teams; 363 researchers). Comparisons among teams were done on the basis of their nature of research (academic vs. industrial), size of the organization (small vs. large) and the age of the employees (young vs. experienced) as indicated in the Table 1, Table 2 and Table 3 respectively.

Table 1/2/3 show all those items on which the academic research teams vary from their industrial counterparts on aspects related to 'team focus' towards innovation. Descriptive statistics regarding these aspects related to 'team focus' have been presented using sample mean and standard deviation. SPSS Version 21 was used to compute the t-statistic for the independent samples. The independent-samples t-test is a statistical test which allows us to infer whether there is a significant difference between the two means under comparison. It helps us understand - how teams belonging to various research-driven organizations differ from each other on aspects related to 'team-level focus' towards innovation.

Findings

Analysis revealed that academic and industrial research teams differ from each other on 'inner focus' related aspects such as 'clear understanding' and 'total dedication' towards achieving organizational goals and 'other focus' related aspects such as proper co-ordination and communication with stakeholders. Teams belonging to large-sized organizations differ from the ones belonging to small-sized ones on aspects such as 'trust', exploring new opportunities to learn and incorporate new ideas from different domains. Age-wise comparison revealed that young researchers significantly differ from experienced researchers on almost all aspects of inner, other and outer focus. There is wide disagreement among the researchers regarding 'awards and recognition', 'co-creation' and 'willingness of customers to pay more for additional features'.

Implications and Recommendations

The proposed conceptual model can be used as a reference framework by the Top Management Teams (TMT) to improve their R&D team's focus towards innovation. It is important for leaders at various levels in the organization to recognize the importance of maintaining a strong focus towards innovation with a long-term goal to build strategic innovation capabilities in their organization. The best way to go about it is to start building a healthy balance between three types of focus – inner focus, other focus and outer focus. Inner-focus helps in creating a sense of strong self-awareness and self-control within the team. Other-focus encourages team members to create awareness about other teams in the same organization. Outer-focus encourages team members to be aware about other teams working in similar or different domains external to their organization.

Recommendations for the Top Management Teams (TMT) to building a healthy balance between three types of focus – inner focus, other focus and outer focus are as follows:-

1. *Top Management Teams (TMT) in technology-driven organizations should ensure that their R&D teams 'clearly understand' their organizational goals and are totally dedicated and focused" towards achieving them.*
2. *TMTs should ensure that their R&D teams clearly communicate and co-ordinate their work with all the partner teams and live up to the expectations of all the stakeholders.*
3. *TMTs should ensure that their R&D team members "completely trust" each other and are willing to explore "new opportunities to learn & collaborate".*
4. *TMTs should ensure that their R&D team leaders maintain a high levels of awareness about their team members and other teams inside as well as outside their organization.*
5. *TMTs should ensure that their R&D team continuously co-create products, services or solutions with their target customers and regularly manifest their capabilities to their target customers, competitors and collaborators.*

Conclusion

In this paper we have highlighted the emerging role of 'team focus' towards innovation and its dependence on the organizational context. 'Team Focus' constitutes three aspects – 'Inner Focus', 'Other Focus' and 'Outer Focus' of team-members towards innovation-related activities, in an organizational setting. Analysis revealed that academic and industrial research teams differ from each other on 'inner focus' related aspects such as 'clear understanding' and 'total dedication' towards achieving organizational goals and 'other focus' related aspects such as proper co-ordination and communication with stakeholders. Teams belonging to large-sized organizations differ from the ones belonging to small-sized ones on aspects such as 'trust', exploring new opportunities to learn and incorporate new ideas from different domains. Age-wise comparison revealed that young researchers significantly differ from experienced researchers on almost all aspects of inner, other and outer focus. There is wide disagreement among the researchers regarding 'awards and recognition', 'co-creation' and 'willingness of customers to pay more for additional

features'. A deeper understanding about these similarities and differences can help the Top Management Teams (TMTs) to design their organizational policies in a better way.

Research limitations and direction for further research

This paper does not contain any cross-level data attempting to measure the impact of organizational-level factors (like leadership, culture, structure) or individual-level factors (like individual excellence, personality types etc.) on team-level innovation. Future research may include such kind of multi-level or cross-level models in order to capture the influence of 'higher-level' factors on 'lower-level' factors, or the other way around.

Table 1: Focus (Academic Vs. Industrial Research Groups)

ITEM	Academic Researchers (80 Teams) N1 = 363	Industrial Researchers (56 Teams) N2 = 265	Academic -Industrial Researchers
	Mean (SD)	Mean (SD)	T - test 95 % Confidence
My team "clearly understands" its roles & responsibilities towards the goals of our organization	3.85 (1.01)	4.03 (0.99)	0.002
My team is "totally dedicated and focused" towards achieving its targets	3.92 (1.03)	4.18 (0.95)	0.00
My team tries its best to live upto the expectations of all the "stakeholders" associated with it	3.792 (0.97)	4.03 (0.94)	0.000
My team "properly co-ordinates" all its work with the partnering teams	3.83 (1.01)	4.00 (0.92)	0.001
My team "clearly communicates" all the "project deliverables" with all the partnering teams	3.79 (1.016)	4.01 (0.99)	0.006
INNOVATION CAPABILITY			
Our customers are willing to "pay more" for "extra benefits & features or functionality"	3.16 (1.13)	3.41 (1.03)	0.002
My Team keeps receiving "awards & recognition" at national /global level	3.07 (1.14)	3.69 (1.06)	0.006
My Team creates products in "close association" with our customers to provide desired levels of customization	2.88 (1.13)	3.24 (1.12)	0.000

Where *: $p < 0.05$; **: $p < 0.0$

Table 2: Focus (Large Vs. Small-sized research organizations)

ITEM	Academic Researchers (80 Teams) N1 = 363	Industrial Researchers (56 Teams) N2 = 265	Academic - Industrial Researchers
	Mean (SD)	Mean (SD)	T - test 99 % Confidence
My team members "completely trust" each other	4.05 (1.01)	3.84 (1.14)	.11
My team constantly explores "new opportunities to learn & collaborate"	4.09 (0.94)	3.92 (1.02)	.87
My team is "open to incorporate" new ideas even from other domains	4.22	3.99	.85

	(0.83)	(1.08)	
INNOVATION CAPABILITY			
Our customers are willing to "pay more" for "extra benefits & features or functionality"	3.13 (1.09)	3.75 (1.06)	0.001
My Team keeps receiving "awards & recognition" at national /global level	3.2 (1.11)	3.4 (1.18)	0.007
My Team creates products in "close association" with our customers to provide desired levels of customization	2.9 (1.11)	2.12 (1.11)	0.004

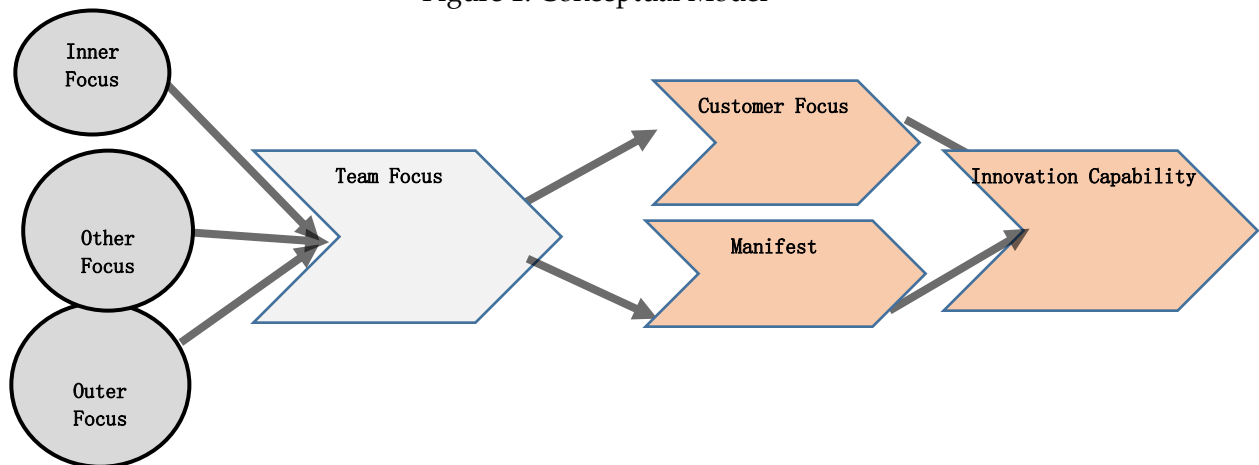
Where *: $p < 0.05$; **: $p < 0.01$

Table 3: Focus: (Age-wise Comparison - Young Vs. Experienced Research Groups)

ITEM	Academic Researchers (80 Teams) N1 = 363	Industrial Researchers (56 Teams) N2 = 265	Academic - Industrial Researchers
	Mean (SD)	Mean (SD)	95 % Confidence
My team has a "clear vision" which guides its innovation efforts	3.59 (1.103)	4.03 (0.954)	0.00
My team "clearly understands" its roles & responsibilities towards the goals of our organization	3.794 (1.052)	4.25 (0.86)	0.00
My team is "totally dedicated and focused" towards achieving its targets	3.9 (1.04)	4.26 (0.87)	0.004
My team members "completely trust" each other	3.81 (1.16)	4.18 (0.9)	0.00
My team "clearly understands" its strengths & weaknesses	3.75 (1.104)	4.05 (0.92)	0.00
My team tries its best to live upto the expectations of all the "stakeholders" associated with it	3.77 (0.99)	4.13 (0.86)	0.001
My team "properly co-ordinates" all its work with the partnering teams	3.7794 (1.102)	4.113 (0.86)	0.00
My team "clearly communicates" all the "project deliverables" with all the partnering teams	3.8 (1.04)	4.26 (0.894)	0.005
My team "amicably resolves" all the conflicts occurring inside /outside the team	3.76 (1.05)	4.13 (0.88)	0.00
My team "benchmarks" itself with other teams to improve its performance	3.71 (1.14)	3.980 (1.0)	0.008
My team thinks about the future consequences of today's decisions	3.81 (1.02)	4.03 (0.87)	0.00
My team constantly explores "new opportunities to learn & collaborate"	3.94 (1.02)	4.16 (0.85)	0.003
My team is "open to incorporate" new ideas even from other domains	4.0 (1.02)	4.28 (0.88)	0.00
INNOVATION CAPABILITY			
Our customers are willing to "pay more" for "extra benefits & features or functionality"	3.18 (1.09)	3.43 (1.02)	0.006
My Team keeps receiving "awards & recognition" at national /global level	3.14 (1.12)	3.70 (1.12)	0.00
My Team creates products in "close association" with our customers to provide desired levels of customization	2.90 (1.13)	3.27 (1.12)	0.002

Where *: $p < 0.05$; **: $p < 0.01$

Figure 1: Conceptual Model



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