

## EMPIRICAL STUDY OF INNOVATION PERFORMANCE IN IT INDUSTRY AS AN OUTCOME OF ABSORPTIVE CAPACITY AND FACILITATION

**Mr. Saravanan Rajendran**

Doctoral Research Scholar, (VISTAS) Chennai, Tamil Nadu

Email id: [yashsaravanan@gmail.com](mailto:yashsaravanan@gmail.com)

**Dr. S. Preetha, Professor**

School of Management Studies, VISTAS Chennai, Tamil Nadu, Corresponding Author Email Id:

[preetha.sms@velsuniv.ac.in](mailto:preetha.sms@velsuniv.ac.in)

### 1. Abstract

Most Leaders acknowledge that Innovation Performance is critical for organization success, however important factors that influence them and measurement criteria for the same in this COVID era still remains a challenge. This study focuses on innovation ecosystems and the influence of facilitation in improving innovation performance of IT companies in Bangalore. While there is a consensus that individually every organizational factor plays a major role in innovation performance, study pertaining to joint research on facilitation and knowledge absorptive capacity is scarce.

To accomplish this a study has been conducted with around 120 employees belonging to I/T companies. methodical questionnaire was used to collect their responses and statistical analysis and tests have been done using SPSS tool. 85 people responded and out of which 73 responses were complete.

Demographic Analysis, Multivariate analysis and Regression tests are used to study the relationship between the variables. The results establish that Facilitation has a positive influence on Absorptive Capacity as well as innovation Performance and significantly has a Moderating effect between absorptive Capacity and Innovation Performance of Organization.

**Keywords:** *workplace innovation, facilitation, knowledge management, innovation performance, information technology, innovation management, culture*

### 2. Introduction

Facilitation's role in workplace innovation and improving innovation performance of organization is immense. Facilitators can decode patterns that enables mindset and behaviors which are required for transformation. they also have skill to make the team reflect on practice and change behaviors (Thor et al., 2004). Integrated facilitation enables learning across individuals groups and organization with the firm belief that the current status quo can be challenged and improvement is possible (Berta et al., 2015). Skilled facilitators achieve these through workshops by bringing employees at the frontline to develop new competences and effective workplace culture (Watling, 2015)

Innovation is a way organizations work on enhancing their company's Behaviors as well core competencies (Oeij & Vaas, 2016). According to F. Pot (2011), workplace innovation is " A

developed and implemented practice or combination of practices that structurally (division of labor) and/or culturally (empowerment) enable employees to participate in organizational change and renewal to improve quality of working life and organizational performance” (Oeij et al., 2014, p. 8). Gold, Malhortra, and Segars (2001) did a detailed investigation on various aspects of Knowledge Management (KM) in the context of capabilities which any company would aspire to develop. This study reveals that components of infrastructure namely culture, hierarchy and technology when works in sync with Knowledge Process architecture provides a platform for enabling Knowledge Management.

Extant research has debated that the competitiveness of a firm’s absorptive capacity resides in a highly Volatile, Ambiguous, complex world leads to value creation network of organizational resources that augment the value of this capability and protects it from being replicated (Zahra and George, 2002)

Furthermore, the Influence of some work environments to instill innovation more than others has become a primary consideration (Alasoini, 2009; Kesselring et al., 2014). It is a contextual psychological construct that identifies and measures the behavioral aspects of innovation practices by individuals in their workplace (McMurray et al., 2013). In this context, it is of clear interest to see how facilitation impacts knowledge absorptive capacity and innovation performance of the organization.

### 3.Literature Review

Kaner (2014) Studies talks about various techniques that can be implemented to resolve disputes, However the importance of facilitation has not been unearthed or known to team members. Evidence shows that facilitators play a major role in enhancing creativity Quotient that bring Novelty of ideas as well as establishing good rapport which help in coming up with new ways to identify Problems worth solving and develop Prototypes or any new methods to solve them (Bunker & Alban, 2004). When comes to looking absorptive capacity, different studies tried breaking knowledge management & Absorptive capacity in to depth and multidimensions however they are the ambiguous when it comes to studying them along with other facets of innovation ecosystems (e.g., Camisón et al 2010; Flatten, et al 2011)

Structurally done reviews combined with analysis results revealed facilitation has a Profound Impact effect on Fact related guideline adoption (Baskerville et al., 2012). There are empirical results pertaining to the significance and facilitation impact in implementation, Empirical evidences in terms of accurate, insightful inferences is very much important (Bellg et al., 2004).

A facilitator challenges the status Quo and guides team members to unlearn old practices. He motivates the team to move towards new ways of working through exercises and engagement activities resulting in team bonding & collaboration. There is a consensus that not a single team can bring a solution to a problem. It needs perspective of multiple teams which if it has to work synchronously needs commitments and Work norms. Design hierarchy, establish do’s/Don’ts. Bring a competent, facilitator who is unbiased in his Innovation approach and Facilitator to design

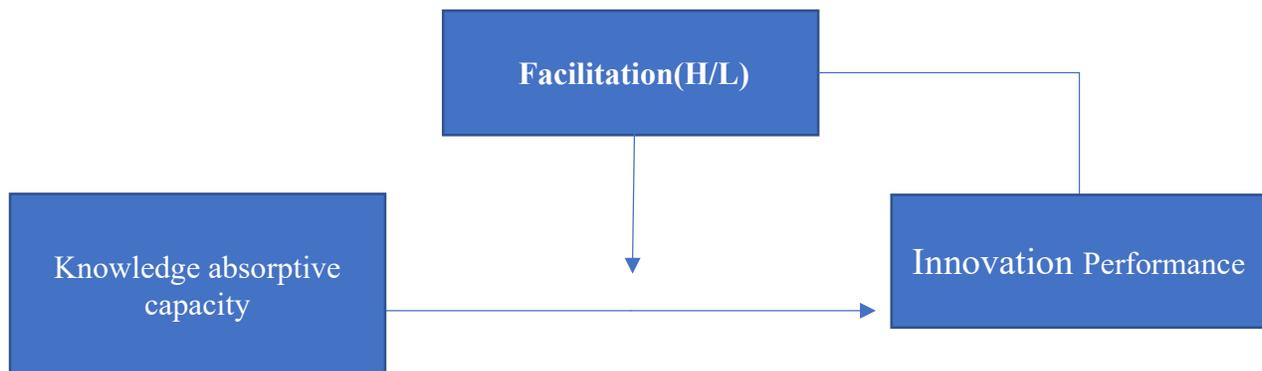
firm's norms, rules and to get group-processes agreements, Multi disciplinary Outcomes and Accountability, Monitor the Performance of the team using Key Performance Indicators at Periodic levels. S. M. CHANDLER (Hunter, 2017) Successful facilitations help in designing the communication strategies and plan to solve a problem in a disciplined way (Straus, 2010). A able facilitator provides a psychologically safe work conditions for the team members to openly express their ideas and challenge each other getting into a creative abrasion to filter out the best approach to solve Problems and build a case for change (Kaner, 2014)

Although facilitators importance is argued in the literature, a gap is still there in the research regarding Systematic Theory, empirical verification and the specific strategies facilitators follow to enhance the capability of the team/organization to come up with meaningful innovations (Dogherty et al., 2010). This gap further deepens the aspect of consistent facilitation, and enhancing experimentation and assessment of facilitation trials

#### 4. Conceptual Model

##### Relationship Between Knowledge Absorptive capacity & Innovation Performance and Moderating effect of Facilitation

(Author Model)



Facilitation has many definitions depending upon the context in which it is applied it varies when it is applied to a meeting used as an intervention& and as a tool for collaboration. In our context, Facilitation is engaging participants in discovering, and applying learning insights. Measures of Facilitation like “Engage better by involving and encouraging every team member to put their perspectives” are used as part of the Questionnaire to study about its nature.

#### 6. Knowledge Absorptive Capacity

Knowledge Absorptive capacity, defined as “the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal, 1990, p.128). Measures pertaining to absorptive capacity e.g. Employees are able to transform gained knowledge into innovation” has been used in the study

## 7. Innovation Performance

Innovation performance is broadly measured using process or product innovations however for our study we have taken workplace innovation and its attributes as a key parameter. Workplace innovation stands as of Foundational blocks for any type of innovation across Industries. Workplace innovation is meeting point between organizations, managers, teams, and individuals collaborate in that atmosphere in potentially novel or creative ways (Prus et al., 2017). Indicators like e.g.: “Team frequently introduces new innovative solutions” have been used to measure innovation performance

**8. Research Method:** The population of the study is IT employees from different levels such as, Senior managers, team leaders and Individual Contributors of IT sector in Bangalore. Around 10% sample constituting 120 Employees has been identified and random Sampling technique is being used. The data collected for the study is using a structured questionnaire and questions are designed on 5-point Likert scale for measuring the opinion of the respondents

## 9. Research Objectives

- To Study the influence of demographic factors like Role, Experience & Gender on Innovation Performance of the organization
- To understand Knowledge absorptive capacity influence on innovation performance in an IT organization
- Role of Facilitation over Absorptive Capacity of an IT organization
- To analyze role of facilitation in understanding the relationship between Knowledge absorptive capacity and innovation performance

## 10. Research Hypothesis

H1: Absorptive Capacity has a Positive Influence on Innovation Performance

H2: Facilitation has a Positive Influence on Absorptive capacity

H3: Facilitation has a moderating Influence between Absorptive capacity and Innovation Performance

## 11. Data Analysis

Demographic analysis on gender indicates around 27 percentage of female participants responded to the survey and 73% of male participants gave their opinion on the questionnaires. Analyzing the hierarchical level of participants, it was found that middle level managers contributed significantly to around 60 percent in this study. in similar lines to his found people with experience level around 10 to 20 years as well as the age group of 36 to 45 contributed immensely to this study

Demographic Variables	Frequency	Percentage
Gender		
Female	20	27%

Male	53	73%
Grand Total	73	

Levels		
Middle level	44	60%
Senior Level	17	23%
junior level	12	16%
Grand Total	73	

Years Of Exp		
<5yr	4	5%
>20	9	12%
10-20yr	53	73%
5-10yr	7	10%
Grand Total	73	

Age		
<25	3	4%
>56	5	7%
26-35	8	11%
36-45	44	60%
46-55	7	10%
Grand Total	73	

### Reliability Test

Reliability test has been conducted on the items used in the questionnaire and it was found the Cronbach's alpha score is well above 0.6. items that had very low Cronbach's alpha score has been removed from the questionnaire

Construct	Items	Cronbach's Alpha
Absorptive Capacity	Organization Promotes usage of industry information (K1)	0.9586
	Organization helps employees acquire new knowledge (K2)	0.9581
	Organization encourages interdisciplinary activities to solve problems(K3)	0.9577
	Organization shares ideas in the meetings(K4)	0.956
	Employees can relate current knowledge with latest developments(K5)	0.9558

	Employees are able to transform gained knowledge into innovation(K6)	0.955
	Organization supports rapid prototyping to validate learnings(K7)	0.956
	Organization can quickly absorb new technologies to work(K8)	0.955
Facilitation	Facilitators who Interact F2F with teams to accelerate problem solving (F1)	0.9536
	Facilitators engage F2F to act as catalyst to impart organizational learning(F2)	0.9574
	Able to conduct Ideation or Creative Workshops to generate Ideas(F3)	0.9558
	able to Understand your requirements working at different levels (F4)	0.9544
	Facilitators are Curious(F5)	0.9555
	Facilitators Are empathetic (F6)	0.9549
	Facilitators have a sense of Humor (F7)	0.9556
	Facilitators are an Agile Learner (F8)	0.9548
	Facilitators Being Participative and Inclusive ( F9)	0.9545
	Facilitators engage better by involving and encouraging every team member to put their perspectives( F10)	0.9564
Innovation Performance	Average cost per innovation project is measured (IP1)	0.9558
	team frequently introduces new innovative solutions (IP2)	0.9565
	Team is highly innovative ie no of creative ideas (IP3)	0.9564
	our organization learns from best practices from industry (IP4)	0.9574
	regularly Spend effort to bench mark our work Process Standards (IP5)	0.9552
	workplace rewards innovative ideas regularly (IP6)	0.9554

### Hypothesis:1

H1: Absorptive Capacity has a Positive Influence on Innovation Performance

Dependent variable: Innovation performance(Y)

Independent variable: Absorptive capacity(X)

### SPSS-Model Summary

#### Absorptive Capacity Impacts and Innovation Performance

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.964 <sup>a</sup>	.930	.929		.146336855629841

a. Predictors: (Constant), Absorptive capacity

As Indicated in the table, the R Square value is 0.93, Which means the independent variable i.e., Absorptive Capacity causes 93% change in the dependent variable ie Innovation Performance

#### ANOVA- Absorptive Capacity Impacts and Innovation Performance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	20.059	1	20.059	936.725	.000 <sup>b</sup>
Residual	1.520	71	.021		
Total	21.580	72			

a. Dependent Variable: Innovation Performance

b. Predictors: (Constant), Absorptive Capacity

ANOVA results shows that P value is .000 which is less than .05 ,Hence a significant relationship between Independent Variable (Absorptive Capacity ) & Dependent Variable(Innovation Performance) exists

#### SPSS-Regression Coefficients of Absorptive Capacity and Innovation Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.709	.114		6.198	.000
	AC	.873	.029	.964	30.606	.000

a. Dependent Variable: Absorptive Capacity(AC)

Table shows the Coefficients Results. As indicated that that the beta value is 0.964 which means change in independent variable ie Absorptive capacity by one unit will bring about the change in the dependent variable i.e. Innovation Performance by .964

Furthermore, the beta value is positive, which indicates the positive relationship between independent variable (Absorptive capacity) and dependent variable (Innovation Performance)

**Hypothesis :2**

H2: Facilitation has a Positive Influence on Absorptive capacity

Dependent variable: Innovation performance(Y)

Independent variable: Facilitation(X)

**SPSS Model Summary**

**Facilitation Impacts and Absorptive Capacity**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.833 <sup>a</sup>	.695	.690	.304638805813288

a. Predictors: (Constant), Facilitation

As Indicated in the table, R Square value is 0.69, Which means independent variable i.e., Facilitation causes 69% change in the dependent variable i.e. Innovation Performance

**SPSS ANOVA- Facilitation Impacts and Absorptive Capacity**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.991	1	14.991	161.530	.000 <sup>b</sup>
	Residual	6.589	71	.093		
	Total	21.580	72			

a. Dependent Variable: Innovation Performance

b. Predictors: (Constant), Facilitation

ANOVA results shows that P value is .000 which is less than .05, Hence we say a significant relationship between Independent Variable (Facilitation ) & Dependent Variable (Innovation Performance)

**SPSS-Regression Coefficients of Facilitation and Absorptive Capacity**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.900	.182		10.420	.000
	Avg F	.564	.044	.833	12.709	.000

a. Dependent Variable: Innovation Performance

Table shows the Coefficients Results. As indicated that that the beta value is 0.833 which means change in independent variable i.e., Facilitation by one unit will bring about the change in the dependent variable i.e., Innovation Performance by .833

Furthermore, the beta value is positive, which indicates the positive relationship between independent variable (Facilitation) and dependent variable (Innovation Performance)

**Hypothesis: 3**

H3: Facilitation has a moderating Influence between Absorptive capacity and Innovation Performance

Dependent variable: Innovation performance

Independent variable: Absorptive capacity (AC), Facilitation(F)

**SPSS Model Summary Facilitation Impacts Absorptive Capacity and Innovation Performance**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.968 <sup>a</sup>	.937	.936	.138984089772714

a. Predictors: (Constant), AC, F

As Indicated in the table, RSquare value is 0.937, Which means our independent variable causes 93.7% change in the dependent variable (Innovation Performance)

**SPSSANOVA- Facilitation Impacts Absorptive Capacity and Innovation Performance**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.228	2	10.114	523.585	.000 <sup>b</sup>
	Residual	1.352	70	.019		
	Total	21.580	72			

a. Dependent Variable: Innovation Performance

b. Predictors: (Constant), Absorptive Capacity (AC),Facilitation(F)

As Indicated in the table, ANOVA results shows that P value is .000 which is less than .05, Hence we say a significant relationship between Independent Variable &Dependent Variable (IP)

**SPSS-Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.738	.109		6.758	.000
	AC	.762	.046	.842	16.466	.000
	F	.102	.035	.151	2.951	.004

a. Dependent Variable: Innovation Performance

Table shows the Coefficients Results. As indicated that that the beta value is 0.842 which means change in independent variables by one unit will bring about the change in the dependent variable i.e., Innovation Performance by .842

Furthermore, the beta value is positive, which indicates the positive relationship between independent variable (Absorptive Capacity, Facilitation) and dependent variable (Innovation Performance)

In the analysis facilitation scores less than 3.5 was categorized as low level of facilitation and facilitation scores above 3.5 has been categorized as high level of facilitation.

Below coefficient table(A) shows when facilitation scores are less than 3.5, the statistical significance is not significant (0.954) however it is been observed that there is a good fit and statistically significant (0.00) relationship when the facilitation for Score above 3.5(Table B)

**Regression Coefficients of Facilitation ,Absorptive Capacity and Innovation Performance**

Model		Unstandardized Coefficients		Std Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.984	.424		2.323	.029
	AC	.789	.063	.935	12.476	.000
	F	-.008	.138	-.004	-.058	.954

a. Dependent Variable: Innovation Performance

b. Selecting only cases for which Cat F (1) = Scores less 3.5

**Table B Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.098	.450		-.217	.829
AC	.678	.077	.721	8.852	.000
F	.361	.108	.272	3.340	.002

- a. Dependent Variable: Innovation Performance
- b. Selecting only cases for which F (2) = Scores Above 3.5

Hence with this we conclude that Facilitation plays a moderating role in relationship between absorptive capacity and innovation Performance

Hypothesis	Results
Absorptive Capacity has a Positive Influence on Innovation Performance	Accepted
Facilitation has a Positive Influence on Absorptive capacity	Accepted
Facilitation has a moderating Influence between Absorptive capacity and Innovation Performance	Accepted

**Conclusion**

Facilitation plays a key role in workplace innovation and acts as a catalyst to increase the pace of innovation. IT Companies spending a significant money in setting up innovation labs should also focus on aspect of Facilitation & Competency levels of Facilitators. These attributes of facilitation directly affect engagement level of employees involved in workplace innovation. Results covered above establishes the same. This significant impact of facilitation suggests that Changes are needed in the current Practices followed in improving Innovation Performance of the organizations. To my knowledge, not many studies have investigated the importance facilitation and as demand for innovation practices in workplace increases, further research is needed to gain more knowledge on facilitation techniques & facilitator qualities and how it can be Managed. The limitation of this study is that it is very specific to IT companies, however future studies can focus on other industries and other locations

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