

## RECENT TRENDS IN INDUSTRY IN ADOPTING CROWDSOURCING AND PROBLEM SOLVING FOR EMPLOYEES PRODUCTIVITY AND EFFICIENCY WITH SPECIAL REFERENCE TO IT INDUSTRY

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### ABSTRACT

*The main challenge in every industry is to find techniques for increasing productivity and employee efficiency. The industry faces challenges to solve the job related problems of its workers at every level so that the employees will be efficient and well recognized in the industry where they serve. The industry always faces situations where its employees alone cannot solve the issues and hardly struggle in search of competent hands. The industry will be forced to create structure and assemble new information for tackling these issues. Crowd Sourcing is a technology invented online platform which gives ample opportunities for the employees to discuss their problems and seek different alternatives and which helps to draw out an effective solution. The main aim of this study is to find out how the industry uses this new technology based method which is known as crowd sourcing in solving the problems of the employees working in IT sector and to find out the correlation between crowd sourcing and problem solving ability. A survey of 100 employees from urban and semi urban areas of IT companies were selected through simple and om sampling technique. The tools used for data collection included a liker type Questionnaire, to assess the perception level of crowd sourcing and Problem Solving Ability Scale. Both the tools used for data collection was standardized and validity and reliability was also ensured. The statistical techniques used for the study included descriptive analysis, t test and correlation. Findings of the study proved that there exists a positive relationship between Crowd sourcing and Problem Solving Ability of employees working in IT sector. And the study suggests that crowd sourcing is an effective method for solving the problems of employees in the IT industry.*

**KEYWORDS:** Industry Faces Challenges, Working in IT Sector.& Ability of Employees

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### INTRODUCTION

Every organization works for its ultimate goal of attaining profit and to enjoying a good name in the society. Organizational success depends upon how the organization manages the information and process for attaining the target. For that the organization should have its own strategies and technologies for adequate knowledge management. Due to the drastic changes, which has happened in our organizational working climate, career management intervention has to be given due importance, for the performance of the workers. Human resource is considered, as the most important asset of an organization, but it is a true fact that no human being is complete. Solving of problems happens through sharing of experiences and knowledge among the individuals. However, individual career development goes beyond the assessment of strengths, weaknesses and training to improve job performance (Haase, 2007). Studies prove that, problems can be solved fast in groups than individually working on it. Social Darwinism gives a framework to study the evolution this capacity, not just in terms of neurophysiology, but also in relation to the cognitive activities behind social problem solving. Thus, by

making use of the wisdom of crowds, to solve a problem and thereby forming a reflective performance picture on the issues leads to the new strategy of issue tackling, this is known as crowd sourcing. When an opportunity is given for a substantial group of open minded people, it is sure that, they will come out with tremendous creative results. The process of obtaining information by enlisting the services of a large number of people, either paid or unpaid, typically through the Internet is known as crowd sourcing. The term, "crowd sourcing" was coined in Jeff Howe and Mark Robinson (2006), which describes how businesses were using the Internet to outsource the work to a large and heterogenous undefined general public, usually in the form of an open call. The emergence and popularity of the crowd sourcing phenomenon can be largely attributed to the rise of the Web 2.0 (Füller, Bilgram, Koch & Rapp, 2013) Crowd sourcing, is based on the concept of collective intelligence: Selzer & Mahmoudi (2006) told that, under the right circumstances, groups are remarkably intelligent, and are often smarter than the smartest people in them. Crowd sourcing gives access to ideas, innovations and information (Aitamurto et al., 2011; Estellés-Arolas & González-Ladrón-de-Guevara, 2012; Sloane, 2011). So, crowd sourcing is worthwhile for the success of any type of organization, without any distinction between profits or non-profit.

Brabham (2008) said, crowd sourcing be considered as a means, for companies to exploit consumers and get access to a cheap workforce, by solving the major problems through collective decision making.

## **REVIEW OF RELATED LITERATURE**

Yuen and Leung (2011) conducted a study on 'crowd sourcing, an area to explore'. The study discussed how the crowd sourcing is distributed as a problem solving and business production model. The study is based on the method are segregated according to the application, algorithms, performances and datasets. The study proved that that crowd sourcing established to reduce the production cost and to lessen the work load of the employees. Crowd sourcing application helped in Information sharing system, Game, Creative system and based on performance helped in cheating detection, user participation and Quality management.

Cupido and Ophoff (2009), made an attempt to study on 'A model of fundamental components, for an e-government crowd sourcing platform'. The main aim of the study was, to find out how crowd sourcing initiatives is able to motivate citizen participation in e-government. The study contributed in formulating an e-government crowd sourcing solution, based on self determination theory enhancing citizen motivation and the influence of incentives and rewards. The model suggested solutions, for clarity and organisation of various tasks and feedback system. The model was applied on 295 citizens and indicated that crowd sourcing concepts necessarily translated well in public sector initiatives.

Xu, Soriano and Garcia (2015), studied on 'Crowd sourcing, innovation and firm performance'. The purpose of the study was, to identify whether firms using crowd funding tools performs significantly well. The investigators developed a model that related crowd funding, innovative competencies to create value in the firm. They made use of Chinese population of biotechnology and telecommunications industries. Mail questionnaire was sent to 393 firms. The study found that those firms which used crowd sourcing systems captured knowledge of the customers and transformed it in innovation and ultimately resulted in the organizational performance.

Thuan (2016), made a study on 'Establishing crowd sourcing as an organisational business process: a design science approach.' The study adopted the design science paradigm and follows four research stages. The study identified a model of business process crowd sourcing (BPC). The model had seven processes, with decision to crowd source, process

design, and technical configuration. The results suggested that the model was useful for structuring the crowd sourcing processes and ultimately resulted in the qualitative and quantitative improvement and helped in decision making performance and the usefulness of the model, for structuring crowd sourcing processes.

### **Definition of Variables**

“Crowd sourcing is a participative online activity, where solution to a problem is sought from the general public by an individual, profitable or non profitable organization through an open call irrespective of their knowledge level.”

“Problem Solving Ability is the capacity of an individual to make use of logic as well as the imagination and creativity in giving an intelligent solution for a problem.”

### **OBJECTIVES**

- To find the level of perception towards crowd sourcing among employees of IT industry.
- To find the level of problem solving ability among employees of IT industry.
- To find out the significant difference of perception towards crowd sourcing and problem solving ability among employees of IT industry based on gender and locality of the industry.
- To find the correlation between perception towards crowd sourcing and problem solving ability among employees of IT industry.

### **Hypothesis**

- The level of perception towards crowd sourcing among employees of IT industry is high.
- The level of problem solving ability among employees of IT industry are high.
- There exists significant difference on perception towards crowd sourcing and problem solving ability among employees of IT industry based on gender and locality of the industry.
- There is a positive relationship between perception towards crowd sourcing and problem solving ability among employees of IT industry

### **METHODOLOGY**

#### **Variables of the Study**

##### **Independent variable**

The independent variable of the study is Perception on Crowd sourcing of employees working in IT sector.

##### **Dependent Variable**

The dependent variable of the study is Problem Solving Ability of Employees working in IT sector

##### **Sample**

The sample consisted of 100 employees from IT sector. A survey study was conducted all across the Karnataka State. Simple random sampling technique was used to collect data.

### Tools Used

The tools used for the study includes

- Questionnaire on Perception towards Crowd sourcing, (Rethy 2017). Likert type questionnaire was administered on the sample. The tool consisted of 25 statements with strongly agree (5), Agree (4), Undecided (2), Disagree (2), Strongly Disagree (1). Content validity was ensured. Split half reliability was administered and the value came to 0.85 which shows that the tool is highly reliable.
- Problem Solving Ability Scale (Rethy, 2017) was used, for analyzing the problem solving ability of the employees. It consisted of 20 statements. Here also, content validity was ensured and split half reliability factor came to 0.80, which shows that, the tool is valid and reliable one.

### Analysis and Interpretation

#### PERCEIVED LEVEL OF CROWD SOURCING OF EMPLOYEES WORKING IN ITS SECTOR

Based on the mean score, the level of perception on crowd sourcing are being rated, by using a grading table, where the score ranges from (1- 42 ) is rated as low level, ( 43 - 84 ) as moderate level and (85-125) as high level.

**Table 1: Crowd Sourcing- Descriptive Statistics**

Descriptive Statistics	Crowd Sourcing
Mean	117.83
Median	119.00
Mode	120
Standard Deviation	5.119
Skewness	-.722
Kurtosis	169

Table 1 show that, the mean value is 117.83 with a standard deviation of 5.119, which reveals that, there exists a high level of perception of crowd sourcing, for employees working in IT sector.

Based on the mean score, the level of Problem Solving Ability of Employees are being rated, by a using a grading table, where the score ranges from (1-40) is rated as low level, (41 - 81) as moderate level and (82-120) as high level.

#### PERCEIVED LEVEL OF PROBLEM SOLVING ABILITY OF EMPLOYEES WORKING IN ITS SECTOR

**Table 2: Problem Solving Ability- Descriptive Statistics**

Descriptive Statistics	Problem Solving Ability
Mean	115.34
Median	115.00
Mode	114
Standard Deviation	3.333
Skewness	-408
Kurtosis	-418

Table 2 shows that, the mean value is 115.34, with a standard deviation of 3.333, which reveals that, exists a high level of perception of crowd sourcing for employees working in IT sector.

**SIGNIFICANT DIFFERENCE OF PERCEPTION TOWARDS CROWD SOURCING AND PROBLEM SOLVING ABILITY AMONG EMPLOYEES OF IT INDUSTRY BASED ON GENDER AND LOCALITY OF THE INDUSTRY**

**Table 3: Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Crowd sourcing	150	100	.000	.935	100	.000

Test of Normality was administered and it showed that, the continuous variable Crowd Sourcing is having a normal distribution.

**Table 4: Comparison of the Perception on Crowd Sourcing of the Employees of IT Sector Based on Gender**

Gender	Frequency	Mean	Standard Deviation	t	p-value
Male	52	120.25	4.237	5.609	0.000
Female	48	115.21	4.713		

The data relating to the Gender wise analysis of perception on crowd sourcing is presented in Table 4. It shows that the male employees (Mean Score= 120.25) perception on crowd sourcing is more than their female counterparts.

As the t value is 5.609 and p-value 0.000, it can be concluded that there exists significant difference in the perceptions of Male and Female employees regarding the perception towards crowd sourcing in IT sector.

**Table 5: Comparison of the Perception on Crowd Sourcing of the Employees of IT Sector Based on Locality**

Locality	Frequency	Mean	Standard Deviation	t	p-value
Urban	50	120.78	2.873	7.034	0.000
Semi Urban	50	114.88	5.189		

Here also in the Table 5 the p value is 0.000 which shows that significant difference exists in the perception of employees towards Crowd sourcing based on locality. An employee working in urban areas is having more perception towards Crowd sourcing when compared with the employees in semi urban areas of IT sector.

**Table 6: Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Problem solving	.095	100	.027	.962	100	.006

Table 6 shows that, the distribution of Problem Solving Ability scores is also having normality.

**Table 7: Comparison of the Problem Solving Ability of the Employees of IT Sector Based on Gender**

Locality	Frequency	Mean	Standard Deviation	t	p-value
Male	52	115.98	3.340	5.377	0.000
Female	48	112.56	3.017		

Table 7 clearly indicates that the Problem Solving Ability of Female employees in IT sector significantly differs from the male employees. The mean value shows that, the male employees in the IT sector are having more Problem Solving Ability, than the female lot.

**Table 8: Comparison of the Problem Solving Ability of the Employees of IT Sector Based on Locality**

Locality	Frequency	Mean	Standard Deviation	t	p-value
Urban	50	116.48	2.690	7.351	0.000
Semi Urban	50	112.20	3.117		

Table 8 states that the p value is 0.000 which reveals that employees of Urban based IT sector differ from the semi urban area in Problem Solving Ability. Employees of Urban IT companies overbeat the semi urban ones.

### **CORRELATION BETWEEN PERCEPTION TOWARDS CROWD SOURCING AND PROBLEM SOLVING ABILITY AMONG EMPLOYEES OF IT INDUSTRY**

**Table 9: Correlations**

		Crowd sourcing	Problem solving
crowd sourcing	Pearson Correlation	1	.785**
	Sig. (2-tailed)		.000
	N	100	100
problem solving	Pearson Correlation	.785**	1
	Sig. (2-tailed)	.000	
	N	100	100

\*\* . Correlation is significant at the 0.01 level (2-tailed)

Table 9 shows that, there exists positive correlation between the Perceptions on Crowd sourcing and Problem Solving Ability of employees, working in IT sector.

#### **Tenability of the hypothesis**

The tenability of hypotheses based on the result of statistical analysis is discussed above.

- The first and second hypothesis states that there is a high level of Perception towards Crowd sourcing and Problem Solving Ability among employees of IT sector. Since, the grading of Crowd sourcing and Problem Solving Ability shows high level value, these two hypotheses are fully substantiated.
- Next hypothesis mentioned that, there existed significant difference on perception, towards crowd sourcing and problem solving ability, among employees of IT industry, based on gender and locality of the industry. Results showed that, there exists considerable variations based on gender and locality, for both the variables and hence, this hypothesis is also accepted.
- The last hypothesis was that, there exists a positive correlation between perception towards crowd sourcing and problem solving ability, among employees of IT industry and hence, this also is accepted.

### **CONCLUSIONS**

Crowd sourcing is an information gathering platform, which solicits the contributions of knowledge from a large group of people, ranging from experts to common people. Crowd sourcing is a phenomenon, which has to be encouraged not only in IT sector, but also in all profitable and non profitable institutions. If, it is properly executed, it helps to reduce the cost, overhead, minimize management work load, optimizes creativity, increases problem solving abilities of employees and management, helps in decision making and ultimately results the organizations, to attain its target at a faster pace.

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