

3. Research Methodology

3.1 Introduction:

In this chapter, we focus on elaboration of the methodology adapted for the purpose of conducting this research in order to find out the factors and their effects on the performance of the organizations. This study has been investigated with the assistance of different techniques including questionnaires, data analysis, and different discussions. This research sheds light on elucidating as well as interpretative reason. It stresses the importance of digitization of logistics and its effects on the performance of the organizations. For the purpose of this study, FMCG sector has been chosen. Applying essential research and instruments including meetings as well as polls, information was collected to confirm the legitimacy and the extent of this research in Pakistan.

3.2 Research instrument

Questionnaire:

The tool used for the purpose of gathering the data for this thesis is questionnaire which is based on questions divided into each category of independent and dependent variables. Each of these questions included in the instrument of research has been adapted from different sources and is based on the LIKERT'S Scale for measuring the reactions collected in this research.

3.3 Face content & validity

The content of the questionnaire had to be necessarily validated by a PhD professor so for this purpose a highly professional PhD professor from a renowned institute of Karachi, Pakistan was contacted. After thorough reading and examination of the questionnaire it was validated by him.

3.4 Research design

As stated earlier, the purpose of this research is to find out the effects of four independent variables, which assists Digitization of logistics' function, on the corporate performance. The most commonly used technique to find out the relationship between the dependent and independent variables is the statistical analysis of correlation between them. So, in order to fulfill the need of the research of finding out the relationship, which might exist between the given dependent and independent variables, correlation analysis was conducted using SPSS. The results helped us to examine the relationship of the variables with one another which could be either positive or negative.

3.5 Types of data

The data taken for this research is of two types, explicitly, qualitative and quantitative data. This study leans towards the measurement of performance of corporations which is why the data included in this research is quantitative data. Moreover, the variables taken to be investigated for the purpose of confirming that digitization helps in strengthening the performance also intends to measure and confirm the relationship between the variables and it depends on numerical

On the other hand, the research is also based upon facts and arguments based on the non-numerical data which is gathered through different articles.

3.6 Sample size

Since the purpose of this research is to find out the importance of digitization of logistics and its significance on the corporate performance specifically in the FMCG sector of Pakistan, so for its commencement sample size of Two Hundred respondents have been taken.

The respondents chosen for filling the research questionnaire were selected from the top ranking FMCG companies of Pakistan because of the fact that these companies, some of them being multi-national, would have the understanding of the modern challenges related to technology and the complexities of the transforming business environments and the need for digitizing their logistical operations.

3.7 Study findings

This section explains the findings of the research which was conducted for the purpose of finding out the relation that might exist between one dependent and four independent variables. For this purpose, different statistical tests were performed on the collected data.

3.8 Ethical considerations

The research was conducted also by fulfilling the ethical and moral responsibilities as a researcher. As per the ethical duties, the information and data gathered from the respondents through the questionnaires are to be kept confidential and to be used only for the sake of this research. Moreover, the process of data gathering for this research was only carried forward after the permission from the higher management of the related FMCG companies was taken.

4. Results and Discussion

4.1 Analysis of the data

This study was based upon the study of the relationship between the given independent and dependent variables. For this purpose, the survey was conducted and results were gathered. These results show the existing relationship between the mentioned variables.

The results show that three of the given independent variables namely, **Globalization**, **Technology**, and **Multi-Channel Distribution** have a significant relationship with the dependent variable which is **Corporate Performance**.

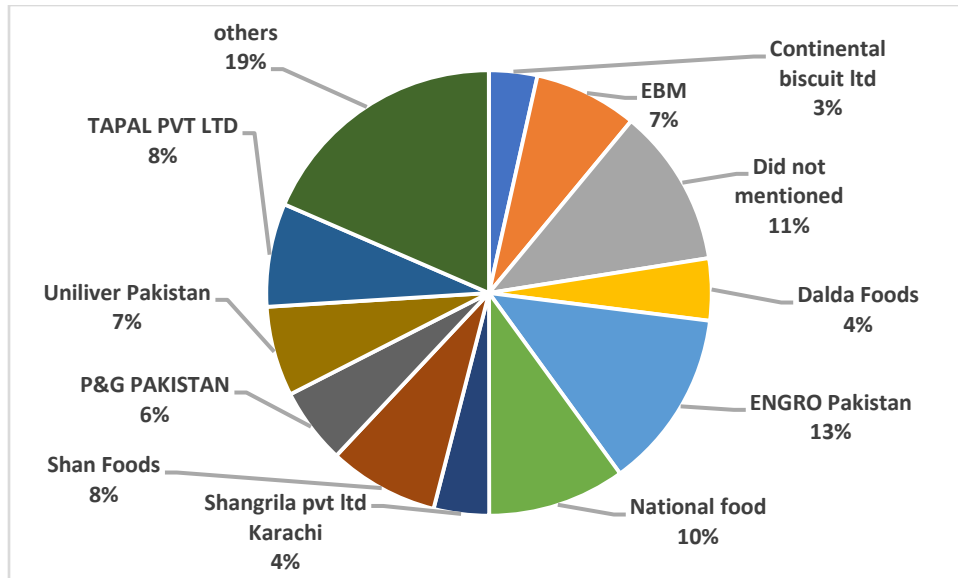
Whereas, one of the independent variables, namely, **Internet of Things** doesn't possess significant relationship with the dependent variable which is **Corporate Performance**.

4.2 Respondents' profile

200 respondents were the part of study after their consent. The number of male study subjects were greater than female i.e. male was 178, 89% whereas female was 22, 11%.

Gender	No of Respondent	Frequency
Male	178	89%
Female	22	11%

Distribution of study subjects with respect to gender.



4.3 Descriptive Statistics

Statistics

	CDL	IOT	GLOB	TECH	MDC
N Valid	201	201	201	201	201
Missing	1	1	1	1	1
Mean	4.3529	4.2920	3.8458	4.0410	4.4282
Std. Error of Mean	.03087	.03088	.02877	.02680	.03176
Median	4.4300	4.2500	3.8300	4.0000	4.5700
Mode	4.43	4.25	3.83 ^a	3.83	4.71
Std. Deviation	.43765	.43785	.40788	.37992	.45021
Variance	.192	.192	.166	.144	.203
Skewness	-.435	-.250	-.326	.341	-1.099
Std. Error of Skewness	.172	.172	.172	.172	.172
Minimum	3.00	2.88	2.33	3.17	3.00
Maximum	5.00	5.00	4.83	5.00	5.00

4.4 Regression

Variables Entered

Model	Variables Entered	Variables Removed	Method
1	MDC, GLOB, TECH, IOT ^b		Enter

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.974 ^a	.950	.949	.09925

a. Predictors: (Constant), MDC, GLOB, TECH, IOT

R^2 value named as coefficient of determination, which is the proportion of variation accounted for by the regression model above and beyond the mean model. R^2 value for our model is 0.950 that our independent variable explains 95% of the variability of our dependent variable.

4.5 ANOVA Analysis

A multiple regression was generated to predict the status of CDL from independent variables i.e. MDC, GLOB, TECH, IOT. The F -ratio test shows that above mentioned independent variables significantly predict the dependent variable, $F(196, 4) = 923.159$, $P\text{-value} < 0.05$. Hence the regression model is a good fit of the data.

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	36.376	4	9.094	923.159	.000 ^b
	Residual	1.931	196	.010		
	Total	38.307	200			

4.6 Coefficients Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.150	.101		1.487	.139
IOT	.964	.022	.964	44.016	.000
GLOB	-.008	.018	-.007	-.420	.675
TECH	.021	.023	.018	.911	.364
MDC	.003	.019	.003	.136	.892

4.7 Reliability and Validity Testing

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	201	99.5
	Excluded ^a	1	.5
	Total	202	100.0

a. Listwise deletion based on all variables in the procedure.

The value of Cronbach's Alpha =0.794 for the given study. It indicates that the questionnaire reliability is 79.4%.

Reliability Statistics

Cronbach's Alpha	N of Items
.794	5

4.8 Hypothesis assessment summary

The following table shows the results of hypotheses assessments. Through this assessment we would get to know whether our assumptions or hypotheses were accepted or rejected.

	Hypotheses	p-value	t value	Empirical Conclusion
H1	Internet of things has resulted in strengthening the corporate performance and digitalization of logistics.	0.000	44.016	H1 Rejected
H2	corporate performance has been strengthened by digitalization of logistics due to globalization.	.675	-.420	H2 Accepted
H3	Corporate performance has been strengthened by digitalization of logistics due to competition.	.364	.911	H3 Accepted
H4	Corporate performance has been strengthened by usage of multi-channel distribution system	.892	.136	H4 Accepted

5. Conclusion

The purpose of this research was to find out the relationship of a few factors (independent variables) namely, Internet of Things, Globalization, Technology, and Multi-channel

Distribution system with corporate performance in regard to the digitization of logistics. Since the end goal of the logistics management is related to fulfilling customer demands on time and providing them with highest customer services which will also improve company's position in the industry, this is why the decision regarding incorporating technological advancement in logistical functions of the companies is really crucial for the success of the companies.

To conduct this research the data of 200 questionnaires was analyzed which confirmed that the variables of Globalization, Technology and Multi-channel distribution system have significant impact on corporate performance.

To elaborate it a bit further, Globalization is the result of the modern world of complexities and new technological advancements which have allowed new entrant to enter new markets anytime. The biggest challenge of globalization is that it has made everything quick. Customers want to be catered quickly for this purpose, companies ought to have highly responsive logistics system so that the goods can reach to the customers on time. For this purpose, companies can adapt digital analogy into the logistics system which allows supply chains to be responsive and agile. This in return will be able to bring higher revenues for the firm and improve its position in the market.

Technology is the main focus of the whole world today. Companies who wish to survive in the modern industry must make their logistics processes digitized by incorporating the modern technology so that not only the processes can be made faster but also their performance can be made better.

Multi-channel distribution system refers to the usage of more than one distribution systems for the purpose of making the products available to the customers who may be residing in any part of the world. However, distributing goods to a customer from Pakistan to USA cannot be made possible without the digitized or automated logistics systems.

For the companies today, it is of immense importance to understand the intensity of the aforementioned factors for the purpose of enhancing their corporate performance.

5.1 Limitations

Since this research was meant to be conducted in FMCG sector of Pakistan only so it cannot be generalized to other industries of Pakistan.

Another limitation to this study is the small sample size. The questionnaires were filled by only 200 respondents for the purpose of gathering data.

5.2Future recommendations

It is suggested that in future, if this research is conducted again, this study should be done on a broader scale. Since, it is an evolving concept in Pakistan. It must be widely highlighted in different industries of Pakistan in order to enlighten the companies about its benefits.

Logistics is the back bone of every supply chain so, by making this function automated, companies can successfully have competitive advantage over the competitors in the markets thereby, increasing the market shares and corporate performance.

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