ORGANIZATIONAL FACTORS INFLUENCING INNOVATION: AN EMPIRICAL INVESTIGATION

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Abstract *It is widely acknowledged that managers will have to innovate and transform their businesses continuously to keep pace with the ever changing and evolving business landscape in the VUCA world (Volatility, Uncertainty, Complexity and Ambiguity).Innovation is no longer restricted to the process of creating something new from beginning to end but includes the capacity to quickly adopt externally created innovations that may be of benefit to the organization. The literature on innovation is wide, varied and diverse as it is an extensive concept which can be applied organization-wide. It is well documented that making paradigm shift requires the organization to embrace new ideas, facilitate its realization and institutionalize creativity and entrepreneurial spirit. But most organizations overlook the people dimension that is the workforce. The present study is an attempt to discover what managers opine about the organization-specific factors that influence innovation at the firm level. An exploratory investigation was carried out amongst managers in different organizations to identify what factors are important in impacting an organizations ability to manage innovation.*

Keywords: *Innovation, Manager, IT Company, Factor*

Introduction

Innovation is probably as old as mankind itself; therefore it has many definitions and approaches. In academic literature innovation is defined as a new idea or a modification which result in a positive outcome for the business organization. It is articulated that all ideas do not become innovations; only the ones that are feasible and implemented and adopted in a beneficial way become sustainable innovation (Bessant and Tidd; 2011). Innovation brings out positive outcome if the innovation value chain institutionalizes in-house idea generation and facilitates cross-functional teams and encourages collaboration (Hansen & Birkinshaw; 2007). It has been emphasized that no innovation can yield results unless aided by an energetic, dynamic and creative workforce. The view that creativity cannot be unlocked or channelized if the organization is still driven by legacy mindsets has been emphasized as a main obstacle for the innovation per se. The values, norms, shared beliefs are important inputs. The theoretical construct used in the study has been the subject of investigation by many learned academicians in the field of innovation in organizations. The paper primarily focuses on the initial phases of the innovation value chain viz. idea generation and collaboration which are internal processes.

Literature Review

There is a wide body of literature that identifies the common denominators of innovation and the factors that impact on the ability to manage innovation. Innovation has long been cited as essential for organisational success (McAdam and Keogh, 2004; Edwards et al., 2005). While many authors recognize the importance of innovation they also highlight the different nature of innovations across different countries, different institutional contexts, and different levels of economic development (Szirmai et al., 2011).

As a result innovation has become an extensive concept that can be perceived in a number of different ways. Tidd et al's (2001: 38) define it as a process of turning opportunity into new ideas and of putting these into widely used practice. Hansen & Birkinshaw (2007) maintain that there is no universal solution for improving innovation in organizations and that management needs to take an end-to-end view of innovation efforts to yield positive outcomes. They have in their seminal paper articulated that employees are a conduit between the organisational factors and the innovation process. They play a central role in developing ideas as inputs into the innovation process and without ideas the innovation

process simply would not function. The literature highlights that the employees of the organisation are a potential rich source of ideas and they should be encouraged to take part in the early stages to ensure a constant supply of ideas is generated to input into the innovation process (Woodman et al., 1993; Guimaraes and Langley, 1994; Andriopoulos and Lowe, 2000; McAdam and McClelland, 2002; Thamhain, 2003; Wood, 2003).

A research study in the public sector (Damanpour & Schneider, 2009) investigated whether the following three characteristics of innovation influence adoption: (1) innovation cost, given the resource scarcity in the nonprofit sector; (2) complexity, which makes it more difficult to comprehend the innovation and assess its usefulness and feasibility in the adopting organization; and (3) innovation impact, the perceived benefit derived from implementing the innovation. The study did not find negative correlations between adoption and innovation costs or complexity but did find a positive relation to innovation impact.

Rogers (1983) points out that the process of" reinvention" rather than adoption of innovations can be beneficial to organizations. This may be a valid lens for at least three types of innovations: 1) innovations in the social sector with complex informational/social character whose outcomes are easily observable but lack trial ability ;(2) innovations that require unforeseeable adaptations to fit local realities and organizational characteristics ;and (3) innovations in which the process of innovating is as important as the innovation outcome—e.g., when innovation work is instrumental in changing important institutional aspects such as norms and beliefs among internal and external stakeholders.. Particularly in the context of deep poverty and institutional "backwardness" organizational capacity for re invention may be crucial (Seelos et al., 2011)

An organisation's ability to innovate is highly dependent on the quality of its employees. There are many important factors such as management style and leadership, resources, organizational structure, knowledge management, corporate strategy, employees, organizational culture that impact organization.

Purpose of the Study

The foregoing review summarizes the significance of the human dimension in the context of organizational innovation. Although this paper does not provide a prescriptive method for organisations to follow to become innovative, it does identify what factors are important in impacting an organisations ability to manage innovation. The study is exploratory and analytical in nature. It tries to probe the diversity of organizational variables specific in Indian context which can translate into intellectual asset.

Methodology

A structured questionnaire was administered to the junior and middle management cadre in the organization. The instrument was administered to 10 or more employees in an organization drawn from different functional areas. The employees in these organizations were given a list of 32 statements that measured their extent of agreement towards the variable. The items were measured on a 5 point Likert scale with 1 representing a high score (favorable) and 5 representing a low score (unfavorable). These statements were selected after pilot testing the same in the IT Company and modified accordingly. These statements were sequenced in a way to avoid response bias to the extent possible. The sampling method is non-probability sampling; sampling unit is the organization and the sampling elements are the senior executives working in the organization. The total sample size for this study is 140 across 8 organisations in Delhi/ NCR.

Analysis and Discussion

The data collected were summarized and tabulated to provide a snapshot of the organization. Table 1 depicts the most important source of information for innovation in the organization; it can be seen that almost 79% have said that customers are the most important source. In table 2 it can be observed that more than 70% have said that innovation is more about moving towards creating new to the world products. It can be observed from table 3 that a great majority of employees involved in innovation are from IT and Research and Development wings of the organization.

The data were analysed using chi-square contingency test to find out the relation between employees functional domain and the meaning assigned to innovation. The null hypothesis tested is there is no relation between the meaning assigned to innovation in the organisation and the employees functional domain. As the calculated value of the chi-square contingency co-efficient is .001 which is less than the critical value of .05 the null hypothesis is rejected.

An exploratory factor analysis was carried out to identify the important factors affecting the employees. The correlations matrices computed & examined reveal that there is enough correlation to go ahead with factor analysis. The Calculated Cronbach alpha at 0.815 proves data reliability (refer table 4). KMO measure of sampling adequacy (MSA) for individual variables show that correlation is sufficiently high for all variables. To test the sample adequacy, KMO Measure of sampling adequacy is computed, which is found to be 0.722; it indicates that sample is good enough for sampling. The overall significance tested with Bartlett Test of sphericity support the validity of the factor analysis of data set (refer Table 5). Principal component Analysis with varimax

rotation is employed for extracting factors, 10 factors were extracted (refer table 6 &7)

Factor Discussion

Factor 1: Attitude to Innovation

The most prominent factor is Attitude to innovation with cumulative variance of 10.814 %.It depicts, the attitude of management towards innovation plays a major role in creating innovative culture in an organization. It depends on the fact that whether the organization or management is enthusiastic and makes consistent efforts for innovation or they abandon activities in midway and believe in pursuing tried and tested ideas

Factor 2: Incremental Innovation

The second factor is Incremental Innovation with cumulative variance of 19.552. It shows that in this organization product innovation means altering existing products and Ideas from non conventional sources are dismissed completely. Most of the organization's time is spent on resolving conflicts and deciding the worth and contribution of employees involved in innovation Research suggests that there is lack of information on customers/ external data in the organization. This shows that though they believe in innovation but they prefer to go for incremental innovation.

Factor 3: Flexibility& Open Communication

The next prominent factor Flexibility & Open Communication with cumulative variance of 28.126 depicts that Organization has flexible work environment, Information flow is not hampered; there is free flow of information. The organization devotes more time/resources for innovation than any other activities

Factor 4: Employee Adaptability:

Employee Adaptability is an important factor, with 36.268 of cumulative variance. It is observed that when Innovational activities are supported by organization, then workforce actively participates in different activities organized by the organization. Organization provides extra incentive and benefits to employees engaged in innovation and employee's contribution is strictly supervised and control for this purpose. This motivates employees to be a part of an innovation agenda.

Factor 5: Idea Generation

This factor with 43.056 cumulative variance shows that the Organisation encourages employee for idea generation and they conduct brainstorming sessions for new product ideas time to time, because they believe that innovation in product enhances the image of the organization.

Factor 6: Traditional Approach

The sixth factor with 49.681 of cumulative variance demonstrates that since organization believes in incremental innovation totally new product ideas get diluted, organization wants to take calculative risk with tried and tested ideas.

Factor 7: Result Oriented

The seventh factor with 55.487cumulative variance, depicts that organization encourages new ideas for product innovation and the organization is result oriented rather than technique oriented

Factor 8: Skill Enhancement

This factor with 61.143 cumulative variance, suggests that since innovation adds value to the work done by the employee, Organization provides necessary training to employees to upgrade their skill sets

Factor 9: Motivation to innovate

The ninth factor with 66.208 cumulative suggests that innovation is necessary to stay ahead of competition, and if employees involved in innovation projects get recognition, they are motivated to perform.

Factor 10: Organizational Support

The last factor with, 70.629 cumulative variance depicts that organization encourages employee for innovation and availability of funds/budget is not a major constraint for them.

Conclusion

From this research paper threefold conclusion is drawn. Firstly, customer is the most important source of information for innovation in an IT organization and more than 70% have said that innovation is more about moving towards creating new to the world products. Majority of employees involved in innovation are from IT and Research and Development wings of the organization.

Secondly, there is no relation between the meaning assigned to innovation in the organisation and the employees' functional domain. From this it can be said that innovation is not the function of R and D as is generally implied, more so in an IT organization.

Thirdly, there are 10 important factors which have an impact on organisations ability to manage innovation and there exists a strong correlation among these factors. This study suggests that these factors are: Attitude to Innovation, Incremental Innovation, Flexibility& Open Communication, Employee Adaptability, Idea Generation, Traditional Approach, Result Oriented, Skill Enhancement, Motivation to innovate and Organizational Support, which plays a very important role in creating and managing innovative culture in an organization.

Practical Implications

The managerial implications of this work are twofold. Firstly, organisations can understand how the 10 factors influence their ability to manage innovation and can consider the nature of the factors currently within their organisations. Secondly, organisations can understand that these factors do not operate independent of each other but are interrelated.

Limitations and Further Research

Our results showed that organisations that clearly articulate what is meant by 'innovative working' are more likely to be successful in their attempt to encourage innovative behaviours.

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ANNEXURE

Table 1: Frequency Distribution of Sources Of Information for Innovation in the Organisation

Source of information for innovation	Frequency	Percent	Valid Percent	Cumulative Percent
Within the organisation	9	6.4	6.4	6.4
Customers	111	79.3	79.3	85.7
Competitors	17	12.1	12.1	97.9
Suppliers/Vendors	3	2.1	2.1	100.0
Total	140	100.0	100.0	

Table 2: Frequency Distribution of Meaning Assigned to Innovation in the Organisation

Product innovation means		Frequency	Percent	Valid Percent	Cumulative Percent
Altering existing product Creating new-to-the-world products	1	12	8.6	8.6	8.6
	2	10	7.1	7.1	15.7
	3	57	40.7	40.7	56.4
	4	42	30.0	30.0	86.4
	5	19	13.6	13.6	100.0
	Total	140	100.0	100.0	

Table 3: Frequency Distribution of Employees Function-Wise

Employees involved in innovation are from:	Frequency	Percent	Valid Percent	Cumulative Percent
Sales and marketing	10	7.1	7.1	7.1
Production/Operation	27	19.3	19.3	26.4
Information Technology	53	37.9	37.9	64.3
Research and Development	49	35.0	35.0	99.3
Others	1	.7	.7	100.0
Total	140	100.0	100.0	

Table 4: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.796	.815	32

Table 5: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.722
Bartlett's Test of Sphericity	Approx. Chi-Square	1.947E3
	df	496
	Sig.	.000

Table 6:Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.782	18.068	18.068	5.782	18.068	18.068	3.461	10.814	10.814
2	3.373	10.540	28.609	3.373	10.540	28.609	2.796	8.738	19.552
3	2.817	8.804	37.413	2.817	8.804	37.413	2.744	8.574	28.126
4	2.533	7.914	45.327	2.533	7.914	45.327	2.605	8.141	36.268
5	1.861	5.817	51.144	1.861	5.817	51.144	2.172	6.788	43.056
6	1.616	5.051	56.195	1.616	5.051	56.195	2.120	6.626	49.681
7	1.456	4.550	60.744	1.456	4.550	60.744	1.858	5.806	55.487
8	1.146	3.581	64.325	1.146	3.581	64.325	1.810	5.656	61.143
9	1.017	3.177	67.502	1.017	3.177	67.502	1.621	5.065	66.208
10	1.001	3.127	70.629	1.001	3.127	70.629	1.415	4.421	70.629
11	.923	2.885	73.515						
12	.805	2.515	76.029						
13	.763	2.383	78.413						
14	.710	2.219	80.632						
15	.605	1.889	82.521						
16	.584	1.825	84.346						
17	.517	1.616	85.962						
18	.497	1.555	87.516						
19	.479	1.495	89.012						
20	.406	1.269	90.281						
21	.390	1.220	91.501						
22	.388	1.211	92.712						
23	.347	1.085	93.797						
24	.339	1.060	94.857						
25	.293	.915	95.772						
26	.257	.803	96.575						
27	.225	.704	97.278						
28	.206	.643	97.921						
29	.194	.605	98.526						
30	.175	.546	99.072						
31	.152	.476	99.548						
32	.145	.452	100.000						

Extraction Method: Principal Component Analysis.

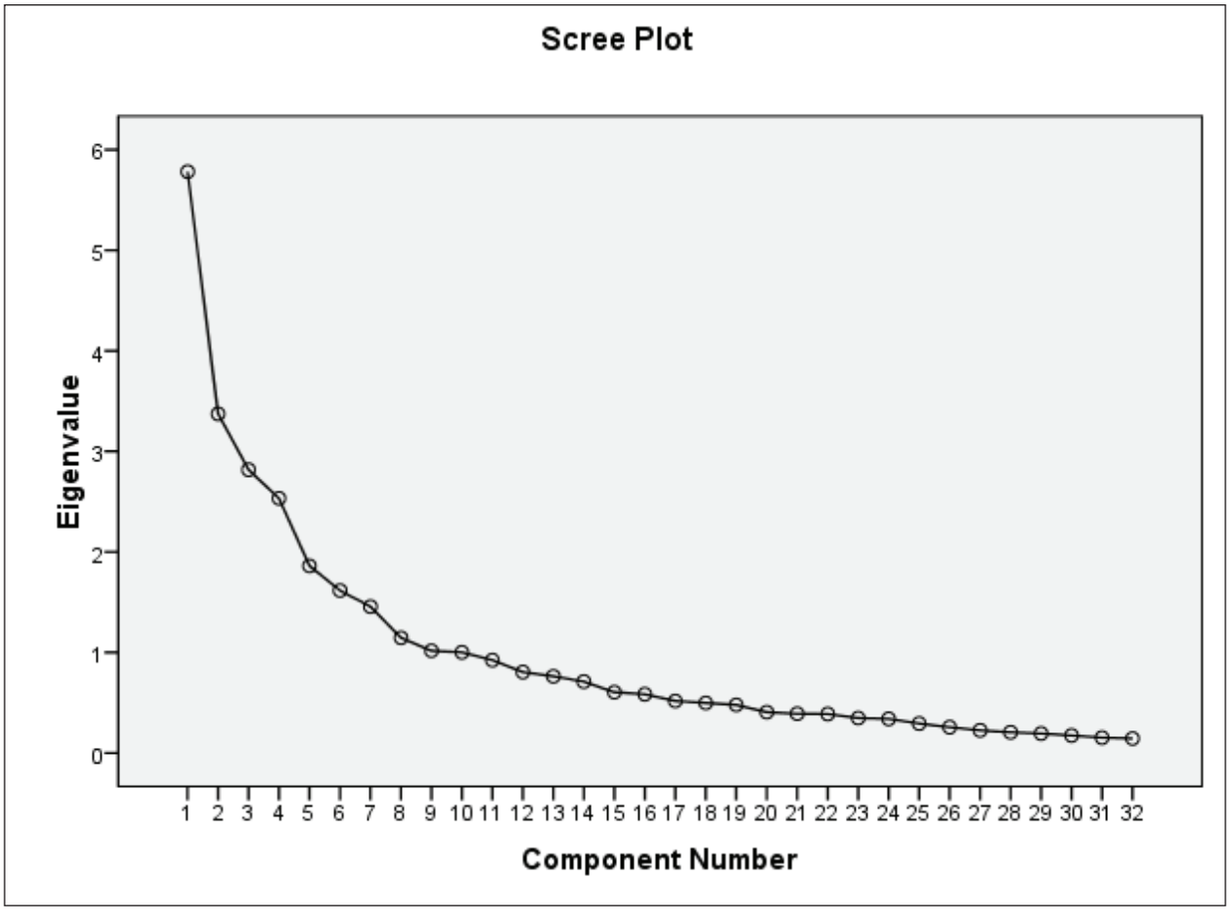

Table 7: Factor Matrix

Factors*	Variables	Factor Loadings	Variance % (Cumulative)
Factor 1 5.782 Attitude to Innovation	The organization makes consistent efforts for innovation Top Management encourages experimentation in new areas Management is very enthusiastic about The organization believes in pursuing tried and tested ideas Many innovation activities are abandoned midway	.657 .776 .793 .569 .580	10.814
Factor 2 3.373 Incremental Innovation	In my organization product innovation means altering existing products. Ideas from non conventional sources are dismissed completely Most of the organization's time goes in resolving conflicts The worth and contribution of employees involved in innovation is belittled There is lack of information on customers/ external data in the organization	.497 .798 .658 .504 .763	19.552
Facto 3 2.817 Flexibility& Open Communication	The organization devotes more time/resources for innovation than other activities Information flow/inter change is not hampered Organization has flexible work environment Data/Information dissemination in the organization is free flowing	.700 .609 .653 .724	28.126

Factor 4 2.533 Employee Adaptability	Employees are strictly supervised and control Extra incentive / benefits are given to employees engaged in innovation Most employees look forward to being part of an innovation agenda Workforce actively participates in different activities organized by the organization	.648 .739 .806 .549	36.268
Factor 5 1.861 Idea Generation	The organization encourages brainstorming for product ideas Innovation enhances the image of the Top Management encourages	.745 .676 .500	43.056
Factor 6 1.616 Traditional Approach	New product ideas get diluted when it New ideas are ridiculed or dismissed	.626 .792	49.681
Factor 7 1.456 Result Oriented	In my organization product suggesting new ideas for innovation is encouraged. The organization is result oriented rather than technique oriented	.647 .509	55.487
Factor 8 1.146 Skill Enhancement	Innovation adds value to the work done by the employee Organization provides necessary training to employees to upgrade their skill sets.	.770 .547	61.143
Factor 9 1.017 Motivation to innovate	Innovation is necessary to stay ahead of competition Employees involved in innovation projects are recognized	.705 .704	66.208
Factor 10 1.001 Organizational Support	Availability of funds/budget is not a major constraint for innovations	.855	70.629

*Numbers in the parentheses in the first column represent Eigen values of the corresponding factors.