

Difficulties Encountered by Startups While Adopting Digital Technology

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Abstract— In today's world, technology makes jobs quicker and better. By May 2024, the Internet has 5.44 billion users worldwide (67.1% of the entire population), and 5.07 billion (62.6%) use social media often. This shows how important technology is every day and for new business owners. This study looks at the hard parts of using digital technology for new companies how much they utilize it, and ways to practice it more. After COVID more people used the internet, which facilitated them to work from home, learn online, and buy things online. Bigger technology companies did well, but smaller businesses had trouble paying for new technology. Studies show not knowing enough about digital stuff is why smaller companies do not use it. Totally 75 respondents have been chosen using purposive sampling technique in Tirunelveli district. It is found that new businesses have problems like too much cost for equipment and poor internet connection but usually have the infrastructure needed to use digital technology. Still, most of their work is done by people because they are anxious, they will not make customers happy or might receive negative comments. Helping these businesses get braver with government help and changing how people's mindset about digital adoption is essential. It can help more companies use digital technology and make the economy strong.

Index Terms—Digital technology; Entrepreneurs; Internet; Startup; Technology

I. INTRODUCTION

In this digital era, every activity may be done with the support of technology. Technology facilitates us to finish the work in a short while and simultaneously, it improves the worth of the task done. As of May 2024, Worldwide, 5.44 billion people using the internet, which contributes to 67.1 percent of the global population. And 5.07 billion people that is 62.6 percent of the global population are using social media [1]. Usage of the Internet and social media shows that people are conscious of technological developments and technology plays an important role in day-to-day activities. The facts regarding the practice of digital technology by startup entrepreneurs, the troubles they experience when utilizing digital technology in their establishments, and the possible means to expand the usage level have been discussed in this paper.

A. Digital Technology Adoption

The adoption of the internet and its applications has expanded since the pandemic, allowing consumers to enjoy online shopping, students to make use of online learning opportunities, and employees to work from home. Technology industries grew 4% in the third and fourth quarters of 2020 compared to the similar period in 2019. This growth was due to the increased demand for computer electronics. But the manufacturing employment declined by 5.6% in the second quarter of 2020 and 2.5% in the third quarter of 2020 compared to the same period in 2019 [2].

Industries that can afford the technological developments find it easier to enhance their business process and provide training to their employees. Small businesses that are incompetent to bear the expense of technology advancements risk severe declines in their industry. The study attempted to identify difficulties, if any, in adopting Digital Technology.

II. LITERATURE REVIEW

E.B. Hansen and S. Bogh [3] identified that there is a limited adoption of the Internet of Things (IoT), which may be resulting from a lack of knowledge and expertise. Organizational strategy and process innovation appear to be the main drivers of small and medium-sized businesses.

O. Barbulescu et al., [4] stated that innovation can support the growth of the entire economic ecosystem sustainably. Sustainable development is a consequence of ICT application development. Changing organizational culture to support green enterprise is one inexpensive way to create a sustainable entrepreneurial ecosystem.

A. A. Syuhada and W. Gambett [5] reported in their study that MSME (Micro Small and Medium Enterprises) conduct e-commerce applications more slowly. MSMEs need the personnel with the necessary expertise in information technology.

According to C. Qiu and M. Man [6], consumer rejection can result in technology failures during the adoption of new platforms, which can then cause resistance from the consumer. This emphasizes how crucial it is to match technology characteristics to customer expectations while facing technological improvements in the corporate world. As a result, businesses can satisfy patron expectations, which

strengthens patron loyalty.

G. Aggarwal [7] stated that startups often struggle to adopt AI [Artificial Intelligence] compared to large corporations. Due to limited resources and a smaller customer base, implementing AI models and aligning business decisions with them is particularly challenging. While AI is poised to shape the future, it currently favors large corporations that have the necessary resources, expertise, and time to research and deploy the latest AI technologies.

A. Objective

The primary aim of this study is to identify the difficulties faced by startup entrepreneurs while adopting digital technology. Concurrently, assessing the level of usage of digital technology in startups is also essential. Understanding entrepreneurs' perceptions towards digitalization and providing suggestions to overcome the difficulties faced by startup entrepreneurs are also key objectives.

III. MATERIALS & METHODS

This study seeks to identify the difficulties of digital technology adoption in establishments. The usage level of digital technology is also identified. Since technology serves as a means of achieving sustainable economic development, it is simple to assess the establishments' level of environmental protection by looking at their adoption of digital technology. The basic aim of this study is to identify the possible means to handle the difficulties of technology adoption.

The population consists of entrepreneurs from various establishments in Tirunelveli district. Since the District Industries Centre has not provided an exhaustive list of entrepreneurs, the researcher adopted a purposive sampling technique. Entrepreneurs from various industries were involved in the study. A comprehensive understanding of the challenges was achieved because the entrepreneurs are from different sectors. Additionally, the researcher focused on entrepreneurs from all the taluks in Tirunelveli district. Thus, the sample is representative of the whole population. The data were analyzed using factor analysis and weighted average. A structured questionnaire was the tool utilized to gather data for this investigation.

IV. DISCUSSION

Difficulties faced by startup entrepreneurs during the implementation of digital technology in organizations have been discussed in detail. The level of digital technology implementation has also been identified. Additionally, the difficulties have been examined according to age differences. Table 1 illustrates the difficulties faced while adopting digital technologies in the startups. From Table 1, it is understood that startup entrepreneurs stated disruptions on the internet and electricity supplies as neutral factors contributing to the complications they come across while executing digital technologies in their businesses.

Table 1. Difficulties faced while adopting Digital Technology in the startups

S. NO.	PARTICULARS	AVERAGE	STANDARD DEVIATION
1	Inability to manage difficulties relating to the Internet and computer related issues	1.85	1.06
2	Lack of awareness regarding technological tools among employees	1.94	1.08
3	lack of expertise	1.96	1.16
4	Untrainable circumstances due to being employed remotely	2.1	1.27
5	Employees' opposition to change	1.97	1.11
6	Upgrading infrastructure is challenging	2.03	1.10
7	Higher cost of equipment replacement	2.43	1.17
8	Interruptions in the electricity supply	2.98	0.92
9	Interruptions in Internet connection	2.98	0.93

(Average: 1.5-2.49=Disagree, 2.5-3.49=Neutral)

Table 2. Difficulties faced while adopting Digital Technology

Factor	Variables	Component	
		1	2
System oriented	Internet connection disruptions	.904	
	Interruptions in electricity supply	.851	
	Inability to manage difficulties regarding Internet and computer related issues	.624	
Staff oriented	Higher cost of equipment replacement		.895
	Employees' opposition to change		.857
	Upgrading infrastructure is challenging		.850
	Untrainable circumstances due to being employed remotely		.724
	lack of expertise		.723
	Insufficient awareness		.675

From Table 2, nine variables regarding difficulties faced while adopting digital technology were reduced to 2 factors using factor analysis. Factor System Oriented, contains the variables Interruptions in internet connection, Interruptions in electricity supply, and Inability to manage difficulties relating to the Internet and computer-related issues. Factor Staff Oriented contains the variables Higher cost of equipment replacement, Employees' opposition to change, Upgradation of infrastructure is challenging, Untrainable circumstances due to being employed remotely, lack of expertise, and Insufficient awareness. From Table 3, it is inferred that for the system-oriented factor, the respondents belonging to the age group of 31-35, 36-40, and above 40 have stated neutral for the difficulties faced while adopting digital technology. Regarding the factor staff oriented, the respondents disagreed with the difficulties faced while adopting digital technology. This indicates that respondents do not find it challenging to

embrace digital technology in their establishments.

Table 3. Difficulties faced while adopting Digital Technology concerning the Age of Startup Entrepreneurs

Particulars	Variables	Up to 25				26-30				31-35				36-40				Above 40			
		Wi	SD	Wo	Ro	Wi	SD	Wo	Ro	Wi	SD	Wo	Ro	Wi	SD	Wo	Ro	Wi	SD	Wo	Ro
System Oriented	Inability to manage difficulties relating to the Internet and computer related issues	1.67	0.87	2.48	D	1.69	0.87	2.38	D	2.07	1.42	2.77	N	2	1.13	2.61	N	1.75	1.16	2.84	N
	Interruptions in electricity supply	2.88	0.64			2.67	0.89			3.17	1.03			2.92	1.08			3.38	0.74		
	Internet connection disruptions	2.88	0.64			2.79	0.70			3.07	1.27			2.91	1.04			3.38	0.74		
Staff oriented	Insufficient awareness	1.71	0.95			1.75	0.97			2.15	1.28			1.91	1.04			2.14	1.21		
	Lack of expertise	1.71	0.95			1.73	1.19			2.25	1.36			1.9	1.10			2.14	1.21		
	Untrainable circumstances due to being employed remotely	1	0.00			2	0.82			2.71	1.70			2.58	1.40			1.5	0.84		
	Employees' opposition to change	1.2	0.45			1.88	0.99			2.13	1.25			2.2	1.23			2.2	1.30		
	Upgrading infrastructure is challenging	1.5	0.58			2.67	1.51			2.13	0.99			1.78	0.97			2	1.26		
	Higher cost of equipment replacement	1.5	0.58			2	1.00			2.86	1.35			3.17	1.17			2.25	0.96		

From Table 4, it is inferred that the respondents have partially digitalized their procedures for new product development and designing of products. All other actions are still carried out by humans and have not been fully or even partially digitalized.

Table 4. Usage level of Digital Technology in the Establishment

S. No.	Particulars	Average	Standard Deviation	Results
1	Promotion	1.34	0.58	DHI
2	Supervising employee productivity	1.37	0.69	DHI
3	Functions in the establishment	1.39	0.62	DHI
4	Evaluating disparity in performance within the establishment	1.31	0.60	DHI
5	Managing daily operations	1.36	0.67	DHI
6	Creating product designs	1.9	0.88	PD
7	Database management	1.38	0.72	DHI
8	Quality assessment of products/services	1.4	0.71	DHI
9	Addressing inquiries	1.28	0.61	DHI
10	Accepting customer orders.	1.43	0.77	DHI
11	Assessing the establishment's productivity	1.44	0.77	DHI
12	New Product Development	2	1.00	PD
13	Monitoring the entirety of the establishment's performance	1.24	0.59	DHI

V. RESULTS

Entrepreneurs aged 31-35, 36-40, and over 40 state neutrality regarding system-oriented issues while adopting digital technology. The respondents aged up to 25 and 26-30 disagreed with these difficulties. Regarding staff-oriented issues, all respondents regardless of age, disagreed with the difficulties.

The researcher identified that startup entrepreneurs do not face major difficulties in adopting digital technology in handling internet and computer-related issues, electricity supply, and internet connection issues.

Employees have adequate knowledge and skills to operate software, and they are ready to accept changes when technological changes happen. Industrial infrastructure is optimal for upgrading the changes and developments. Changing equipment is also feasible.

Regarding the usage level of digital technology, promotion, supervising employees' performance, evaluating disparity in performance at the establishment, quality checking of products/services, addressing inquiries, and accepting orders from customers are done with human interference. Designing of products and new product development are partially digitalized.

Qiu and M. Man [6] stated that IT infrastructure facilities are not supporting the implementation of digital technologies

in the firms. However, Table 3 shows that all respondents, except those aged 26-30, disagreed with the difficulty of infrastructure upgrades. While Cai Qiu indicated unfavorable IT infrastructure, startup entrepreneurs found it manageable to upgrade. Respondents aged 26-30 were neutral, likely because they are in a learning phase and uncertain about success. Others have the capability to plan and manage financial requirements for digital transformation, indicating that IT infrastructure is not a significant barrier.

VI. CONCLUSION

The respondents have a fear of going digital because of not meeting the requirement of the clients. It may spread negative feedback regarding their brand. Therefore, despite their awareness of it and having adequate infrastructure and skilled employees to implement technological changes, they remain unwilling to use digital technology. Hence, the government may pursue policies to uplift the mindset of startup entrepreneurs. Despite their potential to adopt digital technology, they are reluctant to do so. If the negative mindset of the entrepreneurs regarding technological changes is overcome, it would be a considerable advantage for adopting technology, thereby ensuring sustainable economic development.

Entrepreneurs may be provided with proper skill development programs regarding technological advancements and their benefits. This will facilitate more entrepreneurs to adopt digital technology.

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