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**MSME PERFORMANCE IMPACTED BY IT ADOPTION-
AN APPRAISAL OF LITERATURE FROM DEVELOPING
AND DEVELOPED COUNTRIES**

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Abstract

In any developing country, Micro, Small & Medium Enterprises (MSMEs) hold the position as the biggest contributor to economic growth. Building on a review of the theoretical and empirical literature, the purpose of this paper is to analyze the benefits of IT adoption in MSMEs in other developing and developed countries. It intends to pave the way for MSMEs to realise that the benefits outweigh the challenges. Central questions are: What are the major factors influencing IT adoption in MSMEs? What are the perceived benefits of IT adoption? The paper does a literature review of empirical and non-empirical research papers published in developing and developed countries. From the review of literature, a conceptual framework of the influencing factors on MSME is formed. It further dwells into the benefits of IT adoption and suggests an outlook for the MSMEs.

Keywords: *Information Technology, IT adoption, MSME, MSME performance.*

There is a fundamental shift in the global ecosystem, with the primary focus being on entrepreneurship and innovation. These are the two catalysts that lead to job creation. A decade ago, almost all the industries used to follow a standard set of operating and organization set up the model. But COVID-19 pandemic proved to be a game-changer, which shook the entire global economy. This eventually has impacted the ways of working in all the organizations. To sustain in the era post-COVID 19, all the organizations need to think and work differently. Today's business scenario is largely influenced by Information Technology, it is no longer limited to large-scale industries. The use of mobile phones has penetrated deeper than just browsing. It has enabled the smallest of the businesses to influence their daily activities in various ways.

Alam and Noor (2009) researched Malaysia and found that SMEs should adopt Information technology. This helps them in identifying opportunities. With the shrinking global market, IT adoption would enable them to tap the greatest of the opportunities. Devraj and Kohli (2003) in their empirical study confirmed the positive effect of IT adoption on firm performance. This can be measured in terms of profitability, productivity, market share and market value. One more empirical study by Bartelsman and Doms (2000), reveals that IT

MSME in India

As per the MSME report, 2017-18, this sector has emerged and has been expanding exponentially over the past five decades. MSME sector contributes in a significant way towards the economic and social development of the country and in generating employment. For any nation Micro, Small, and Medium Enterprises (MSMEs) form an integral part of growth contributors. As per Ministry of MSME, 2017 statistics, they "manufacture over 8,000 products and 45 percent of total output, 40 percent of total exports from India, contribute 8 percent of Gross Domestic Product (GDP) and provide employment to around 73 million people." The Indian Ministry of MSME describes it as "the

adoption does affect performance measures such as process efficiency, service quality, cost-saving, and customer satisfaction. With the current global situation, where every industry and not just MSMEs are hit by the pandemic, these enterprises need to come back and reinforce their competitive position. To achieve this and to improve their productivity, MSMEs need to quickly adopt IT.

Interestingly, a study by MacGregor and Vrazalic (2005) revealed that in spite of the exponential growth in IT, its adoption with SMEs in their business is relatively very low. Based on the literature survey discussed above, it is evident that many research papers have found IT adoption is in the organization's favour. This paper aims at investigating the various factors which influence the IT adoption by MSMEs in developing and developed countries as per existing literature. As part of this research paper, the prior literature has been reviewed in terms of concepts, theories, and methodologies.

Structure of the paper:

Section 1 – Introduction; Section 2 – MSME in India; Section 3 – Factors impacting IT adoption in MSMEs; Section 4 – Perceived benefits of IT adoption; Section 5 – Inference; Section 6 – Discussion and conclusion; Section 7 – Limitations of the study

gateway to the global growth". MSMEs in India are primarily in the unorganized sector and is also a source of sustenance for millions of people. It acts as a platform for developing units and entrepreneurs. Some of these micro and small enterprises move to become large and well established and some fade into oblivion. With the onset of the pandemic COVID-19, MSME is the worst-hit area, leaving with lots of questions related to their survival. Changing the way of working and adopting technologies are the only ways for these MSMEs to innovate and to create a more forward-thinking sector. Govt of India has not only changed the definition of MSMEs but has also come up with various initiatives and policies to support their growth.

Figure 1: MSME definition as per 1-July-2020.

Revised Classification applicable w.e.f 1st July 2020			
Composite Criteria: Investment in Plant & Machinery/equipment and Annual Turnover			
Classification	Micro	Small	Medium
Manufacturing Enterprises and Enterprises rendering Services	Investment in Plant and Machinery or Equipment: Not more than Rs.1 crore and Annual Turnover ; not more than Rs. 5 crore	Investment in Plant and Machinery or Equipment: Not more than Rs.10 crore and Annual Turnover ; not more than Rs. 50 crore	Investment in Plant and Machinery or Equipment: Not more than Rs.50 crore and Annual Turnover ; not more than Rs. 250 crore

Source: msme.gov.in

Factors impacting IT adoption in MSME

Small enterprises especially MSMEs lack technology adoption. One way of increasing the possibility of IT adoption would be to make these enterprises realize or understand, based on the existing studies, the benefits. This makes of utmost importance that a clear definition be set for what IT adoption would mean. A number of research papers have defined IT adoption. Some of them have been referred in this section. As per Thong and Yap (1995), “applying computer hardware and software to provide support in management, operations, and decision making”, is the definition of IT adoption in SME. Moghavvemi, Hakimian and Feissal (2012) define IT as “an infrastructure capable of electronically converting, storing, retrieving and managing data and information, in the form of graphics, text, video, and sound.” As per Oluwataya, B. I. (Nd) IT means “digital information, which covers the basic use of the computer, digital telecommunications, electronic media, wireless technology and various electronic apps such as e-banking, e-governance, and e-commerce”. Coming to the various barriers/hurdles that impact IT adoption, a number of research papers have attempted to study and come up with the reasoning. Blackburn, (2000); Wielicki and Cavalcanti (2006); Jin (2007) in their study identified lack of skill and lack of resources as the primary barriers for technology adoption.

Hashim (2015) identifies low usage of ICT which interrelates to poor ICT skills. The SME owners also

have a misconception that IT adoption is tough. As per Das and Das (2012), there are a number of factors influencing IT adoption. Some of the factors highlighted by their research are information gathering (seller; customer; market; competitors) and it acts as a tool to follow and learn from competitors. Venkata, Rao and Rajeshwari (2020) explore how digital marketing could be used by MSMEs fruitfully. As per their study, they identified the below lack of awareness, lack of skill, assumption that IT is not required, and old family ways of working as major hurdles in IT adoption by these small firms. Arend (2008) did an interesting comparative study between Spain, Portugal, and Poland as compared to the US. Interestingly, the results have been in sync with various other research done globally. The research reveals that the main barrier to better utilization of ICT is not lack of availability, but lack of knowledge, the skill of owner/ manager. Caldeira and Ward (2002), studied the Portuguese manufacturing industries to understand the successful adoption of IT. Staff skill, owners/managers’ perspectives on IT adoption acted as internal hurdles. Whereas IT support, IT tools available, training acted as external hurdles.

Finance did come as an angle in most of the studies, but that definitely was not the primary reason for non-adoption. In a study by Tambunan and Busnetti (2018), the main objective is to study MSMEs in Indonesia, where they are utilizing the internet for their business. One major issue related to less Internet usage in MSMEs is a lack of knowledge on how important the

internet is and on how to use it. Nazir *et al.*, (2018) conducted a study in emerging economies. He identified ICT infrastructure quality as a barrier to ICT adoption. Whereas in developed countries, ICT infrastructure is well structured and hence SMEs can easily adopt it. This study also threw light on the fact that the unstable political situations in many emerging economies impacted decisions made by SMEs the implementation of the latest ICT. One more interesting fact that emerged from this study is that most of the MSE owners are sole proprietors. Their role in the adoption of ICT and in encouraging their staff to learn and use this technology also matters. Sun *et al.*, (2008) in their study identified financial constraints and lack of qualified staff as the limitations affecting SMEs. E-commerce adoption and failure have been impacted due to both reasons. Lack of finance leads the management in trying to adopt a less efficient system or in avoiding the adoption of e-commerce. To add to this, once e-commerce is adopted, employees and the MSE managers lack the right skill and training to utilize the tool for their benefit.

Venkata, Rao and Rajeswari (2020) studied both the key drivers and barriers in the adoption of technology in Mses. As per his findings, increased productivity and efficiency, improved customer service and access to international markets were the key drivers. He identified a lack of skilled staff as a barrier. Looi (1998) developed a model of factors for non-adopters and adopters of E-commerce among SMEs in Brunei Darussalam. Innovation, managerial, environmental and, organisational is the various factors considered in the study. The owner's characteristics and environment characteristics came out as a significant reason for E-commerce adoption. Perceived benefits and fear of competitors acted as a catalyst in this process of technology adoption. Sharma (2014) conducted a study in Haryana as part of her research. Two of her primary objectives were to identify factors facilitating technology adoption and the barriers to tech adoption. His study in Faridabad, Ambala, and Panipat revealed that dealing in export was the most prominent reason for ICT adoption. This finding, interestingly, is in sync with Stockdale and Standig (2004), who argue that ICT

opens up a wide range of market. This being an important factor in adopting ICT.

Demanding customers and suppliers emerged as one more reason for technology adoption. This, in turn, is also in sync with one more study by Adi *et al.*, (2017), which argues that pressure from the customer is leading factor in technology adoption. The right technology will help in managing both customers and suppliers efficiently. Wielicki and Cavalcanti (2006) revealed the high cost of implementation and lack of internal skills for managing IT as the primary barriers for ICT not being adopted in MSEs. Which is an indicator that the SMEs need the right guidance and support in implementing ICT. Tan *et al.*, (2009) studied MSMEs in Malaysia to explore the barriers which include skill of the staff in using technology, increased cost, stringent govt laws, fear regarding complexity of the technology.

Summarizing the factors influencing IT adoption in Figure 2. These can be divided into Internal and External factors. Talking in terms of Indian MSMEs, the Govt of India acknowledges the right usage of ICT and as per MSME Annual Report 2020-21, has initiated a number of initiatives like opening an e-marketing portal for the Coir board. E-offices and training centres to digitally train and support the officials. The Govt is also working towards enabling MSMEs in terms of digital payment. But these initiatives are still in their primitive stages and have not been utilized and penetrated to the maximum extend.

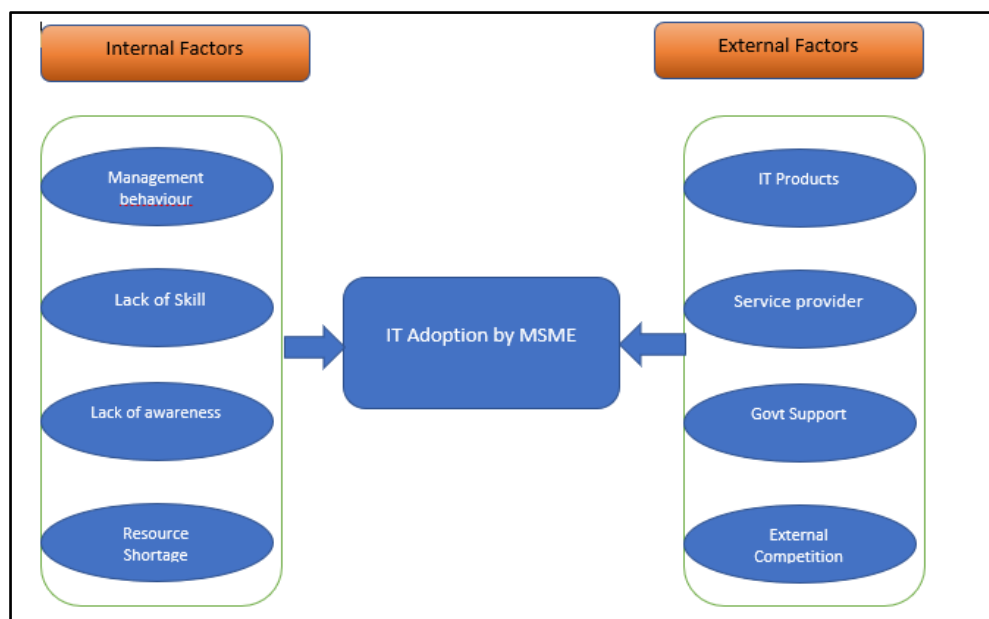
Perceived Benefits of IT adoption

This section focuses on the various research done to identify the benefits of adopting IT in organizations. IT adoption not necessarily means complex tools or IA. A simple auto-reply tool for phones could do wonders and improve customer retainment. Moghavvemi, Hakimian and Feissal (2012) argue that IT adoption by MSMEs strengthens it from multiple angles. Some of the angles highlighted in the research are cost reduction, efficiency, effectiveness, and reengineering of process. As per Shanmugam, Ping and Thuraisamy (2019) acquiring IT knowledge and adoption of technology by SMEs would be advantageous. Their study provides evidence of an increase in business opportunities by using the right technology. They argue that the simplest

tool like e-mail to address supplies/customer issues could bring efficiency and effectiveness, not just in communication but also in business. Consoli (2012); Tarutė and Gatautis (2014) show clear evidence of growth achieved by organizations through the right usage of ICT. The research throws light on how these organizations became more efficient, innovative, and globally competitive. As per various studies in developing and developed countries, “adoption of ICT has contributed to the improvement of organizations’ performance and the achievement of competitive advantage” (Al-Debei and Al-Lozi, 2012; Tarutė and Gatautis, 2014). Raj (2017) studied SMEs in the Mumbai region to identify the impact of IT adoption. His findings revealed increased productivity and

efficiency and faster response to the customer as the top two impacts of IT adoption. Tan *et al.*, (2009) conducted a study in Malaysian SMEs with the main objective of identifying factors influencing ICT adoption. Based on his research, he identified the various uses of ICT adoption as efficiency in work, effectiveness in business price, improved coordination with the customer, and within the organization visibility, and accessibility to wider market and improved communication. Mustafa (2015) highlighted effective communication, effective access to information, process efficiency, reduced transaction cost, expanded market reach, better coordination between customer/supplier/buyers as some benefits of IT adoption.

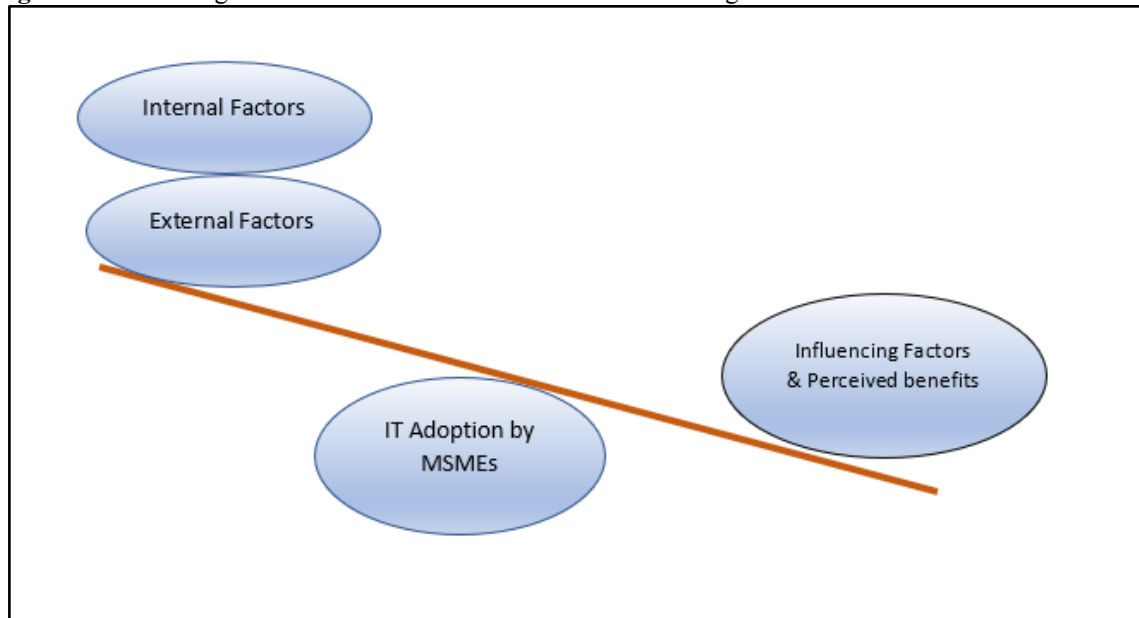
Figure 2: Internal and External factors impacting IT adoption by MSMEs



Source: Literature review of various research papers listed in the study

Adopting IT, as per Tarutė and Gatautis (2014), leads and encourages the organization to be more flexible. The study showcases how organizations tend to perform better in terms of market presence, product exhibit, or service provision. Cardona, Kretschmer, & Strobel (2013) conducted qualitative and quantitative research in developing and developed countries with the objective of identifying the effect of ICT on economic performance. The results showed a positive correlation.

Alam and Noor (2009), in their study, found that IT adoption enables a business to compete at the global scale, better their efficiency and maintain a better customer, and supplier relation. As part of this study, a number of factors impacting IT adoption have been listed and so have been the influencing factors and the benefits. The aim here is to lead to a path for further research where influencing factors and benefits overweigh the internal and external factors.

Figure 3: Influencing factors and Perceived benefits should outweigh the Internal and external factors

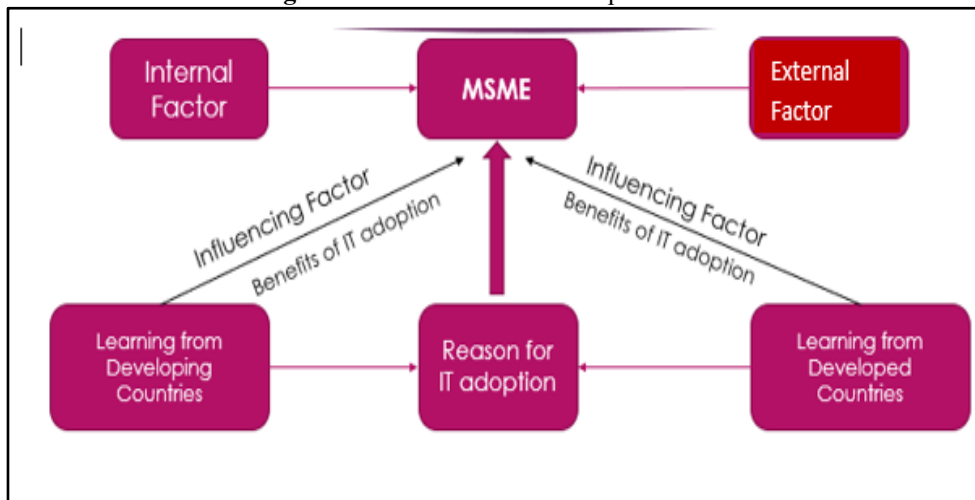
Source: Author's Compilation

Inference

Kumar, Ali and Pandey (2021) highlights the fact that there is limited research in the Indian context based on MSMEs adoption in technology. They draw the attention of entrepreneurs and researchers to join hands in handling the technology- related challenges in MSMEs. Their paper talks about the increasingly complex and competitive landscape, where the need of the hour is to align people and technology. He also refers to a lot of literature and highlights his analysis that the use of the right technology could help in the reduction of cost and time taken to innovate. It can open upon a wider range of market and also add to ease in communication. But when it comes to Indian MSMEs, there is a basic struggle related to skill, cost, knowledge, and an ecosystem that enables technology adoption. Most of these MSMEs are family-run organizations, where the owner or the manager's influence on any decision matters. With them continuing their old ways

of working and not realizing the importance of IT, makes it tough for the organization to adopt IT. The nature of family-run businesses and their challenges forms a separate area of study.

As per the International Finance Corporation report (2020), digital connectivity and digital skills will be critical for all organizations in breaking the barriers. IFC recommends govt. intervention, public and private partnership. Asia Pacific Economic Cooperation Policy brief for MSMEs shared a survey outcome of US consumers. It disclosed that post-pandemic online spending has increased by as much as 30 percent. Another survey found an increase in online shopping by almost 42 percent. This report also shared the results identified as part of the survey to identify the top benefits from digital transformation. Improved profit margins; productivity; customer retention; cost reductions; innovation in products and services, and increased revenue are some of them.

Figure 4: Framework for IT adoption in MSME

Source: Author's Compilation

This research paper comes with an additional contribution in an attempt to expand the scholarly understanding of the external and internal factors impacting IT adoption; reasons for adoption and Lessons from developing and developed countries. It also throws a quick light on the IT related initiatives taken up by Govt. of India. Each of the points mentioned is a vast topic of research in itself and could be explored independently. This paper acts as a complement for the previous research by developing a theoretical model, instead of simply putting across the static learnings. The aim here is to lead to a path for further research where influencing factors and benefits outweigh the internal and external factors. Developing the argument further, this paper documents that for MSMEs in India to successfully adopt IT and that too at a fast pace, extra efforts and push would be needed in the form of management of Govt.

DISCUSSION AND CONCLUSION

MSMEs importance and contribution to the Indian economy can't be undermined. This hub of innovation plays a crucial role in job creation and value addition to the economy, it is quite evident from the various research papers that IT adoption is a must. The pace of this adoption also needs to be multi-fold, so that they gain the right advantage. Through the study of various literature, this paper sheds the light on two aspects - Barriers to adoption; Benefits of IT adoption. The

research paper presents the studies done across developing and developed countries and presents an interesting aspect that the barriers/hurdles in IT adoption by SME/MSMEs are the same. Our study would make more sense if done in the Indian context as the nature of the MSME setup itself is different. Cultural differences and family-run business does have their own set of barriers. The aim of this paper is to set the ground for further study targeting the various benefits. These findings require empirical testing. A more comprehensive study of IT adoption in the Indian context would be necessary. One of the outcomes of the detailed study should be to identify the relation between the factors impacting IT adoption and taking corrective actions to resolve the same, with focus being on achieving the benefits.

LIMITATION OF THE STUDY

Like any other analytical study, this research paper also has its set of limitations. Our study here focuses on reviewing the existing literature across developing and developed countries. This study aims to set a background for a detailed analysis. There are many more factors contributing to the variation in the IT adoption. Cultural- differences and family operated SMEs are also some of the factors which this study does not dwell into. As part of further research, it is advisable that a sufficient sample size be considered along with a planned questionnaire. Also, a framework and a

potential correlation between the factors would do justice to the study.

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