

**LEVERAGING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)  
FOR FINANCIAL INCLUSION THROUGH DISSEMINATION OF FINANCIAL  
EDUCATION**

**<sup>1</sup>Hrishikesh Kakde, <sup>2</sup>Dr. Kaveri Lad**

MGM Institute of Management & Research, MGM University, Aurangabad, India<sup>1</sup>, University Department of Management Science, Dr. B. A. M. University, Aurangabad, India<sup>2</sup>  
hrishikesh.kakde@mgmiom.org<sup>1</sup>, kaveri\_lad@yahoo.com<sup>2</sup>

**ABSTRACT**

A strong financial system is vital for the economic progress of a country, and to ensure a strong financial system, a country needs to make sure of two things, one, universal access to a wide range of financial services at a reasonable cost, and two, a better understanding of the financial aspects to avail the financial services. In the Indian context, both of the factors are very vulnerable, 46 percent of the Indian population is still financially excluded as of 2021 as per the report of RBI and the population has a good understanding of financial aspects is just 24 percent.

To strengthen the financial system by maximum financial inclusion through the acceleration of financial education cannot be imagined without leveraging Information and Communication Technology (ICT).

This paper is an effort made toward unfolding the role of Information and Communication Technology (ICT) in strengthening the Indian Financial System through Financial Inclusion and accelerating financial education. The main conclusion of the study is that without Information and Communication Technology (ICT) the key target areas such as financial education, and financial inclusion are not possible.

**Keywords:** *Financial Inclusion, Financial Education, Information and Communication Technology (ICT), Financial System, Financial Wellness.*

**INTRODUCTION**

Financial education and financial inclusion are recognized as essential elements for the financial empowerment of individuals and the overall stability of the financial system [1]. The major problem of financial inclusion in India is the low financial literacy of the Indian population. It has been reported that only 24 percent of the Indian population can understand compounding, knows about savings, investments, debts, and other financial terms and terminologies and their application for financial wellness.

Despite several strategic initiatives by the relevant top authorities like RBI, bodies failed to disseminate financial education, improve financial knowledge, and build a positive attitude of individuals towards financial affairs. Altogether financial literacy is the result of the financial education, financial knowledge, and financial attitude of an individual.

Gone were the days when the Government used to manage the personal finances of employees, increasing privatization, and financial stress made financial literacy a core skill for participating in modern society [2]. Institutions studying financial literacy worldwide, like the Organization of Economic Cooperation and Development (OECD), recommended that financial education must start as early as possible and can be taught in school. Despite relevant initiatives in this regard the system failed to disseminate financial education effectively due to limitations of wider reach, training the trainers, developing relevant curriculum contents, incorrect assessment, or not giving importance to the branch of study.

COVID-19 situation forced us to use the internet so badly and also lead to the growth of Internet users across India. 61 percent of Indian use the internet as of 2021, the percentage was a mere 21% in 2017[3]. Pandemic situations restricted economic activities, increased the need for contactless financial products and services, and

forced people to explore the various die mentions of hardware, software, network, and database and telecommunication devices[4] at individualized, business, and regulator, policymakers level.

Information and Communication Technology (ICT) has transformed the global landscape; the unpredictably rapid, worldwide diffusion of Information and Communication Technology (ICT) has coincided with dynamic changes across the financial system, with the introduction and spread of innovative financial services, institutions, and instruments [5] lead to wider financial accessibility. Information and Communication Technology (ICT) fosters the dissemination of information and knowledge by separating contents from their physical location [6] which can be accessed anywhere and can be used multiple times repeatedly as well. Information and Communication Technology (ICT) is an umbrella term that includes any communication device, or application encompassing cellular phones, computers, networks, videoconferencing, and distance learning [7]. With over 560 million internet users, India stands second after China as of 2020. There were 300 million internet users in rural India (the area which was impossible to cover with the traditional means of dissemination of financial education) and 335 million internet users in the urban area. Indian users ages between 20 to 29 years of age, the age considered ideal when an individual gets involved in a good number of financial transactions. The majority of the Indian digital population accessed the internet via mobile and it is interesting to know that the internet users penetration is expected to grow by 35 percent or 500 million by 2023 [8]. This is a great opportunity for dissemination of financial education at the individualized level and acceleration of financial inclusion that can easily become possible with the use of Information and Communication Technology (ICT).

### **OBJECTIVES**

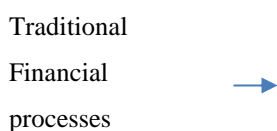
1. To identify the role of Information and Communication Technology (ICT) as an enabler for financial inclusion through the dissemination of financial education.
2. To study the conceptual ICT-enabled model eliminating barriers to financial education, and financial inclusion.
3. To investigate the relationship between the use of Information and Communication Technology (ICT) and Financial Inclusion.

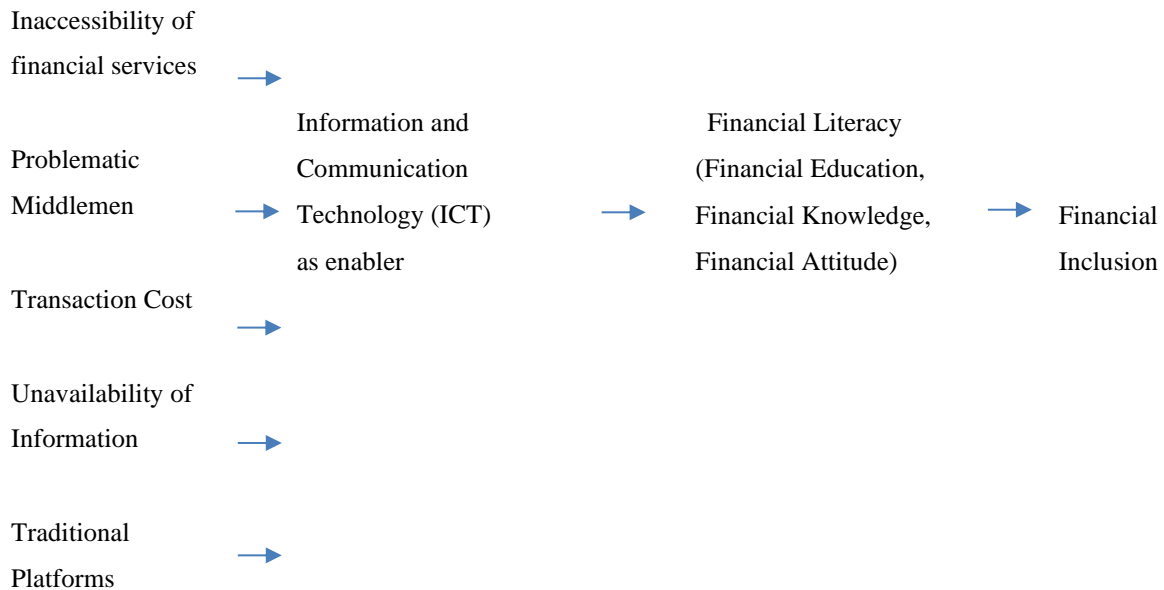
### **RESEARCH METHODOLOGY**

The present study relies on the extensive desk study, the articles, reports of reputed organizations like OECD, authorities like RBI, and various working papers published during the span of the last five years were referred. To prove the validity of the desk study a survey was conducted in Aurangabad city of Maharashtra state of the generation shifting from accessing financial services traditionally to availing the financial services through modern tools and techniques (FinTech). Researchers have used the random sampling method for data collection; a sample of 115 has been identified and analyzed to reach the conclusion. A structured questionnaire was used for data collection. Researchers have also interviewed 100 millennials to draw a conclusion. The correlation analysis tool was used to identify the relationship between the identified variables for the study.

### **CONCEPTUAL MODEL**

Fig. 1 Conceptual model





**Information and Communication Technology (ICT) as an enabler:** Information and Communication Technology (ICT) as an enabler eliminating barriers to traditional financial services, several enabler companies target specific verticals like student debt, or connecting debtors and investors. They are building platforms that enable ordinary individuals to raise funds and draw credit lines from retail investors. Apple has filed a patent for "personal payments using electronic devices" that makes it easier for iPhone users to send money. This could potentially commoditize retail banking even further. Instead of using relatively costlier bankers to broker the connection between those who have and those who want to have, the disruptors are using technology to make the matches: faster, cheaper, and maybe even better [9].

In India banking and financial services stood second in the tertiary sector contributing to the Indian economy, businesses rendering financial services nowadays rely on technology innovations, especially for the customers using digital technologies for financial affairs. China currently has the world's largest peer-to-peer (P2P) lending market and has more mobile smartphone users than any other country in the world [9] followed by India. Often, there are companies ahead of other markets that are rushing to meet customers' rapidly growing expectations of providing financial services. This includes embracing mobile innovations and creating a seamless, Omnichannel customer experience. They are using mobile analytics to serve customers in the context of their transactions. They will need to rely on technology innovations to get and keep customers [9].

A new normal has heightened the customers' expectations asking for new business models needing architecture through which one can connect anything to anywhere. For the financially weak segment of the society, apt access to and use of primary financial services can lead to improved incomes, increased resilience, and attain a standard of their lives.

Further affordable ingress to basic mobile telephone services – voice, SMS text, and a specialized system for communication service called USSD – is critical for fundamental DFS services (e.g., M-Pesa in Kenya and bKash in Bangladesh). Access to the internet (3G and above) improves the end-user experience through app-based delivery of DFS services (Alipay in China and PayTM in India). App-based DFS services make detailed information on the users' digital interactions and behavioral characteristics – enabling better-tailored products and

credit assessments. [10]. Information and Communication Technology (ICT) is proving its usefulness in the above context, as a theory of acceptance for any system perceived usefulness (PU) and perceived ease of use (PEOU) are crucial and Information and Communication Technology (ICT) is proving it from time to time.

PU stands for the degree to which an individual believes that using a particular system will enhance task performance. PEOU can be referred to as the degree to which an individual believes that using a particular system is free of physical and mental effort [11]. The Technology Acceptance Theory suggests that intention to accept technology is determined directly by attitude, perceived usefulness, and perceived ease of use. The theory is relevant to the study by advocating the adoption and application of Information Communication Technology [12]. One can sum the above context as follows:

**Information and Communication Technology  
(ICT)**

- Video conferencing
- E-mail services
- Computer facilities
- Projection screen
- Internet facilities

**Dissemination of Information**

- Information storage
- Information retrieval
- Information sharing

Source: Maryanne, K. (2018)

**RESULTS AND DISCUSSION**

Information and Communication Technology (ICT) as an enabler of financial inclusion through financial education is favorable because of the following reasons:

- Reduces the cost of financial transactions.
- Builds trust in financial deals since an individual is disclosed all the relevant information.
- Fewer documentations.
- Avoid problematic and uninformed middlemen.
- Increased availability of information.
- Individualized learning through eLearning, distance learning, Massive Open Online Courses (MOOCS), etc.
- Timely training of the trainer for updated instructions, instructions in the local language.
- Access to world-class information.
- Innovative platforms for dissemination of financial education.

Information and Communication Technology (ICT) for financial inclusion [13] helps tremendously in the following manner:

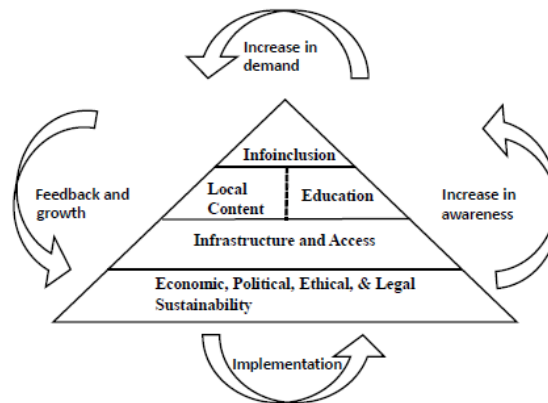
1. Infrastructure and access – This deals with the creation of individual and collective conditions for the population of the locations to access financial services involving:

- 1.1 The presence of banking facilities and technological resources;
- 1.2 Availability of services and products;
- 1.3 Accessible cost for access to the Services and the products offered.

2. Financial Education - This deals with the training of people to use the products offered in all their possibilities, comprising:

- 2.1 Presentation of the characteristics of products and services that enhance the financial resources of the citizen;
- 2.2 Presentation of the characteristics of products and services to support entrepreneurial activities that can generate more income in the locations;
- 2.3 Promotion of the use of electronic transactions, thereby replacing cash.
- 3. Services and Products - This involves an offering of a portfolio of financial products and services that takes into consideration the reality of the financial inclusion in each location served.
- 4. Sustainability – This involves the maintenance and updating of financial products and services offered in the locations, including economic aspects - logistic costs, personnel, and ICT – in addition to components associated with public policies and legal as well as ethical issues.

Figure 2 – ICT for Information inclusion



A primary survey based on a developed conceptual model was conducted by the researchers assuming that there is no significant relationship between independent variables identified and financial inclusion as a dependent variable. The researcher has found the following information:

Table – 1 Correlation between Use of ICT and Financial Inclusion

		<b>Financial Inclusion</b>	<b>Use_of ICT</b>
Financial Inclusion	Pearson Correlation	1	.492**
	Sig. (2-tailed)		.000
	N	115	115
Use_of ICT	Pearson Correlation	.492**	1
	Sig. (2-tailed)	.000	
	N	115	115

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Primary data

A relationship between the Use of ICT and Financial Inclusion was tested and it was found that the relationship between variables is statistically significant.

Table – 2 Correlations between factors studied

		1	2	3	4	5	6	7	8	9	10	11	12
Edge_over_ traditional_ process	Pearson Correlation	-											
Access_to_f inancial_ser vices	Pearson Correlation	.278*	-										
Middlemen _problems	Pearson Correlation	.347*	.335*	-									
Lower_cost _of_transact ion	Pearson Correlation	.297*	.370*	.378*	-								
Ease_of_Inf ormation	Pearson Correlation	.417*	.300*	.490*	.490*	-							
Convenience	Pearson Correlation	.414*	.241*	.503*	.437*	.590*	-						
Education_t hrough_inn ovative_plat forms	Pearson Correlation	.213*	.298*	.364*	.368*	.374*	.363*	-					
Access_to_ worldclass_i nformation	Pearson Correlation	.418*	.429*	.495*	.372*	.474*	.552*	.477*	-				
individualis ed_learning	Pearson Correlation	.350*	.421*	.455*	.380*	.339*	.430*	.462*	.492*	-			
Improveme nt_in_financ ial_knowled ge	Pearson Correlation	.295*	.248*	.397*	.336*	.281*	.417*	.390*	.395*	.464*	-		
Attitude_to wards_finan cial_service s	Pearson Correlation	.395*	.372*	.327*	.374*	.426*	.417*	.488*	.593*	.583*	.499*	-	
Inclusion	Pearson Correlation	.376*	.269*	.394*	.302*	.256*	.352*	.422*	.441*	.476*	.449*	.457	-

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Source: Primary Data

Primary data was collected and analyzed to ascertain the relationship between different factors and it was found that the variables mentioned in the table above show a statistically significant relationship with one another.

## **CONCLUSION**

This study has identified that the increasing number of Internet users, and access to other Information and Communication Technology tools, impact the demand and use patterns of users of financial services and products. Changing demand patterns of the users of financial services/products are also forcing service/product suppliers to adopt the latest technologies to cope with change and the emergence of Finance and Tech companies (FinTech) and changes in the regulatory mechanism are the results of this positive change.

It has been also observed during this study that Information and Communication Technology (ICT) is also helping in serving the masses which is one of the underlining limitations of financial inclusion in India. Information and Communication Technology (ICT) as an enabler of financial inclusion is helping in providing suitable infrastructure and wide access to the masses has become possible with it. Presentation of characteristics and support with the promotion of electronic transactions and replacement of cash is eventually strengthening the financial inclusion and financial system.

With less documentation, reduction in the transaction cost, access to world-class information, providing individualized services, information storage easy retrieval, and sharing of Information and Communication Technology (ICT) spreading financial education at a faster pace. The results based on the primary survey also show that the use of Information and Communication Technology (ICT) is positively related to financial inclusion. Finally, despite Information and Communication Technology (ICT) helping in the spread of financial education at a faster pace amongst the millennials, still, the old generation is the challenge. Broadly Financial inclusion is increasing but the real challenge is to strengthen the supporting infrastructure, development of suitable business models, reliability of the information disseminator, and finally public policies.

## **REFERENCES**

- [1] OECD (2020), OECD/INFE 2020 International Survey of Adult Financial Literacy [www.oecd.org/financial/education/launchoftheoecdinfeglobalfinancialliteracysurveyreport.htm](http://www.oecd.org/financial/education/launchoftheoecdinfeglobalfinancialliteracysurveyreport.htm)
- [2] OECD (2018), G20/OECD INFE Policy Guidance on Digitalisation and Financial Literacy
- [3] Monit Khanna (2021), Internet users in India, IndiaTimes. <https://www.indiatimes.com/technology/news/india-internet-usage-report-554181.html>
- [4] M.Bhuvana, S. Vasantha and R.Bharath(2020), Information and Communication Technology (ICT) - A drive for Financial Inclusion
- [5] Lechman, E., Marszk, A., (2015), ICT technologies and financial innovations: the case of exchange-traded funds in Brazil, Japan, Mexico, South Korea, and the United States. Technol. Forecast. Soc. Change 99, 355–376.
- [6] Oboegbulem, Angie; Ugwu, Rita N. (2013), The Place of ICT (Information and Communication Technology) in the Administration of Secondary Schools in the South Eastern States of Nigeria
- [7] Sara Hannessy, David Harrison, Leonard Wamakote (2010), Teacher factors influencing classroom use of ICT in Sub-Saharan Africa
- [8] [SandhyaKeelery](#) (2021), Internet usage in India - statistics & facts
- [9] Julien Courbeet. al. (2020). Financial Services Technology 2020 and Beyond: Embracing disruption
- [10] CeylaPazarbasiogluet. al. (2020). Digital Financial Services, World Bank Group.

- [11] Davis, Fred D. (1993/03). "User acceptance of information technology: system characteristics, user perceptions, and behavioral impacts." International Journal of Man-Machine Studies 38(3): 475-487. <http://hdl.handle.net/2027.42/30954>
- [12] Maryanne, K. (2018). Role of ICT in Dissemination of Information in Secondary Schools in Kenya: A Literature-Based Review, Journal of Information & Technology Vol 2(2) pp. 28-38.
- [13] LuizJoia, Ricardo Santos. ICT and Financial Inclusion in the Brazilian Amazon. 16th International Conference on Electronic Government (EGOV), Sep 2017, St. Petersburg, Russia. pp.199-211, 10.1007/978-3-319-64677-0\_17. Hal-01702969
- [14] Asha Mamraj Sharma (2016). The vital role of ICT in Financial Inclusion: An embodying opportunity for India. IISUniv.J.Com.Mgt. Vol.5(1), 85-95 (2016)
- [15] Sanjeev Kumar Gupta (2011). Financial Inclusion - IT as an enabler. Reserve Bank of India Occasional Papers Vol. 32, No. 2, Monsoon 2011
- [16] OECD (2020), Advancing the Digital Financial Inclusion of Youth, [www.oecd.org/daf/fin/financial-education/advancing-the-digital-financial-inclusion-of-youth.htm](http://www.oecd.org/daf/fin/financial-education/advancing-the-digital-financial-inclusion-of-youth.htm)

