A STUDY OF DISASTER RECOVERY MANAGEMENT PRACTICES ADOPTED BY BUSINESS ORGANIZATIONS IN TOURISM SECTOR IN PUNE MUNICIPAL CORPORATION AREA

Sonali Bhor
Post Graduate Department of Commerce,SNDT Women's University, Karve Road, and Pune

Abstract
A research entitled "A Study of Disaster Recovery Management Practices Adopted by Business Organizations in Tourism Sector in Pune Municipal Corporation area" was undertaken to evaluate various dimensions of disaster recovery management practices by organizations from tourism sector. 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 tourism organizations from Pune. Results show that there has been significant impact of COVID-19 on DRM practices of tourism organizations. Further, the DRM practices implemented by the tourism organizations have been effective. Also, there are major challenges faced by the tourism organizations in implementing DRM practices. At the same time, there is an impact of DRM practices on the tourism organizational performance, and the impact is positive.

***Keywords**: Disaster Recovery Management Practices, Tourism Organizations, Organizational Performance, COVID-19*

1. Introduction

A research entitled "A Study of Disaster Recovery Management Practices Adopted by Business Organizations in Tourism Sector in Pune Municipal Corporation area" was undertaken to evaluate various dimensions of disaster recovery management practices by organizations from tourism sector. The objectives of the study were:

i) To find out the impact of COVID-19 on DRM practices of tourism organizations,
ii) To evaluate if the DRM practices implemented by the tourism organizations have been effective or not,
iii) To ascertain the challenges faced by the tourism organizations in implementing DRM practices,
iv) To study the impact of DRM practices on the tourism organizational performance, and
v) To find out if the proposed improvements in DRM practices would be effective or not.

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. Methodology

Population- There are 370 Hotels (3 star and above), and 64 Tour and Travel Companies in Pune (Sources https://www.tripadvisor.in and https://www.ambitionbox.com/travel-and-tourism-companies-in-pune). Population works out to 21,700 employees assuming minimum 50 employees per organization.

Sample– The sample size for a population of 21,700 at a 95% Confidence Level with 5% Confidence Interval is 378 (Krejcie and Morgan, 1970). It was rounded off to 400 to be on the safer side.

Sampling unit and respondents: Employees with a minimum 5 years of experience representing hotels and tour & travel organizations were chosen as the sampling unit.

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 –The hypotheses, 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

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 in a table.

Table 2: Cronbach Alpha scores

Sr. No.	Section	Number of questions	Cronbach Alpha
1	I	10	0.896
2	II	10	0.914
3	III	10	0.815
4	IV	10	0.723
5	V	10	0.753
6	Entire questionnaire	50	0.921

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

Hypotheses formulation

The hypotheses formulation is presented below:

Ho1: There has been no impact of COVID-19 on DRM practices of tourism organizations

Ha1: There has been significant impact of COVID-19 on DRM practices of tourism organizations

Ho2: The DRM practices implemented by the tourism organizations have been ineffective

Ha2: The DRM practices implemented by the tourism organizations have been effective

Ho3: There are no major challenges faced by the tourism organizations in implementing DRM practices

Ha3: There are major challenges faced by the tourism organizations in implementing DRM practices

Ho4: There is no impact of DRM practices on the tourism organizational performance

Ha4: There is an impact of DRM practices on the tourism organizational performance

Ho5: The proposed improvements in DRM practices would not be effective

Ha5: The proposed improvements in DRM practices would be effective

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 employees of Hotels and Tour & Travel organizations. The questionnaire was divided into five 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 100 respondents
- Three hypotheses, H2, H3 and H5 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 1st and 4th 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 1st hypothesis COVID-19 and Disaster Recovery Management (Section I) was taken as independent variable while Disaster Recovery Management (DRM) Practices in Organizations from Tourism Sector (Section II) was taken as the dependent variable
- In case of the 4th hypothesis Disaster Recovery Management (DRM) Practices in Organizations from Tourism Sector (Section II) was taken as independent variable while Tourism Organizational Performance (Section IV) 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. Data analysis

a. Descriptive analysis – Profile of the sample

Table 3: Profile of sample for pilot study

Sr. No.	Variable	Categories	Count	Percentage
1	Category of organization	Hotel	89	89%
		Tour and Travel Company	11	11%
2	Status	Partnership Firm	31	31%
		Private Limited Company	37	37%
		Public Limited Company	32	32%
3	Standing of the Organization	5-10 years	38	38%
		10-15 years	35	35%
		>15 years	27	27%
4	Turnover of the Organization	Rs.<100 crores	31	31%
		Rs.100-500 crores	64	64%
		Rs. >500 crores	5	5%
5	Gender	Male	66	66%
		Female	34	34%
6	Age of employee	30-39 years	43	43%
		40-49 years	30	30%
		>=50 years	27	27%
7	Work experience in tourism sector	5-10 years	21	21%
		11-20 years	55	55%
		>20 years	24	24%
8	Educational qualification	Diploma	10	10%
		Graduation	29	29%
		PG	61	61%
9	Department	Operations	37	37%
		Marketing	31	31%
		Others	32	32%

b. Inferential analysis (Testing of hypotheses)

Ho1: There has been no impact of COVID-19 on DRM practices of tourism organizations

Ha1: There has been significant impact of COVID-19 on DRM practices of tourism organizations

In case of the 1st hypothesis COVID-19 and Disaster Recovery Management (Section I) was taken as independent variable while Disaster Recovery Management (DRM) Practices in Organizations from Tourism Sector (Section II) was taken as the dependent variable. Results of the regression analysis are given below:

Table 4: Regression statistics – H1

Regression Statistics	
R Squared	0.814
Adjusted R Square	0.812
r (Pearsons Correlation)	0.902
Observations	100

Table 5: Hypothesis testing – H1

	Df	*SS*	*MS*	*F*	*p-value*
Model	1.000	74.012	74.012	428.660	<0.0001
Error	98.000	16.921	0.173		
Total	99.000	90.932			

Going by the R^2 value of 81.40% read along with p-value <0.0001 and r (Pearsons correlation) value of 0.902, the null hypothesis, there has been no impact of COVID-19 on DRM practices of tourism organizations, was rejected in favor of the alternate which means, there has been significant impact (positive) of COVID-19 on DRM practices of tourism organizations.

Ho2: The DRM practices implemented by the tourism organizations have been ineffective

Ha2: The DRM practices implemented by the tourism organizations have been effective

The hypothesis was tested based on average responses to Section II of the questionnaire. Summary of the average responses to the ten statements of the said section is given below:

Table 6: Summary of responses to Section II of the questionnaire

Stat.	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	Average
Agree %	82%	77%	73%	70%	74%	68%	77%	76%	78%	78%	75%

The average agreement of the sample was compared with a hypothesized population mean of 50% agreement connoting an event by chance using a t-test and the results are given below:

Table 7: Testing of H2

Parameter	Value
Average = Ho (Sample mean)	75%
SD (Standard Deviation of sample)	0.900
H1 (Hypothesized mean of population)	50%
n (Sample Size)	100
t-value (Ho-H1) / ((SD) / √n)	2.83
p-value	0.002

Since, the p-value of 0.002 is <0.05, the null hypothesis, the DRM practices implemented by the tourism organizations have been ineffective, was rejected in favor of its alternate, the DRM practices implemented by the tourism organizations have been effective.

Ho3: There are no major challenges faced by the tourism organizations in implementing DRM practices

Ha3: There are major challenges faced by the tourism organizations in implementing DRM practices

The hypothesis was tested based on average responses to Section III of the questionnaire. Summary of the average responses to the ten statements of the said section is given below:

Table 8: Summary of responses to Section III of the questionnaire

Stat.	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10	Average
Agree %	78%	75%	93%	71%	69%	71%	85%	79%	84%	81%	79%

The average agreement of the sample was compared with a hypothesized population mean of 50% agreement connoting an event by chance using a t-test and the results are given below:

Table 9: Testing of H3

Parameter	Value
Average = Ho (Sample mean)	79%
SD (Standard Deviation of sample)	0.870
H1 (Hypothesized mean of population)	50%
n (Sample Size)	100
t-value (Ho-H1) / ((SD) / √n)	3.28
p-value	<0.0001

Since, the p-value of <0.0001 is <0.05, the null hypothesis, there are no major challenges faced by the tourism organizations in implementing DRM practices, was rejected in favor of its alternate, there are major challenges faced by the tourism organizations in implementing DRM practices.

Ho4: There is no impact of DRM practices on the tourism organizational performance

Ha4: There is an impact of DRM practices on the tourism organizational performance

In case of the 4th hypothesis Disaster Recovery Management (DRM) Practices in Organizations from Tourism Sector (Section II) was taken as independent variable while Tourism Organizational Performance (Section IV) was taken as the dependent variable. Results of the regression analysis are given below:

Table 10: Regression statistics – H4

Regression Statistics	
R Squared	0.445
Adjusted R Square	0.439
r (Pearsons Correlation)	0.667
Observations	100

Table 11: Hypothesis testing – H4

	Df	*SS*	*MS*	*F*	*p-value*
Model	1.000	29.086	29.086	78.623	<0.0001
Error	98.000	36.254	0.370		
Total	99.000	65.340			

Going by the R^2 value of 44.50% read along with p-value <0.0001 and r (Pearsons correlation) value of 0.667, the null hypothesis, there is no impact of DRM practices on the tourism organizational performance, was rejected in favor of the alternate which means, there is an impact (positive) of DRM practices on the tourism organizational performance.

Ho5: The proposed improvements in DRM practices would not be effective

Ha5: The proposed improvements in DRM practices would be effective

The hypothesis was tested based on average responses to Section V of the questionnaire. Summary of the average responses to the ten statements of the said section is given below:

Table 12: Summary of responses to Section V of the questionnaire

Stat.	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	5.10	Average
Agree %	94%	94%	93%	93%	96%	93%	93%	93%	93%	91%	93%

The average agreement of the sample was compared with a hypothesized population mean of 50% agreement connoting an event by chance using a t-test and the results are given below:

Table 13: Testing of H5

Parameter	Value
Average = Ho (Sample mean)	93%
SD (Standard Deviation of sample)	0.642
H1 (Hypothesized mean of population)	50%
n (Sample Size)	100
t-value (Ho-H1) / ((SD) / √n)	6.75
p-value	<0.0001

Since, the p-value of <0.0001 is <0.05, the null hypothesis, The proposed improvements in DRM practices would not be effective, was rejected in favor of its alternate, the proposed improvements in DRM practices would be effective.

Summary of inferential analysis

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

Table 14: Summary of inferential analysis

Sr. No.	Data Analysis	Outcome	Interpretation
1	Impact of COVID-19 on DRM practices	R^2 0.814, p-value <0.0001, r 0.902	As the R^2 is significant as indicated by p-value, rejected the null hypothesis, there has been no impact of COVID-19 on DRM practices of tourism organizations.
2	Effectiveness of DRM practices	Average agreement 75% p-value 0.002	As the mean score of the sample and the hypothesized population mean differ significantly as indicated by p-value, rejected the null hypothesis, the DRM practices implemented by the tourism organizations have been ineffective.
3	Challenges in implementing DRM practices	Average agreement 79% p-value <0.0001	As the mean score of the sample and the hypothesized population mean differ significantly as indicated by p-value, rejected the null hypothesis, there are no major challenges faced by the tourism organizations in implementing DRM practices.
4	Impact of DRM practices on tourism organizational performance	R^2 0.445, p-value <0.0001, r 0.667	As the R^2 is significant as indicated by p-value, rejected the null hypothesis, there is no impact of DRM practices on the tourism organizational performance.
5	Effectiveness of proposed improvements	Average agreement 93% p-value <0.0001	As the mean score of the sample and the hypothesized population mean differ significantly as indicated by p-value, rejected the null hypothesis, the proposed improvements in DRM practices would not be effective.

4. Conclusion

Results show that there has been significant impact of COVID-19 on DRM practices of tourism organizations. Further, the DRM practices implemented by the tourism organizations have been effective. Also, there are major challenges

faced by the tourism organizations in implementing DRM practices. At the same time, there is an impact of DRM practices on the tourism organizational performance, and the impact is positive. And, the proposed improvements in DRM practices would be effective.

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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