



Identification and Evaluation of Facilitators and Impediments of Advanced Information Technology Adoption by SMEs of Kerala Rubber Products Manufacturing Industry

Dr. Latha.K ¹
Mr.Emil Mathew Joseph ²

Abstract

Purpose: The adoption of advanced IT among rubber products manufacturing SMEs of Kerala state is very low, in spite of its potential benefits. There are certain factors like technological, economical and organizational that facilitate or restrict the adoption of advanced IT among rubber products manufacturing SMEs of Kerala state. The major objective of the present study is to analyze these factors in the adoption of advanced information technologies in the Small and Medium Enterprises (SMEs) of Kerala rubber products manufacturing industry. **Design/Methodology/Approach:** The data for the study was collected from 60 owners of SMEs in rubber products manufacturing units. Collection of data is done through a structured questionnaire. The data analysis done through CFA and multivariate regression analysis to identify and evaluate the influence of facilitating factors and inhibiting factors of advanced IT adoption by the rubber products manufacturing SMEs. **Findings:** It is identified that the adoption of IT by the Small and Medium Enterprises(SMEs) of Kerala rubber products manufacturing industry is only 18%. The study results indicate that the 'perceived pressure from competitors' acts as the most prominent factor, as far the adoption of IT in the selected industrial establishments are concerned.

Key words: SMEs, Advanced IT, Manufacturing Sector, Rubber products Industry

1. Introduction

Rubber industry is one of the most prominent production industries in SME sector in Kerala. Kerala, with its excellent connectivity, communication network, availability of highly skilled human resources and relatively good industrial infrastructure, is highly suited for the growth of the sector. This sector contributes enormously to the socio-economic development of the State. Though Kerala has problems in finding availability of land in large scale for the industrial purpose, many SMEs have achieved remarkable progress in Kerala through their innovative and value-added products.

Small and medium enterprises SMEs can play a crucial role in promoting equitable development and in nurturing innovation on a small scale. The SME sector in India is diverse in terms of size, levels of technology employed and products. The Small and Medium Enterprise is a critical segment of the economy. It has large share in employment generation and significant contribution to manufacturing outputs and exports of the country. It not only play crucial role in providing large employment opportunities at comparatively lower capital cost than large industries but also help in industrialization of rural & backward areas, thereby, reducing regional imbalances, assuring more equitable distribution of national income and wealth. There are 346.12 Lakhs units spread across the country employing 805.24 Lakhs workers. The rubber industry has a strategic fit with the government's initiatives as thousands of units manufacture around 35,000 different rubber products which find usage in auto, defense, healthcare, agriculture and in various other critical sectors. The rubber products manufacturing industrial sector of India has grown to over 6000 units with an industry turnover of over Rs. 60,000 Crores with exports reaching around Rs. 10,000 Crores (AIRIA,2017).

¹ Associate Professor, Saintgits Institute of Management, Kottayam, Kerala, E-mail :latha.k@saintgits.org

² MBA Student, Saintgits Institute of Management, Kottayam, Kerala E-mail: emil.joseph@saintgits.org

Peer-review under responsibility of the 04th ICMTS 2020

ISBN: 978-93-5419-748-2

SMEs are confronted with significant constrains which impede their development. Due to issues such as security hazards, unfamiliarity with the internet, start up costs, lack of guidance about how to start the process, lack of perceived advantages in implementing e-commerce etc, SMEs are found reluctant to adopt latest information technologies. The study helps to understand the factors which facilitate or impeditment the adoption of advanced IT by rubber products manufacturing SMEs of Kerala. Therefore, the purpose of the study is to identify and evaluate the facilitators and impediments in the adoption of advanced IT by rubber products manufacturing SMEs of Kerala. The study is conducted among Selected Rubber Products Manufacturing Units of Kerala

2. Scope and Objectives of the study

The scope of the present study lies in building up of a research framework to identify and evaluate the facilitators and impediments in the adoption of advanced IT by rubber products manufacturing SMEs of Kerala. Four facilitators and four impediments were taken for the conceptual research model. The main Objective of the study is to identify and evaluate the facilitators and impediments in the adoption of advanced IT by rubber products manufacturing SMEs of Kerala. The conceptual research model and the objectives of the study are converted in to the following set of assumptions.

H1.Greater the perceived utility because of advanced IT, greater the adoption of advanced IT

H2. Greater the ‘perceived pressure from competitors’, greater the adoption of advanced IT H3.Greater the ‘perceived Pressure from customers, greater the adoption of advanced IT

H4.Greater the exposure of CEO in IT, greater the adoption of advanced IT

H5.Greater the lack of financial resources, lower the level of adoption of advanced IT

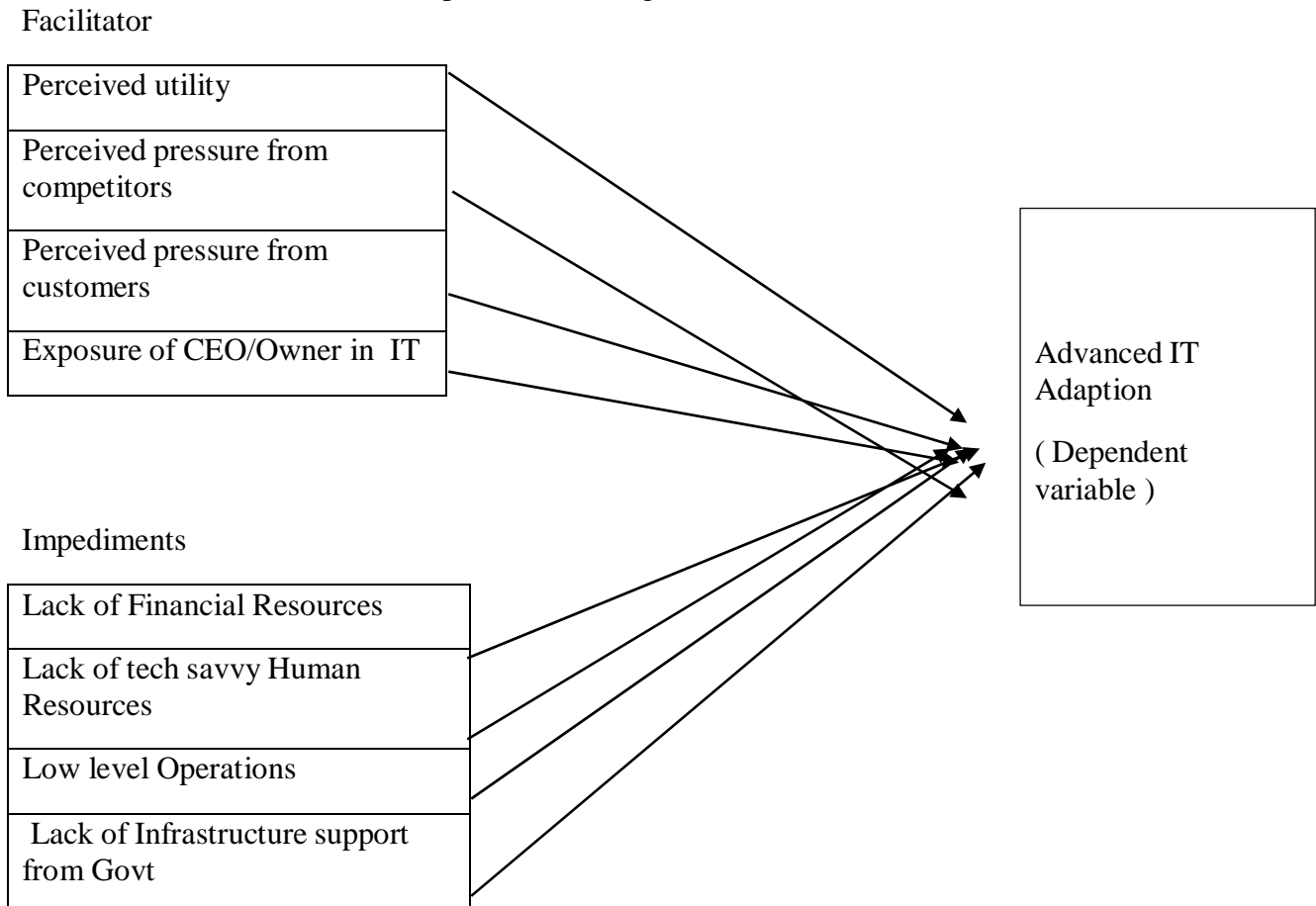
H6. Greater the ‘lack of tech savvy Human resources, lower the level of adoption of advanced IT

H7.Lower the ‘scale of operations, lower the level of adoption of advanced IT

H8.Lower the Infrastructural support from government , lower the level of adoption of advanced IT.

The conceptual research model is as depicted below.

Conceptual Model (Fig.2.1)



3. Research Design

There are 235 Small and Medium Rubber manufacturing units in Kottayam. These 235 enterprises are classified under several rubber products categories such as; Rubber Adhesives, Rubber and Footwear Products, Rubber Gloves, Latex Foam Products, Integrated Rubber Consortium, Tyre, Tube & Flaps, Synthetic Rubber, Tread rubber products, Rubberized fabric products, Rubber Sheeting, Rubber Matting etc. The response of the study is collected from 60 managers /owners of SMEs in rubber products manufacturing sector. The sample was selected using convenience sampling method. Data were collected through structured questionnaires. The questionnaire comprises of 20 questions that includes the questions related to Facilitators and Impediments. All these questions in the study were measured by various items on five- point scale i.e., 1- Strongly disagrees, 2- Disagree, 3- Neutral, 4- Agree and 5- Strongly agree. To test the adoption and use of e-commerce on SMEs correlation and regression analysis is used.

3. 1.Sources of Data

The primary data used in this study is drawn from two sources. The first main source of primary data was an expert opinion survey, which was conducted to identify the relevant advanced IT adoption variables. The second source of primary data was a perception survey, which was conducted to analyze the perceived factors on advanced IT adoption variables. As part of the perception survey, interviews have been conducted with management representatives and IT professionals from each of the industrial unit.

4. Results and Discussions

All the constructs used in the survey were tested for validity and reliability, which revealed the characteristics of the measurements. In order to establish the validity and reliability of the constructs of the facilitating factors of IT adoption, confirmatory factory analysis was performed. The goodness of fit (GFI) values range from 0.867 to 0.924, which shows that the there is good model fit. The reliability test statistics of the scales range from 0.81 to 0.92. The relationship between adoption of IT, the dependent variable and the various dimensions of facilitators and impediments, the independent variables, are established through multiple regression analysis.

Table .I Multiple Regression Model (Facilitators)

IMPEDIMENTS (predictors)	Predictors coefficient unstandardized coefficients B	Predictors coefficient unstandardized coefficients Std error	Standardized coefficients Beta	t	p(sig)
(constant)	0.567	3.506		0.201	0.795
Perceived utility	2.01	0.798	0.18	2.21	0.095
Perceived pressure from competitors	1.998	0.698	0.351	2.999	0.002
Perceived pressure from customers	0.599	0.699	0.078	0.794	0.1
Exposure of CEO in IT	1.298	0.821	0.255	1.598	0.003

Table .II Multiple Regression Model (Impediments)

IMPEDIMENTS (predictors)	Predictors coefficient unstandardised coefficients B	Predictors coefficient unstandardised coefficients Std error	standerdised coefficients Beta	t	p(sig)
(constant)	11.897	1.997		5.986	0
Lack of Financial Resources	2.245	0.589	0.399	3.567	0.001
Lack of Tech Savvy Human Resources	1.498	0.587	0.216	2.59	0.01
Operating in a small Scale	1.89	0.396	0.017	3.9982	0.09
Lack of Infrastructure support from Govt	0.9982	0.578	0.177	1.678	0.011

It is found from the analysis that the ‘perceived pressure from competitors’ acts as the most prominent facilitating factor ($\beta = 0.351$), as far the adoption of IT in the selected industrial establishments are concerned and the factor ‘exposure of CEO in IT’ is also a statistically significant facilitating factor ($\beta = 0.255$), with ρ values of 0.002 and 0.003 respectively, at 1 per cent significant level. The remaining variables ‘perceived utility’ are proved to be statistically insignificant as ρ values were obtained as 0.095 and 0.10.

It is also observed that 3 factors out of 4 factors of impediments of adoption of advanced IT are statistically significant. Impediment factors like, lack of financial resources, ‘lack of tech savvy Human resources, ‘and the lack of Infrastructural support from government are statistically significant with ρ values of 0.001 and 0.010 and 0.011 respectively. The most prominent impediment factor is obtained as lack of financial resources with the β value as 0.399. The construct ‘small scale operations’ is statistically insignificant because the ρ value is obtained as 0.09.

Selected References

1. Agwu, M. E. (2018). RELEVANCE OF INFORMATION TECHNOLOGY IN THE EFFECTIVE MANAGEMENT OF SELECTED SMES IN LAGOS STATE NIGERIA. *Academy of Strategic Management Journal*, 17(1), 1-15. Retrieved from <https://search.proquest.com/docview/2024344961?accountid=50943>
2. Chatzoglou, P., & Chatzoudes, D. (2016). Factors affecting e-business adoption in SMEs: An empirical research. *Journal of Enterprise Information Management*, 29(3), 327-358. doi:<http://dx.doi.org/10.1108/JEIM-03-2014-0033>
3. Kannabiran, G. (2012). Enablers and inhibitors of advanced information technologies adoption by SMEs. *Journal of Enterprise Information Management*, 25(2), 186-209. doi:[http:// dx.doi.org/10.1108/17410391211204419](http://dx.doi.org/10.1108/17410391211204419)
4. Lee, J., & Runge, J. (2001). Adoption of information technology in small business: Testing drivers of adoption for entrepreneurs. *The Journal of Computer Information Systems*, 42(1), 44-57. Retrieved from <https://search.proquest.com/docview/232580492?accountid=50943>
5. Olatokun, W., & Bankole, B. (2011). Factors influencing electronic business technologies adoption and use by small and medium scale enterprises (SMES) in a nigerian municipality. *Journal of Internet Banking and Commerce*, 16(3), 1-26. Retrieved from <https://search.proquest.com/docview/1010389422?accountid=50943>
6. Sahu, G. P., & Dwivedi, P. (2008). Information technology: A growth navigator for small scale industries in india. *Journal of Cases on Information Technology*, 10(3), 48-57. doi:[http://dx.doi.org/ 10.4018/jcit.2008070105](http://dx.doi.org/10.4018/jcit.2008070105)
7. Theis, S., Lefore, N., Meinzen-Dick, R., & Bryan, E. (2018). What happens after technology adoption? gendered aspects of small-scale irrigation technologies in ethiopia, ghana, and tanzania. *Agriculture and Human Values*, 35(3), 671-684. doi:<http://dx.doi.org/10.1007/s10460-018-9862-8>