

RANKING OF INFORMATION TECHNOLOGY (IT) USAGE IN INFORMATION SHARING & COMMUNICATION

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Abstract Information technology (IT) is gaining momentum in the present world as it assists in a numerous ways in disseminating and gathering business information in a speedier and practical manner. The present empirical study scrutinizes the mean ranking of various variables of information technology usage in information sharing and communication in 44 small manufacturing firms operating in district Udhampur of J&K state. Primary data stood as the basis for analysing the research motivation and framework. The primary data were further portrayed in terms of ranking tables and regression analysis. The results of ranking tables exposed that the mean rank & score is highest for the variable "Paves way for speedier communication" and lowest for "Acts as key element of firms' integration". Since most of small scale industries are family managed, the variable "Improvement in organisation's functioning and performance" receives moderate mean response. Further, the results of linear regression bared that IT usage in small scale industries paves way for speedier communication and results in improvement of organisation's functioning and performance.

Keywords: Information System, Communication, Supply chain (SC), Small Manufacturing Firms

INTRODUCTION

Information is considered as life blood of business. Information is so vital platform in contemporary world that it manifests laurels and larger achievements in a business concern. Receiving and disseminating information occupies the central place. The informative department acts as intelligent department for the modern firms. Information gathering also gives a mirror view to the business as it determines the stand of the business in relation to its competitors so that a business can plan well in advance its strategies, policies, and other required modification in any of the segments and prevent the business from drowning. Mounting echelon of information sharing and communication fosters and develops new channels, new customers, new products, new markets, advance operational competence and larger market share (Dyer, 1996), quality improvements (Takeishi, 2001), least ambiguity (Daft and Lengel, 1986), enhancement in expansion recital and delivery agenda conformity (Brown and Eisenhardt, 1995). The benefits of information sharing are that it augments operational competence and leads to controlling cost control and effectively performing business activities. It acts as a viable contrivance (Eccles and Pyburn, 1999). Information sharing also develops knowledge

and enhances equipped effectiveness on distribution inventiveness, triumphs in company aims and policies, improved transactional prosperity, and judicious accessibility of information for guarantying market suppleness (Lee and Whang, 1998). It leads to development of edge worth aptitudes in unambiguous business arenas such as product positioning, cost, price, deliverance, alacrity, superiority and liveness, distinguished customer service at a meager cost, and managing the business in any type of environment (Fawcett and Clinton, 1996).

LITERATURE REVIEW

The literature regarding information sharing and communication had been the main focus of industrialists, academicians, scholars, business class society, and many others. The literature portrays that information sharing and communication present an effective picture to enhance efficiency perspective (Gal-Or and Ghose, 2005). Information sharing and communication result in healthy business relationships and supply chain networks, logistics synchronisation, joint recital arrangements, motivational alliances, and route perfections by communicating outfitted effectiveness (Li and Ye, 1999). Proper information

sharing and communication lead to the development of right attitudes and aptitudes that in lieu assists a business in attaining proper market share, formulating collaborative business planning's, flexibility and specificity, customer platform, knowledge management etc. that further inculcates operational effectiveness in rendering business activities (Medori and Steeple, 2000). There is proclaimed to be positive relationships between the content and purity of information and the market diversification with wider chances of business improvements (Cousins and Menguc, 2006; Kim *et al.*, 2006). The information sharing and communication take into consideration almost all the areas of business perspectives and lead to their individual developments such as manufacturing procedure, product, buyer, seller, shipping, stock, competition, sales, markets warehousing, collaborations, trust buildings etc. The present research paper enlists the benefits derived from IT usage in information sharing and communication in small manufacturing firms operating under SIDCO and SICOP in district Udhampur of J&K state.

RESEARCH HYPOTHESES

The following two were the main hypotheses of the current study:

Hyp 1: IT usage in small scale industries paves way for speedier communication.

Hyp 2: IT usage results in improvement of organisation's functioning and performance.

THE RESEARCH FRAMEWORK

The research framework acts as centre of the study. The research framework designed for the present research is divulged as follows:

The present research is based on the primary data collected from small scale industries operating under SIDCO and SICOP in district Udhampur (J&K state), registered under District Industries Centre (DIC). The primary data were collected from 44 small scale industries fragmented into ten categories of similar nature. It consisted of cement (8), battery/lead/alloy (5), pesticide (3), steel (3), conduit pipes (2), menthol (2), guns (2), maize/atta/dal mills (3), gates/grills/varnish (5), and miscellaneous (11). The response of the managers of these small scale industries was obtained with the assistance of census method. The data were collected by framing one self-designed questionnaire and circulating among managers. The questionnaire was prepared after consulting eminent experts, academicians, scholars besides widespread literature review. The questionnaire consisted relevant items related to IT usage and were presented in descriptive form, ranking and five-point Likert scale.

Ranking tables and regression analysis were used to educe momentous retort from the data so collected.

Sampling and Data Collection

As per the list issued by DIC, the total number of units registered under District Industries Centre (DIC) was 49, functioning in district Udhampur of J&K state. All the units were contacted and out of them 44 responded. For making the study simple and understandable, the total number of units were categorised into ten segments of alike operations namely: cement (8), steel (3), pesticide (3), gates/grills/varnish (5), battery/lead/alloy (5), menthol (2), guns (2), conduit pipes (2), maize/atta/dal mills (3), and miscellaneous (11). The miscellaneous category includes small scale units namely M/s Unique Carbon Industries, M/s Supertech Industry, Poles and Transformers, M/s Luxmi Electronics Works, M/s Aditiya Cables, M/s B.S. Traders, M/s Vijay Candles, Shaj Nath Vanaspati Ltd., Everest Health Care Products, M/s J.K Petro Chemicals, M/s Ajay Ice Factory.

The Survey Instrument

For obtaining the purposeful information, a self-designed questionnaire was circulated among managers of these SSIs. The questionnaire was prepared after consulting eminent experts, academicians, scholars besides widespread literature review. The questionnaire consisted relevant items related to IT usage and were presented in descriptive form, ranking and five -point Likert scale, where 1 stands for strongly disagree and 5 for strongly agree.

Collection of Data

The nature of the study is exploratory; therefore the primary data for the study were honestly collected from SSI's managers/owners who so ever were available. If the respective respondent is not available then the restrictive time portrayed for making visits to the respective respondents was fixed for three times because of financial, time and research periphery constraints. The research is unsupportive without secondary information, therefore secondary information was also collected from various libraries like Ratan Tata Library in Delhi University, Dhanvantri Library in Jammu University and in these libraries, assessing the respective journals. The study approached its findings on the basis of results drawn by applying multivariate tools such as mean, standard deviation, ranking tables, regression analysis.

Reliability and Validity of the Instrument

Reliability: The alpha reliability is exhibited as portrayed

by the factor score i.e. F_1 (0.802), F_2 (0.823), F_3 (0.829) and is acceptable as stated by Gordon and Narayanan (1984) indicating high consistency. The F_4 (0.627) and F_5 (0.605) are also acceptable as recommended by Brown *et al.* (2001) and Kakati and Dhar (2002). It concluded that there was satisfactory internal consistency.

Validity: The content validity of the scale was calculated by meeting various experts/academicians/eminent research scholars. The five factors signified alpha reliability and contended KMO value at 0.688, which revealed noteworthy construct validity (Hair *et al.*, 1995).

DATA ANALYSIS AND INTERPRETATION

Table 1 interprets the mean ranking of benefits derived from IT usage in information sharing and communication by small manufacturing firms operating in district Udhampur of J&K state. These small scale manufacturing industries have been alienated into ten similar types of functions namely cement (8), pesticide (3), steel (3), battery/lead/alloy (5), menthol (2), guns (2), conduit pipes (2), gates/grills/varnish (5), maize/atta/dal mills (3), and miscellaneous (11). The different benefits that IT usage in information sharing and communication portray are: “Paves way for speeder communication”, “Acts as key element of firms’ integration”, and “Improvement in organisation’s functioning and performance”. The ranking of benefits derived from IT usage in information sharing and communication is done to make the study appealing and interesting. The mean rank and score is highest for the variable “Paves way for speeder communication” and lowest for “Acts as key element of firms’ integration”. Since most of SSIs are family managed, the variable “Improvement in organisation’s functioning and performance” receives moderate mean response. The ranking categorisation is done as follows:

1) Cements

M/s Associated Cements, Zenith Cement Industry, Shivalik Cements, M/s Continental Cement Industry, Wullar Cements, M/s Shri Nath Industry, and Uma Cement Industry were the eight prominent small scale cements units operating under this category. As far as ranking related to IT usage in information sharing and communication of these units is concerned, “Paves way for speeder communication” was accorded rank one by all the units operating under this group. “Improvement in organisation’s functioning and performance” was given rank two by cement industry and “Acts as key element of firms’ integration” was consigned rank three. It was contoured by the cement industry that IT usage in information sharing and communication mainly results in “Paves way for speeder communication”.

2) Battery/Lead/Alloy

Five firms operating under this category were Radha Industries, Pilot Batteries, Durga Batteries, Suraksha Batteries, and Avtar Batteries. “Improvement in organisation’s functioning and performance” was accorded rank one by all the units operating under this group as it was found the main benefit derived from IT usage. “Paves way for speeder communication” was given rank two by these small firms and “Acts as key element of firms’ integration” was relegated rank three as depicted by their mean values and is represented in Table 1.

3) Pesticides/Insecticides

M/s Dhanuva Agritech Ltd., Safex Chemicals Ltd. and M/s Modern Insecticides were found to be operating under this category. As far as ranking related to IT usage in information sharing and communication of these units is concerned, “Paves way for speeder communication” was accorded rank one by all the units operating under this group. “Acts as key element of firms’ integration” was given rank two by these firms and “Improvement in organisation’s functioning and performance” was assigned rank three as depicted by their mean values and is represented in Table 1. It was clear that the main benefit derived from IT usage by this sector is that it paves way for speeder communication.

4) Conduit Pipes

M/s Pee Kay Products and Rukhmani Plastics were the only two units operating under this group. As far as ranking related to IT usage in information sharing and communication of these units is concerned, “Paves way for speeder communication” was accorded rank one by both the units operating under this group. “Improvement in organisation’s functioning and performance” was given rank two by conduit pipes and “Acts as key element of firms’ integration” was consigned rank three. It was clear that the conduit pipes industry main benefit derived from IT usage previewed was paves way for speeder communication.

5) Menthol

M/s Harikripa Perfumes Pvt. Ltd. and M/s Mahadurga Industries were found to be operating under this category of industries. “Improvement in organisation’s functioning and performance” was accorded rank one by both the units operating under this group as it was found the main cause of IT usage. “Paves way for speeder communication” was given rank two by these small firms and “Acts as key element of firms’ integration” was consigned rank three respectively.

6) Guns

Two competitors namely M/s Gulab Gun Factory and M/s Hunter Gun Factory accorded rank one to “Paves way for speeder communication” as it was found to be their main benefit of IT usage in information sharing and communication, “Acts as key element of firms’ integration”

ranked two and “Improvement in organisation’s functioning and performance” ranked three respectively.

7) Steel

The three main small scale units operating under this perspective were: M/s Maha Luxmi Steel Fabricators, M/s Faqir Chand Sanak Raj, and M/s Gupta Furniture. Rank one was assigned to “Improvement in organisation’s functioning and performance” as it was found to be their main benefit derived from IT usage in information sharing and communication. “Paves way for speeder communication” ranked two and “Acts as key element of firms’ integration” ranked three respectively.

8) Gates/Grills/Varnish/Paint

M/s Balaji Industries, M/s Wazir Engineering Works, ISRO Products, Shakti Engineering Works, and M/s Everest Paints were the main five units are operating under this category. These small scale units assigned rank one to “Paves way for speeder communication”. “Improvement in organisation’s functioning and performance” was given rank two by these units and “Acts as key element of firms’ integration” was allotted rank three.

9) Atta/Maize/Dal Mills

The three small scale units functioning under this class are Shalimar Floor Mills, M/s Udhampur Dal Mills, and M/s Sharda Enterprises. As far as ranking related to IT usage in information sharing and communication of these units is concerned, “Acts as key element of firms’ integration” was accorded rank one by all the units operating under this group. “Improvement in organisation’s functioning and performance” was given rank two by this industry. “Paves way for speeder communication” was consigned rank three as depicted by their mean values.

10) Others (Miscellaneous)

This was the category of units having altogether different operations and functioning. There were eleven units functioning under this sector. The respective units were: M/s Unique Carbon Industries, M/s Supertech Industry, Poles and Transformers, M/s Luxmi Electronics Works, M/s Aditiya Cables, Shaj Nath Vanaspati Ltd., M/s B.S. Traders, M/s Vijay Candles, Everest Health Care Products, M/s J.K Petro Chemicals, and M/s Ajay Ice Factory. As far as ranking related to related to IT usage in information sharing and communication of these units is concerned, “Acts as key element of firms’ integration” was accorded rank one by most of these small units and “Paves way for speeder communication” was given rank two by almost all the units operating and “Improvement in organisation’s functioning and performance” was allotted rank three respectively.

The nub is that all the firms operating under DIC (SIDCO and SICOP) were mainly befitted for: firstly, “Paves way

for speeder communication”, then by “Improvement in organisation’s functioning and performance” and lastly by “Acts as key element of firms’ integration” as depicted by their respective mean ranks (Table 1).

REGRESSION ANALYSIS

Table 2 reveals the output from regression analysis to analyse the impact of the impact of IT usage on Paves way for speeder communication. The upshot of linear regression analysis (Table 2) tempted that the dependent and independent variables are positively correlated as depicted by the value of R as .762, which signifies good correlation between predictor and the outcome. In the model 1, R is .762 which indicates 76% association between dependent and independent variable. R-Square for this model is .631 which means that 63% of variation in IT usage can be explained from the independent variable. Adjusted R square (.599) indicates that value of R can be raised if an additional sovereign variable is placed. Change in R square is also found to be significant with F-values significant at 5% confidence level. Thus the hypothesis “IT usage in small scale industries paves way for speeder communication” is accepted as represented by its significance level $p < .05$.

Table 3 shows output from regression analysis to elicit the impact of IT usage on Paves way for speeder communication. The consequence of linear regression analysis (Table 3) lured that the dependent and independent variables are positively correlated as depicted by the value of R as .741, which signifies good correlation between predictor and the outcome. In the model 1, R is .741 which indicates 74% association between dependent and independent variable. R-Square for this model is .618 which means that 68% of variation in IT usage can be explained from the independent variable. Adjusted R square (.573) indicates that value of R can be raised if an additional sovereign variable is placed. Change in R square is also found to be significant with F-values significant at 5% confidence level. Thus the hypothesis “IT usage results in improvement of organisation’s functioning and performance” is accepted as represented by its significance level $p < .05$.

CONCLUSION

Information means to inform someone or to receive information from someone. The present research appreciates all the previous researches and imbibes new results in the form of mean ranking of variables that assist in information sharing and communication. The study demonstrated that the mean rank and score is highest for the variable “Paves way for speeder communication” and lowest for “Acts as key element of firms’ integration”. Since most of small scale industries are family managed, the variable “Improvement

Table 1: Unit-wise Ranking of IT Usage in Information Sharing & Communication

Units/Standards	Improves organisation's functioning & performance	Paves way for speeder communication	Act as key element of firms integration
Cement	1.7 (II)	1.6 (I)	2.6 (III)
Battery/Lead/Alloy	1.2 (I)	2.2 (II)	2.6 (III)
Pesticides/Insecticides	3 (III)	1.3 (I)	1.6 (II)
Conduit pipes	2 (II)	1.9 (I)	2 (III)
Menthol	1 (I)	2 (II)	3 (III)
Guns	3 (III)	1.4 (I)	1.5 (II)
Steel	1 (I)	2 (II)	3 (III)
Gates/Grills/Varnish/Paint	1.8 (II)	1.6 (I)	2.6 (III)
Atta/Maize/Dal mills	2.3 (II)	2.3 (III)	1.3 (I)
Others (Miscellaneous)	2.1 (III)	2 (II)	1.8 (I)
Mean & Rank	1.90 (II)	1.80 (I)	2.18 (III)

Note: Where 1 denotes "highest rank" and 3 denotes "lowest rank"

Table 2: Regression Model Summary

Model	R	R ²	AdjustedR ²	Std. Error of Estimate	F value ANOVA	Sig. level	β	t	Sig. level
1.	.762	.631	.599	.2386	38.215	.000	.715	8.215	.017

a. Predictors: (Constant), Paves way for speeder communication

b. Dependent Variable: IT usage

Table 3: Regression Model Summary

Model	R	R ²	AdjustedR ²	Std. Error of Estimate	F value ANOVA	Sig. level	β	t	Sig. level
1.	.741	.618	.573	.2458	35.946	.000	.738	7.332	.029

a. Predictors: (Constant), Improves organisation's functioning and performance

b. Dependent Variable: IT usage

in organisation's functioning and performance" receives moderate mean response. Further, the results of linear regression exposed that IT usage in small scale industries paves way for speeder communication and IT usage results in improvement of organisation functioning and performance.

Moreover, the research findings are limited to small scale industries of district Udhampur of J&K state, so results generated cannot be implemented on other areas of the same country having dissimilar business environment. Future research can be undertaken on the ground of inter-firm communication in small and large scale industries operating in copious parts of the country.

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