CHAPTER 1

A Critical study of Green Practices Adopted by IT Organizations in Pune Region: Pilot Study

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ABSTRACT

A research entitled "A Critical study of Green Practices adopted by IT Organizations in Pune region" was undertaken to assess the impact of green practices on ESG organizational performance of IT companies from Pune region. Before the main study was undertaken a pilot study was conducted. This paper presents the results of the pilot study was undertaken based on a sample size of 100 employee respondents of the IT Companies. Results show that current levels of adoption of green practices by IT organizations are not satisfactory. All the major departments of the IT organizations like Marketing, Operations, HR, Finance, and others have started adopting green practices, but the adoption levels are unsatisfactory. Further, social expectations, culture, organizational support, and stakeholder pressure impact the adoption levels of green practices by IT organizations. Also, adoption of green practices impacts ESG performance.

Keywords: Green practices; IT organizations; ESG performance; Pune region.

1.0 Introduction

A research entitled "A Critical study of Green Practices adopted by IT Organizations in Pune region" was undertaken to assess the impact of modern business practices on organizational performance. The objectives of the study were:

- To study the current scenario and significance of green practices adopted by IT organizations in Pune region,
- To identify the different functions such as Marketing, Operations, Finance and HRM where green practices are adopted by IT organizations,
- To find out if social expectations, culture, organizational support, and stakeholder pressure impact the adoption levels of green practices by IT organizations,
- To ascertain the impact of green practices adopted by the IT organizations on their environmental, social, and governance (ESG) performance, and

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- To offer suggestions and recommendations to improve the adoption of green practices by IT organizations.

Before the main study was undertaken a pilot study was conducted to get a feel of issues encountered in data collection, to test the usage of the questionnaire, to test the hypotheses as per research methodology, and to test validity and reliability of questionnaire prepared for primary data collection. This article presents the results of the pilot study.

2.0 Methodology

- *Population:* There are around 3200 IT companies in Pune (datamites.com, 2022).
- *Sample*: The sample size for a population of 3200 IT companies at a 95% Confidence Level with 5% Confidence Interval is 343 (Krejcie and Morgan, 1970). It was rounded off to 400 to be on the safer side. An inclusion criterion for selection of the sample was minimum employee size of 50.
- *Sampling unit and respondents*: Employees from various departments of the IT companies were chosen as the sampling unit.

Thus, the targeted employee sample was fixed at 400. Accordingly, a questionnaire was mailed using Google Forms to around 800 employees and the survey was closed on the receipt of the 400th response (leading to a response rate of around 50%).

- *Sampling Method:* Convenience and Snowball sampling methods were used considering the practical constraints.

For the pilot study, 100 employees were selected as sample representing 25% of the main study sample.

- *Instrument for survey*: A questionnaire was designed for the study. The questionnaire had five sections. Each section had ten statements and responses were sought on a 5-point Likert scale.

The questionnaire was tested for validity and reliability as under:

- *Test of validity*: hypotheses testing method, questionnaire etc. were validated by the Guide and other experts in the field so as to ensure that the measurement was adequate and accurate in terms of the desired direction.

A check-list as prescribed by Brown *et al.* (2015) was applied for validation as under:

Table 1: Application of Brown *et al.* Check-list for Validation

Step No.	Step	Action
1	Establish Face Validity	The questionnaire has been validated for face validity by guide and group of experts.
2	Clean Collected Data	The mechanism of data collection ensured that there was no invalid entry because the entry was through selection from options.
3	Use Principal Components Analysis (PCA)	Since too many variables were not under consideration in the study PCA was not used.
4	Check Internal Consistency	This was done through Cronbach's Alpha

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- *Test of reliability*: Cronbach's Alpha and other tests were applied on the questionnaire using "Siegle Reliability Calculator" an excel program. The Cronbach's alpha scores for the entire questionnaire and its section are given on Table 2.

Table 2: Cronbach Alpha Scores

Sr. No.	Section	Number of questions	Cronbach Alpha
1	I	10	0.87
2	II	10	0.87
3	III	10	0.88
4	IV	10	0.71
5	V	10	0.78
6	Entire questionnaire	50	0.89

As Cronbach's alpha score was more than 0.70, the questionnaire was considered reliable.

2.1 Hypotheses formulation

The hypotheses formulation is presented below:

- Ho1: The current levels of adoption of green practices by IT organizations is satisfactory
- Ha1: The current levels of adoption of green practices by IT organizations is not satisfactory
- Ho2: Social expectations, culture, organizational support, and stakeholder pressure do not impact the adoption levels of green practices by IT organizations
- Ha2: Social expectations, culture, organizational support, and stakeholder pressure impact the adoption levels of green practices by IT organizations
- Ho3: Adoption of green practices do not impact ESG performance
- Ha3: Adoption of green practices impacts ESG performance

2.2 Scheme formed for testing of hypotheses

- Survey questionnaire was designed to collect primary data in order to test the hypothesis as stated earlier
- The questionnaire was administered to 400 employees working in IT companies from Pune region. The questionnaire was divided into four sections. Each section had ten questions/statements.
- Responses to these questions were taken on 5-point Likert scale of agree/disagree.
- Weights of 2 were used to value extreme (strongly) responses and distinguish them from moderate (somewhat) responses
- Average agreement/disagreement score for each of the sections was calculated for all the 10 sub-responses under each of them for the 400 respondents

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- First two hypotheses (H1 and H2) were tested using a t-test, by comparing the average agreement scores (average of 10 sub-responses) with a hypothesized population mean of 50% agreement, connoting an event by chance
- A t-test was used since the standard deviation of the population was unknown
- For the 3rd hypothesis regression analysis was used
- Responses were valued as 0 for Cannot say, 1 for Somewhat agree, 2 for Strongly agree, -1 for Somewhat disagree, and -2 for Strongly disagree and were averaged for each section using these values
- In case of the 3rd hypothesis Current levels of adoption of green practices (Section I) was taken as independent variable while ESG performance (Section III) was taken as the dependent variable
- P-values were calculated and the null hypotheses were checked for rejection or non-rejection at 95% confidence level.

3.0 Data analysis

3.1 Descriptive analysis – Profile of the sample

From the departmental data it seems that while all the departments have started adoption of green practices, the current adoption levels are far from satisfactory.

Table 3: Profile of Sample for Pilot Study

Sr. No.	Variable	Options	Count	Percentage
1	Status of the Organization	Private Limited Company	83	83%
		Public Limited Company	17	17%
2	Business area	Software services	30	30%
		Hardware	42	42%
		Mix	28	28%
3	Standing of the Company	<5 years	6	6%
		5-10 years	42	42%
		10-15 years	44	44%
		>15 years	8	8%
4	Turnover of the IT Company	Rs.<100 crores	42	42%
		Rs.100-1000 crores	54	54%
		Rs. >1000 crores	4	4%
5	Gender of the employee respondent	Male	47	47%
		Female	53	53%
6	Age of the employee	<30 years	28	28%
		30-39 years	31	31%
		40-49 years	37	37%
		>=50 years	4	4%

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7	Work experience	<5 years	17	17%
		5-10 years	41	41%
		10-20 years	29	29%
		>20 years	13	13%
8	Educational qualification	Graduation	19	19%
		Post-Graduation	72	72%
		Professional	9	9%
9	Department	Marketing	16	16%
		Operations	34	34%
		Finance	29	29%
		HRM	19	19%
		Others	2	2%

3.2 Inferential analysis (Testing of hypotheses)

The average disagreement/agreement for the first two sections of the questionnaire is given below:

Table 4: Average Agreement Ratings for Section I

Statements	1	2	3	4	5	6	7	8	9	10	Avg.
Disagree %	85%	91%	84%	79%	88%	86%	75%	87%	90%	82%	85%

Table 5: Average Agreement Ratings for Section II

Statements	1	2	3	4	5	6	7	8	9	10	Avg.
Agree %	74%	83%	79%	72%	82%	76%	79%	74%	80%	81%	78%

The first two hypotheses, H1 and H2 were tested using a t-test, by comparing the average agreement scores (average of 10 sub-responses) with a hypothesized population mean of 50% disagreement/agreement, connoting an event by chance. The results are tabulated below:

Table 6: Hypothesis Testing – H1 to H2

Parameter	**H1**	**H2**
Questionnaire section	I	II
Sample Mean ($\bar{x}$)	85% disagreement	78% agreement
SD of sample	0.92297	1.03351
Hypo. population mean (μ)	50% disagreement	50% agreement
N	100	100
t-value	3.81	2.70
p-value	0.000120	0.004038

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Both the two null hypotheses were rejected in favor of their respective alternates. For the 3rd hypothesis regression analysis was used. Responses were valued as 0 for Cannot say, 1 for Somewhat agree, 2 for Strongly agree, -1 for Somewhat disagree, and -2 for Strongly disagree and were averaged for each section using these values In case of the 3rd hypothesis ESG performance (Section III) was taken as independent variable while current levels of adoption of green practices (Section I) was taken as the dependent variable. Results of the regression analysis are given below:

Table 7: Regression Statistics – H3

R Squared	0.939
Adjusted R Square	0.938
Observations	100

Table 8: Hypothesis Testing – H3

	df	**SS**	**MS**	**F**	**p-value**
Model	1.000	74.16	74.16	1505.935	<0.0001
Error	98.000	4.826	0.049		
Total	99.000	78.920			

Going by the R^2 value of 93.90% read along with p-value <0.0001, the null hypothesis was rejected in favor of the alternate which means, there is an impact (positive) of non-adoption of green practices on ESG performance of the IT companies. This means that unsatisfactory levels of adoption of green practices are leading to poor ESG performance.

3.3 Summary of inferential analysis

Summary of the testing of all the five hypotheses along with their interpretation is given below:

Table 9: Summary of Inferential Analysis

Sr. No.	**Data Analysis**	**Outcome**	**Interpretation**
1	Current levels of adoption of green practices by the IT companies	Average disagreement 85% p-value 0.000120	As the mean score of the sample and the hypothesized population mean differ significantly as indicated by p-value, rejected the null hypothesis, the current levels of adoption of green practices by IT organizations is satisfactory.
2	Factors impacting the adoption levels of green practices	Average agreement 78% p-value 0.004038	As the mean score of the sample and the hypothesized population mean differ significantly as indicated by p-value, rejected the null hypothesis, social expectations, culture, organizational support, and stakeholder pressure do not impact the adoption levels of green practices by IT organizations.
3	Impact of adoption of green practices on ESG performance	R^2 0.939, p-value <0.0001	As the R^2 is significant as indicated by p-value, rejected the null hypothesis, adoption of green practices do not impact ESG performance.

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4.0 Conclusions

Current levels of adoption of green practices by IT organizations are not satisfactory. All the major departments of the IT organizations like Marketing, Operations, HR, Finance, and others have started adopting green practices, but the adoption levels are unsatisfactory. Further, social expectations, culture, organizational support, and stakeholder pressure impact the adoption levels of green practices by IT organizations. Also, adoption of green practices impacts ESG performance.

In case of pilot study following conclusions were drawn:

a) Data collection is possible with reasonable comfort
b) Processing of the data into variables required for inferential data analysis can be done
c) The hypotheses can be duly tested as per research methodology

The questionnaire prepared for primary data collection tests well for validity and reliability. However, respondents demanded confidentiality.

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