



A STUDY ON PERCEPTION OF EMPLOYEES ON GREEN CLOUD ACCOUNTING IN INFORMATION TECHNOLOGY COMPANIES IN NATIONAL CAPITAL REGION, INDIA

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Abstract

Green cloud computing is necessary for controlling data centers and servers remotely and making them more energy efficient and reliable economically and performing effectively. The results reveal that green cloud accounting is applying virtualization technologies, useful for predicting the demand, reducing the use of hazardous materials, minimizing electronic wastes, efficiently utilizing resources, using renewable energy sources, and helping the sustainability of the environment as perceived by employees in IT companies. A significant difference exists amongst perceptions of employees on green cloud accounting in IT companies and their profiles. Perception of employees on green cloud accounting is positively, moderately, and significantly related to their job performance.

The present paper has brought findings on green cloud accounting by a decrease in usage of energy considerably and diminishing carbon emission to a large extent and decreasing the cost of operations in IT companies.

Keywords: Employees, Green Cloud Computing, Perception, Information Technology

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1. INTRODUCTION

Green computing is the practice and application of designing, manufacturing, using and disposing of servers, computers and related sub-systems namely storage components, monitors, printers, communication systems and networking efficiently with minimum impact on the environment (Kaur and Midha, 2016).

The core objective of green computing is to decrease the use of harmful substances, maximize energy use efficiency and promote the recycling of waste materials (Zhang et al 2016). Green computing is achieved through the proper allocation of resources, adoption of virtualization technologies and longevity of products (Yang et al 2011) that aims to improve the performance of organization and employees.

The emergence of green cloud computing is highly associated with the progress of green data centers because they are the main components in cloud computing (Xu et al 2012). Green cloud computing is very important for the protection of the environment as the data centers are constructed and worked based on the principle of green computing (Baliga et al 2011).

In the model business environments, green cloud computing is necessary for controlling data centers and servers remotely and making them more energy efficient and reliable economically and performing effectively (Samizadeh, 2017).

As data is expanding very largely, green cloud computing is facing the problem of infrastructure for computation which reduces use of energy and improve quality of reliable services and it should be cost-effective (John, 2014). With this background, it is imperative to study perception of employees on green cloud accounting in IT companies.

2. REVIEW OF RELATED LITERATURE

Garg et al (2011) found that green cloud accounting provided green services and it reduced carbon emissions and damage to the environment and it had increased energy use efficiency, recycling of wastes and operational efficiency.

Hulkury and Doomun (2012) concluded that green cloud accounting had reduced energy use and carbon emission and it had improved efficiency and storage capacity and productivity.

Atrey et al (2013) revealed that green cloud accounting had reduced usage of energy, water usage and emission of carbon and it has also increased efficiency of data centers, productivity

and computing power and it had also improved reuse of energy sources.

Pandya (2014) indicated that green cloud accounting had improved energy efficiency, productivity and operational efficiency and it had decreased use of harmful materials and carbon footprints and it promoted recyclability of old products.

Pazowski (2015) showed that green cloud accounting required huge investment on infrastructure and it had reduced energy use, emission of carbon and wastages and cost associated with various operations.

D'Souza et al (2016) found that green cloud accounting was used to improve energy efficiency, recycling and condition of environment and it was used to reduce carbon emissions and decrease cost of operations and it had improved productivity.

Radu (2017) concluded that green cloud accounting was trustworthy and reliable and it had improved performance of organizations and it had reduced energy and water use, carbon emission and use of harmful materials.

Kumar et al (2018) revealed that green cloud accounting had reduced water and energy consumption and carbon footprints and it had increased productivity and efficiency of operations.

Bansal and Khan (2019) indicated that green cloud accounting was helpful to increase energy and water use efficiencies, recycling wastes and performance and it was useful to reduce pollution and carbon emissions and environmental damages.

Agrawal et al (2020) showed that green cloud accounting had improved energy and water use efficiencies, data center efficiency and productivity and it had reduced carbon emission and pollution of environment.

Nizzad (2021) found that green cloud accounting had reduced carbon emission to environment and it had used green technologies and improved energy and water efficiencies and recycling of wastes.

3. OBJECTIVES OF THE STUDY

1) To study the perception of employees on green cloud accounting in IT companies.

- 2) To examine differences amongst perceptions of employees on green cloud accounting in IT companies and their profiles.
- 3) To assess the relationship amongst the perception of employees on green cloud accounting and their job performance in IT companies.
- 4) To suggest measures on green cloud accounting in IT companies.

4. METHODOLOGY

The random sampling method was employed for the selection of employees working in IT companies in NCR. The questionnaire method was used to collect data from 240 employees of IT companies. Profile of employees in IT companies is examined through the percentage and perception of employees on green cloud accounting by using mean and standard deviation. The difference between the perception of employees on green cloud accounting in IT

companies and their profile is found by employing ANOVA and t-tests. Relation amongst perceptions of employees on green cloud accounting and their job performance in IT companies is assessed by applying correlation analysis.

5. RESULTS

5.1. PROFILE OF EMPLOYEES IN IT COMPANIES

The profile of employees in IT companies is shown in Table-1. Larger than half of the employees are males (54.17 percent), higher than one-fourth of them are falling in the age category of 26 – 30 years (29.58 percent) and followed by the age category of 31-35 years (28.75 percent), near to two-fifths of them are B.E. holders (36.25 percent), greater than two-fifth of them are working low level of management (43.33 percent) and more than one-third of them are having working experience of 1– 4 years (35.42 percent).

Table-1. Profile of Employees in IT Companies

Profile	Number (n = 240)	%
Gender		
Male	130	54.17
Female	110	45.83
Age		
21 – 25 years	46	19.17
26 – 30 years	71	29.58
31 – 35 years	69	28.75
36 – 40 years	54	22.50
Education		
B.E.	87	36.25
M.E.	34	14.17
B.Tech.	80	33.33
M.C.A.	39	16.25
Level of Management		
Low	104	43.33
Middle	76	31.67
Top	60	25.00
Working Experience		
1– 4 years	85	35.42
5 – 8 years	78	32.50
9 – 12 years	50	20.83
13 – 16 years	27	11.25

5.2. PERCEPTION OF EMPLOYEES ON GREEN CLOUD ACCOUNTING IN IT COMPANIES

The perception of employees on green cloud accounting in IT companies is shown in Table-2.

Table-2. Perception of Employees on Green Cloud Accounting in IT Companies

Perception on Green Cloud Accounting	Mean	Standard Deviation
Green cloud accounting is applying virtualization technologies	3.93	0.75
Green cloud accounting is useful for predicting the demand	3.88	0.84
Green cloud accounting is decreasing usage of energy considerably	3.39	1.02
Green cloud accounting is reducing use of hazardous materials	3.84	0.87
Green cloud accounting is minimizing electronic waste	3.91	0.79
Green cloud accounting is diminishing carbon emission in large extent	3.34	1.05
Green cloud accounting is efficiently utilizing resources	3.76	0.95
Green cloud accounting is decreasing cost of operations	3.31	1.06
Green cloud accounting is using renewable energy sources	3.86	0.81
Green cloud accounting is helping for sustainability of environment	3.78	0.99

The mean value depicts in Table-2 reveals that the employees are agreed with green cloud accounting is applying virtualization technologies, green cloud accounting is useful for predicting demand, green cloud accounting is reducing the use of hazardous materials, green cloud accounting is minimizing electronic waste, green cloud accounting is efficiently utilizing resources, green cloud accounting is using renewable energy sources and green cloud accounting is helping for the sustainability of the environment, while, they are neutral with green cloud accounting is decreasing usage of energy considerably (Mean Value-3.39), green cloud accounting is diminishing carbon emission in large extent

(Mean Value-3.34), and green cloud accounting is decreasing cost of operations (Mean Value-3.31).

5.3. PERCEPTION OF EMPLOYEES ON GREEN CLOUD ACCOUNTING IN IT COMPANIES AND THEIR PROFILE

The results on the relation amongst perception of employees on green cloud accounting in IT companies and their profiles are shown in Table 3 to 7.

5.3.1. Perception on Green Cloud Accounting and Gender

The relation amongst the gender of employees and perception on green cloud accounting is shown in Table-3.

Table-3. Perception on Green Cloud Accounting and Gender

Gender	N	Mean	Standard Deviation	t-Value	Significance
Male	130	39.68	4.63	4.658**	.000
Female	110	36.38	5.13		

** Significant in 1% level

The mean value of perception on green cloud accounting for male and female employees are 39.68 and 36.38. The t-value is 4.658 disclosing that there is a significant difference exists amongst the perception on green cloud accounting and gender of employees. It explicates that the perception of male employees on green cloud accounting is higher as compared to females.

5.3.2. Perception on Green Cloud Accounting and Age

The relation amongst age of employees and perception on green cloud accounting is shown in Table-4.

Table-4. Perception on Green Cloud Accounting and Age

Age	N	Mean	Standard Deviation	F-Value	Significance
21 – 25 years	46	36.68	5.49	5.342**	.000
26 – 30 years	71	38.57	4.58		
31 – 35 years	69	39.97	4.29		
36 – 40 years	54	36.89	5.16		

** Significant in 1% level

The mean value of perception on green cloud accounting for employees falling in age category of 21 – 25 years, 26 – 30 years, 31 – 35 years and 36 – 40 years are 36.68, 38.57, 39.97 and 36.89 in

sequence. The F-value (5.342) shows that there is a significant difference exists amongst the perception on green cloud accounting and age of employees. It indicates that the perception of employees falling in age category of 31 – 35 years on green cloud accounting is higher as compared to other age categories.

5.3.3. Perception on Green Cloud Accounting and Education

The relation amongst the education of employees and perception on green cloud accounting is shown in Table-5.

Table-5. Perception on Green Cloud Accounting and Education

Education	N	Mean	Standard Deviation	F-Value	Significance
B.E.	87	37.44	5.32	5.876**	.000
M.E.	34	38.14	4.68		
B.Tech.	80	39.72	4.26		
M.C.A.	39	36.82	5.24		

** Significant in 1% level

The mean value of perception on green cloud accounting for employees having B.E., M.E., B.Tech., and M.C.A. is 37.44, 38.14, 39.72 and 36.82 are shown in Table-5. The F-value is 5.876 indicating that a significant difference exists amongst the perception on green cloud accounting and education of employees. The results found that the perception of employees having B.Tech.,

on green cloud accounting, followed by M.E., B.E. and M.C.A.

5.3.4. Perception on Green Cloud Accounting and Level of Management

The relation amongst level of management of employees and perception on green cloud accounting is shown in Table-6.

Table-6. Perception on Green Cloud Accounting and Level of Management

Level of Management	N	Mean	Standard Deviation	F-Value	Significance
Low	104	36.54	5.18	5.735**	.000
Middle	76	37.72	4.98		
Top	60	39.84	4.48		

** Significant in 1% level

Mean value of perception on green cloud accounting for employees working in low, middle and top management levels are 36.54, 37.72 and 39.84 in sequence. The F-value is 5.735 disclosing that a significant difference exists amongst perception on green cloud accounting and the level of management of employees. It means that perception of employees working in the top

management level on green cloud accounting is higher as compared to other management levels.

5.3.5. Perception on Green Cloud Accounting and Working Experience

The relation amongst working experience of employees and perception on green cloud accounting is shown in Table-7.

Table-7. Perception on Green Cloud Accounting and Working Experience

Working Experience	N	Mean	Standard Deviation	F-Value	Significance
1– 4 years	85	37.96	5.16	5.580**	.000
5 – 8 years	78	36.17	5.27		
9 – 12 years	50	38.44	4.76		
13 – 16 years	27	39.53	4.34		

** Significant in 1% level

Mean value of perception on green cloud accounting for employees having working experience of 1– 4 years, 5 – 8 years, 9 – 12 years and 13 – 16 years are 37.96, 36.17, 38.44 and 39.53 in sequence. The F-value is 5.580 disclosing that significant difference exists amongst perception on green cloud accounting and the

working experience of employees. The results reveal that the perception of employees having working experience of 13 – 16 years on green cloud accounting is higher as compared to other working experiences.

5.4. RELATION AMONGST PERCEPTION OF EMPLOYEES ON GREEN CLOUD ACCOUNTING AND THEIR JOB PERFORMANCE IN IT COMPANIES

The correlation analysis is employed to assess the relation amongst perception of employees on

green cloud accounting and their job performance in IT companies and the result is shown in Table 8.

Table-8. Perception of Employees on Green Cloud Accounting and their Job Performance in IT Companies

Particulars	Correlation Coefficient
Perception of Employees on Green Cloud Accounting and Their Job Performance in IT Companies	0.58**

** Significance in 1% level

The value of the correlation coefficient amongst perception of employees on green cloud accounting and their job performance in IT companies is 0.58 and it explains that they are moderately and positively related to each other.

6. CONCLUSION AND SUGGESTIONS

The findings of this study elucidate that green cloud accounting is applying virtualization technologies, useful for predicting the demand, reducing the use of hazardous materials, minimizing electronic wastes, efficiently utilizing resources, using renewable energy sources and helping for the sustainability of environment as perceived by employees in IT companies.

Significant difference exists amongst the perception of employees on green cloud accounting in IT companies and their profile. Perception of employees on green cloud accounting is positively, moderately and significantly related to their job performance. Green cloud accounting should decrease the usage of energy considerably and it must diminish carbon emissions to a large extent and it should decrease the cost of operations in IT companies.

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