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Digital Financial Literacy in Rural India:

A Study of Aligarh District

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Abstract

Digital financial services have emerged as a powerful tool to expand access to the formal financial system, building upon the rapid growth of digital and mobile telephones with internet infrastructure and the advent of branchless banking. Therefore, digital financial literacy is now an essential life skill and the requirement for success usage of these services. The inability to access or use digital technologies has effectively become a barrier to social integration and personal and economic development. As India focuses on the biggest digital transformation in recent years, it is a necessary imperative to empower every citizen with the awareness, information, and knowledge required to join and absorb the digital revolution and help India progress along the path of a less-cash digital financial economy. But this is a great challenge to the stakeholders to create such a well-informed knowledge society, especially with a lower level of education of people living in the rural areas. A comprehensive approach for measuring Digital Financial Literacy Index (DFLI) employed by comprising the indicators likes digital financial awareness, digital financial knowledge, and skills, digital financial attitude and behavior for this study.

Key words: Digital Financial Literacy, Digital Financial Knowledge, Digital Financial Behaviour, Digital Financial Attitude.

1. Introduction: The banking and financial sector has undergone radical transformation and improvements in the last few years and is in a constant state of development. In recent years the world has faced a significant digitalization of daily human activities, influencing the way people communicate and interact with each other through social, commercial, and financial relations. These advancements in digital technology are driving considerable changes in the global economy and society as a whole (OECD, 2015). They are also changing the way financial services are delivered, with an overall global upward trend in the uptake of digital financial services. It is expected that this uptake of digital financial services will continue to grow in the coming years, acting as a catalyst for further

development and innovation (OECD, 2017). According to the Group Special Mobile Association (GSMA, 2017), a trade body that represents the interests of mobile operators worldwide, digital financial services are now widely available to over 60 percent of the world's population. This digitalization has allowed large numbers of previously unbanked consumers to access financial services through digital mode, mainly via easy mobile channels. These channels are growing in popularity, including in emerging markets and developing economies. Digital technologies and other devices offer affordable ways for the financially excluded, especially rural households.

Digital financial services (DFS) have emerged as a powerful tool to expand access to the formal financial system, building upon the rapid growth of digital and mobile telephones with internet infrastructure and the advent of branchless banking, which offers the ability to transact outside of a traditional bank branch. Therefore, digital financial literacy is now an essential life skill and the requirement for success usage of DFS. The inability to access or use digital technologies has effectively become a barrier to social integration and personal and economic development. Digital financial literacy is having the knowledge, awareness, acquired skills, and developing necessary habits to use digital devices for financial transactions effectively. This intersects with an individual's basic literacy levels and the individual's ability to use digital devices/technology. Thus, it is key to creating a generation of informed people, capable of benefiting from the best that innovation and digital technology have to offer.

As India focuses on the biggest digital transformation in recent years, Union Budget 2017 had a section on Promoting Digital (Decoding Union Budget 2017's Impact on Digital Payments in India) in the budget speech apart from policy provisions in the Union Budget to impact these changes. With this deep focus, it is a necessary imperative to empower every citizen with the awareness, information, and knowledge required to join and absorb the digital revolution and help India progress along the path of a less-cash digital financial economy. But this is a great challenge to the government, policymakers, bankers, and other financial institutions to create such a well-informed knowledge society, especially with a lower level of education of people living in the rural areas. Therefore, the digital financial literacy for rural India emphasizing to reduce risks of uninformed rural citizens about digital financial aspects and bring them under mainstream economic system through creating skill, knowledge, awareness, behavior, and attitude of individuals to use digital financial devices/technology.

2. Literature Review: Singh & Rana (2017) tried to understand the customer perception towards digital payment. Their study revealed that, except for education, no other demographic factor has much impact on the adoption of digital payment. ANOVA computation of the data supported their findings. It also reveals that the education level of the customer influenced the adoption of digital payment. The person who studied above matriculation and internet savvy are more prone to transact digitally. The area which has more literate people has a more digital transaction. The sudden growth of smart and internet penetration influenced the adoption of digital transactions in that area.

Rajanna (2018) conducted a primary survey of 150 participants from the Chikkmagluru district of Karnataka to study the perception and awareness of cashless transactions. His study reveals that the majority of the respondent's access to digital transactions and all of them have access to ATM. Almost all the respondents agreed to the government initiative on cashless transactions, but they fear cyber-crime and illegal access. The socio-economic dimension of the respondents has a significant influence on the awareness and perception of cashless economy.

Niranjan (2017) studied the digital financial inclusion of the informal sector, for this, the researcher case studied two auto-rickshaw drivers from Pune, Maharashtra. The study reveals that financial capacity is the major factor which obstructs people to penetrate to digital finance since they cannot afford smartphone and internet connection.

Som (2017) evaluated how digital banking is transforming India. Post demonetization, the government of India is pushing digital transitions and set a goal for digital transactions in the next financial year through multiple platforms. In the wave of digital transactions, the traditional banking sector is influenced, and to remains in the market, they have started innovating digital financial products and services. The researcher pointed out that India offered unique architecture for digital banking, which is not available in China or the USA. These include the eKYC system and Aadhar Authentication. The smartphone penetration in India can be a driver for digital banking in India, but the technology interference and other advanced are merely enablers and not drivers for the shift to digital payment. India suffers digital infrastructure though the card has from two decades, the spending thorough it has not been increased much yet.

Ozili (2018) explores the impact of digital finance for financial inclusion and financial system stability. Digital finance through Fintech providers has positive effects on financial inclusion in emerging and advanced economies. There are both cons and pros of the DFS. The major pros are that it enables people to make and receive payments within a second while major Cons is that its required smartphone; those who don't have smartphones were excluded.

Haider (2018) examined the innovative financial technologies that support the livelihoods of the people. Access to digital financial technologies and devices, in particular, mobile phones, internet connectivity, and biometric authentication, allow for a broader range of financial services, such as online banking, mobile phone banking, and digital credit for the unbanked. Digital financial services can be considered as more convenient and affordable than conventional banking services, enabling low-income and poor people in developing countries like India to save and borrow in the traditional financial system, earn a financial return and smooth their consumption.

ITU(2016), in the report "The Digital Financial Services Ecosystem," explained the digital financial services and their roles in the financial Ecosystem. The players include users, providers, Infrastructure and governmental policies, laws, and regulation, and all the

three-player is needed for the financial ecosystem. The user includes consumers business, government agencies, and non-profit groups which need digital and interoperable financial products and services. The providers include banks, other licensed financial institutions, and non-banks who supply digital financial products and services through digital means in an accessible, affordable, and safe manner. The service can be accessible, affordable, and safe manner only through better financial, technical and other infrastructure through better government policies

Patankar, Vyas, & Tyagi (2017) discussed the influence of digital literacy programs across India. They believed that technology and connectivity together could change the socio-economic levels of a community, and ultimately, the country since real progress comes from inclusive growth. The study reveals that under both literacy schemes NDLM and DISHA, more than 10 million people have been enrolled across the nation, of which only 8.2 million participants have been trained and 5.25 million have duly certified successfully. They highlighted various innovative approaches through which programs can be implemented throughout the nation.

3. Methodology for Measuring Digital Financial Literacy Index (DFLI): Digital technologies are increasingly integrated into the economy and are making a significant impact on the financial sectors by initiating new financial products and services. Because of the digitalization of financial products and services in especially after demonetization there is a resultant requirement of strengthening digital financial literacy has become an major part of the global policymaking schedule. The outcome-based core competencies frameworks include aspects of digital financial awareness, knowledge, skill, and behaviors that are considered important to achieve financial well-being and beneficial use of DFS. A composite index of digital financial literacy was constructed where several indicators of digital financial literacy have been used to assess the extent of its level. A comprehensive approach for measuring Digital Financial Literacy Index (DFLI) employed by comprising the indicators likes digital financial awareness, digital financial knowledge, and skills, digital financial attitude and behavior for this study.

3.1 Digital Financial Awareness: It means the awareness of the different types of financial products and services delivered through modern digital means for personal or business transaction purposes, including their benefits and risks of their transactions. If individuals are worried about factors like privacy and security, some may abstain from using digital financial services in total, consequent in missing opportunities and lead to digital exclusion (OECD, 2017e). The lack of knowledge with the financial products and providers accessible may further decrease trust. This lacking of awareness about digital technologies for payments and other resulted in digital financial exclusion. Thus, awareness of digital technologies is the key to the success of digital financial inclusion.

The Likert type three-point scale was developed and used to examine the level of awareness about various digital and financial products and services provided by banks and other financial institutions among rural household of Aligarh District. The questions were

asked from rural people to use a scale to indicate whether they not aware, partially aware and fully aware with 22 digital financial products and services provided by various financial institutions. The digital financial attitudes score is computed as the sum of the values for the 22 products and services. This score ranges from 0 to 44. The digital financial awareness indicators are first normalized using a minimum value and maximum value of the score and actual value achieved by the respondents. Digital Financial Awareness index (DFAI) is calculated using a minimum value of zero and a maximum value of 44 points. The normalized value of the indicator ranges from zero to one.

3.2 Digital Financial Knowledge and Skills: The second dimension is knowledge and skills using digital financial products and services, which captures the basic understanding of digital financial products and services. It is the ability, skills and knowledge to use a variety of digital financial products and services and media software applications and hardware devices, such as a computer, a mobile phone, and Internet technology. It contains ten questions regarding digital financial ability, skill, and knowledge.

The Digital Financial Knowledge and Skills score is computed as the sum of the values for the ten questions. The Digital Financial Knowledge and Skills indicators are first normalized using a minimum value and maximum value of the score and actual value achieved by the respondents. Digital Financial Knowledge and Skills Index (DFKSI) is calculated using a minimum value of Zero and a maximum value of 10 points. The normalized value of the indicator ranges from zero to one.

3.3 Digital Financial Attitude and Behaviour: The third dimension of digital financial literacy is attitude and behaviours toward digital financial technologies. It is the individual characteristics that take the form of tendencies towards digital financial practices or actions. It shows the inclination or likelihood of a person to undertake a behavior. A vast array of attitudes, behaviors, experiences, and beliefs influence adoption of and satisfaction with digital finance. Individuals and firms need to understand the additional risks that they may incur when using DFS, which are more diverse but sometimes harder to spot than those associated with traditional financial products and services. DFS users should be aware of the existence of online fraud and cybersecurity risks. It is the perceptions, beliefs, and feelings about the transformative areas of financial innovations like digital financial products, services and its infrastructures. It shows confident to be able to make an informed decision about using a traditional or new type of financial product or service.

Digital financial attitude and behavior contain six questions in this category. The Likert type five-point scale was developed and used to examine the perception about various digital and financial products and services provided by banks and other financial institutions among rural household of Aligarh District. The Digital financial attitude and behavior score is computed as the sum of the values for the six statements and organized in a 5-point Likert scale model. This score ranges from 1 (strongly disagree) to 5 (strongly agree) which aims to identify how people will evaluate their financial attitude. The Digital financial attitude and behavior indicators are first normalized using a minimum value and maximum value of

the score and actual value achieved by the respondents. Digital financial attitude and behavior Index (DFABI) is calculated using a minimum value of one and a maximum value of 30 points. The normalized value of the indicator ranges from zero to one.

3.4 Digital Financial Literacy Index (DFLI): The Digital Financial Literacy Index (DFLI) were developed by comprising the indices namely Digital Financial Awareness Index (DFAI), Digital Financial Knowledge and Skills Index (DFKSI) and Digital Financial Attitude and Behaviour Index (DFABI). The first step in calculating the Digital Financial Literacy Index (DFLI) is to create the dimension indices for the three dimensions. This is done by normalizing the indicators into indices whose values range from 0 to 1, using the minimum and maximum values. Secondly the overall DFLI is then calculated by taking the arithmetic mean of normalized indices measuring achievements in each dimension. Because the arithmetic mean is used for aggregation, any change in the maximum value for the normalization will not affect the ranking. The fixed boundaries used for each indicator of the DFLI are summarized in table1 below.

Indicator	Minimum	Maximum
Digital Financial Awareness	0	44
Digital Financial Knowledge and Skills	0	10
Digital Financial Attitude and Behaviour	1	30

Having first defined the minimum and maximum values, the dimension-specific indices are the calculated as follows:

$$\text{Dimension Index} = \frac{\text{Actual Value} - \text{Minimum Value}}{\text{Maximum Value} - \text{Minimum Value}}$$

After calculating the indices for the three dimensions, the scores are aggregated into a composite index using a arithmetic mean, which is the cube root of the product of the three dimensions indices.

$$\text{DFLI} = \frac{\text{DFAI} + \text{DFKSI} + \text{DFABI}}{3}$$

Where,

DFLI = Digital Financial Literacy Index

DFAI = Digital Financial Awareness Index

DFKSI = Digital Financial Knowledge and Skill Index

DFABI = Digital Financial Attitude and Behaviour Index

Digital Financial Literacy Index value lies between zero (the lowest level of digital financial literacy) and one (the highest level of digital financial literacy) and tehsils, blocks and villages of Aligarh districts are then ranked accordingly.

Category	Financial Literacy Score
Poor Digital Financial Literacy	0 - 0.25
Satisfactory Digital Financial Literacy	0.26 - 0.50
Good Digital Financial Literacy	0.51 - 0.75
Excellent Digital Financial Literacy	0.76 - 1.00

The respondent who scores is zero would be considered digital financial illiterate. The respondent who scores more than zero points on aggregate basis would be technically considered digital financially literate. However, we can further segregate digital financial literate segment into four categories – poor digital financial literacy, satisfactory digital financial literacy, good digital financial literacy and excellent digital financial literacy. The respondent who scores less than 0.25 points would be considered poor digital financial literate. The respondent who scores more than 0.25 points but scores less or equal to 0.50 points would be considered satisfactory digital financial literate. The respondent who scores more than 0.5 points but scores less or equal to 0.75 points would be considered good digital financial literate. The respondent who scores more than 0.75 points would be considered excellent digital financial literate.

4. Digital Financial Awareness: The digital financial awareness index of Aligarh district is only 0.32 reveals just a satisfactory level of digital financial awareness. About 46 percent of respondents lie in the category of satisfactory digital financial awareness, followed by poor digital financial awareness (38 percent). Surprisingly only one percent comes under excellent digital financial awareness.

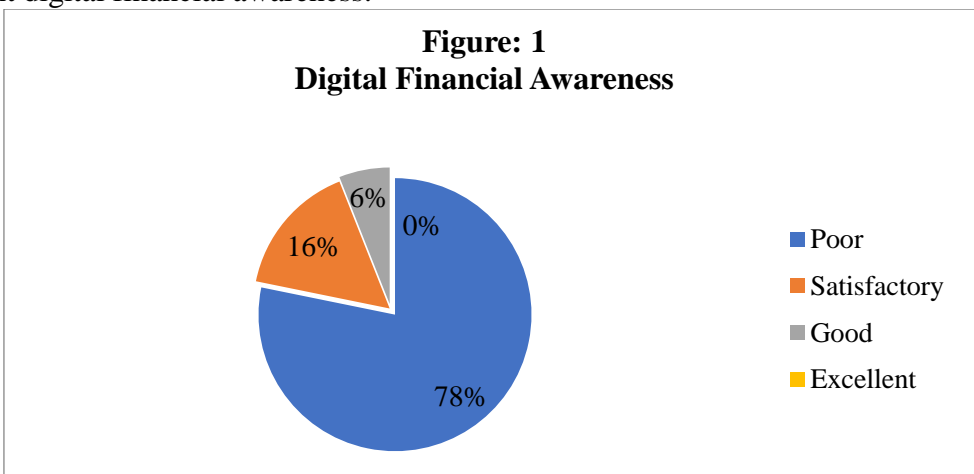
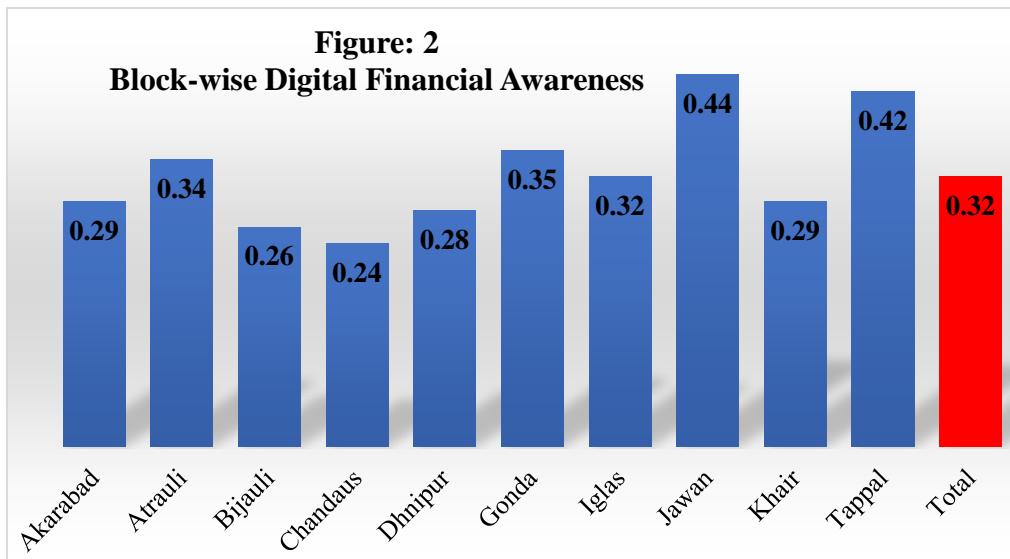


Table: 1
Tehsil-wise Digital Financial Awareness (Percent)

Tehsil	Poor	Satisfactory	Good	Excellent	DFAI
Atrauli	41.0	49.0	10.0	0.0	0.30
Gabhana	35.0	50.0	13.0	2.00	0.34
Iglas	30.0	48.0	19.0	3.0	0.34
khair	35.0	40.0	25.0	0.0	0.35
Koil	50.0	43.0	7.0	0.0	0.28
Total	38.2	46.0	14.8	1.00	0.32

Source: Author Calculation

The table 1 shows the tehsil wise digital financial awareness of respondents of Aligarh district. The survey found that the highest digital financial awareness index is found in Khair Tehsil with a value of 0.35, followed by Gabhana and Iglas tehsils, with 0.34 showing a just low level satisfactory digital financial awareness. The lowest index value reported from Koil tehsil with only 0.28. The figure 2 displays a block-wise digital financial awareness index. The block-wise digital financial awareness index demonstrates that the Jawan Sikanderpur block from Gabhana Tehsil and Tappal block from Khair tehsil found the highest point with 0.44 and 0.42 respectively. Chandaus block from Gabhana tehsil reported only the value of 0.24 as the least index score showing poor digital financial awareness.



Source: Author Calculation

The village wise digital financial awareness index (DFAI) is shown in table 2. The survey found that Madan Garhi village of Jawan Sikanderpur block of Ghabana Tehsil reported a high index value of 0.48, followed by the Tappal village of Tappal block of Khair Tehsil with 0.44 value as against Aligarh district scenario of 0.32 points showing satisfactory digital financial awareness. The lowest digital financial awareness index is found in the Meerpur village of Dhanipur block with a value of only 0.19, showing poor digital financial awareness. Besides, the villages, namely Deta Saidpur, Rajpur, and Rustamnagar, found in the category of poor digital financial awareness. Surprisingly, no villages are to be found in good and excellent categories of digital financial awareness showing the depth of digital financial awareness backwardness.

Table: 2

Village-wise Digital Financial Awareness (Percent)

Villages	Poor	Satisfactory	Good	Excellent	DFAI
Barauli Khas	40.0	24.0	32.0	4.00	0.40
Bhamraula	24.0	48.0	28.0	0.00	0.36
BhimpurHaripura	36.0	64.0	0.0	0.00	0.30
Bithauli	36.0	48.0	16.0	0.00	0.30
Deta Saidpur	64.0	36.0	0.0	0.00	0.20
GadaKhera	72.0	0.0	16.0	12.00	0.29
Gopalpur	40.0	60.0	0.0	0.00	0.29
Harbanshpur	24.0	52.0	24.0	0.00	0.38
Madan Garhi	0.0	76.0	20.0	4.00	0.48
Mahamudpur Jamalpur	24.0	60.0	16.0	0.00	0.36
Meerpur	100.0	0.0	0.0	0.00	0.19
NagariaPatticharam	40.0	48.0	12.0	0.00	0.29
Nagla Danda	12.0	64.0	24.0	0.00	0.40
Nagla Rana Baraula	24.0	64.0	12.0	0.00	0.30
Rajpur	76.0	24.0	0.0	0.00	0.21
Ramnagar	12.0	76.0	12.0	0.00	0.35
Rampur	12.0	52.0	36.0	0.00	0.40
Rampur Shahpur	36.0	64.0	0.0	0.00	0.28
Rustamnagar	64.0	36.0	0.0	0.00	0.22
Tappal	28.0	24.0	48.0	0.00	0.44
Total	38.2	46.0	14.8	1.00	0.32

Source: Author Calculation

Sources of Information about Digital Financial Products and Services: The respondents have received information about digital financial products and services from various sources, as given in the table 6.3. The large proportion of respondents (67.6 percent) are got information about digital financial products and services from relatives, followed by 57.8 percent from TV/ Radio, advertisement, and newspapers. Only 2.6 percent of the respondents gained information from the training program conducted for creating awareness about the digital mode of payments. It shows that very meager and low program initiatives done by government, financial institutions, and other agencies for creating awareness about digital financial products and services. It reflects that the low level of awareness and information regarding digital financial products and services call for a serious need for policy interventions to educate rural people financially and digitally.

Table: 3

Sources of Digital Financial Awareness

Source of Awareness	No. of Respondents	Percentage
T.V/ Radio	289	57.8
News Paper	217	43.4
Internet Source	147	29.4
Advertisement	259	51.8
Social Media	148	29.6
Friend/ Relatives	338	67.6
Training Program	13	2.6
Others	7	1.4

Source: Author Calculation

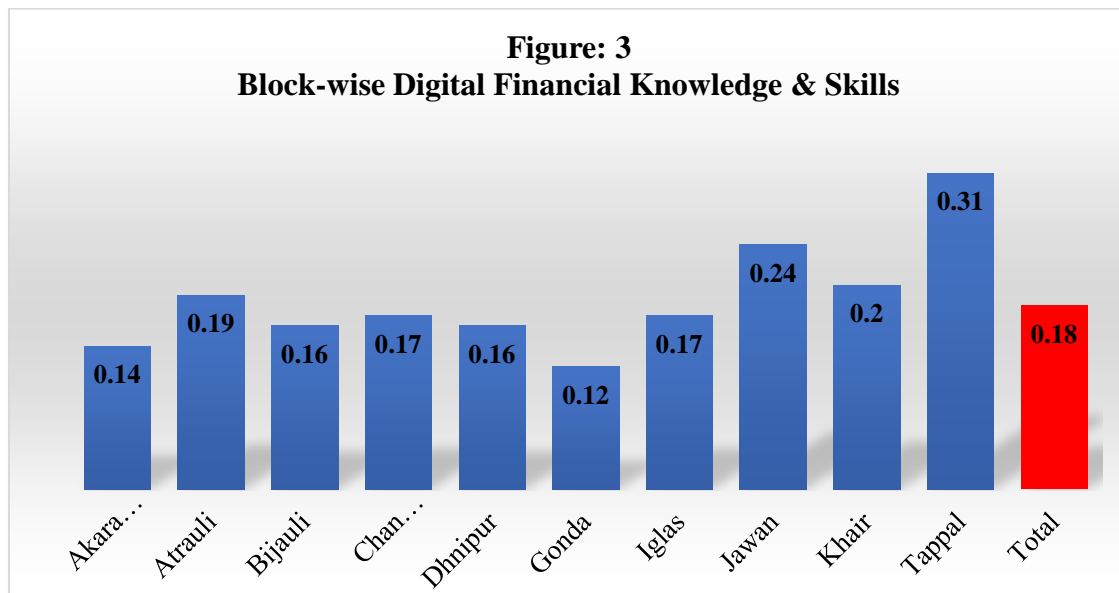
5. Digital Financial Knowledge and Skills: The digital financial awareness index of Aligarh district is only 0.18 reveals the poor level of digital financial knowledge and skills. About 77.8 percent of respondents were found in the category of poor digital financial knowledge and skills, followed by poor digital financial awareness (38 percent). Surprisingly, no one comes under excellent digital financial knowledge and skills and only 1.8 percent in good digital financial knowledge and skills showing extreme backwardness in the rural areas of Aligarh district.

Table: 4
Tehsil-wise Digital Financial Knowledge & Skills

Tehsils	Poor	Satisfactory	Good	Excellent	DFKS
Atrauli	80.0	20.0	0.0	0	0.17
Gabhana	72.0	24.0	4.0	0	0.21
Iglas	90.0	8.0	2.0	0	0.14
Khair	59.0	38.0	3.0	0	0.25
Koil	88.0	12.0	0.0	0	0.15
Total	77.8	20.4	1.8	0	0.18

Source: Author Calculation

The tehsil wise digital financial knowledge and skills of respondents of Aligarh district are given in the table 4. The result shows that the highest digital financial knowledge and skills index is found in Khair Tehsil with a value of 0.25, only followed by Gabhana and Atrauli tehsils with a value of 0.21 and 0.17 respectively showing a poor digital financial knowledge and skills. The lowest index value found in Iglas tehsil, with only 0.14, followed by Koil (0.15). The figure 6.3 displays block-wise digital financial knowledge and skills index. The block-wise digital financial knowledge and skills index discloses that the Tappal block from Khair tehsil with the value 0.31 showing the low satisfactory level of digital financial knowledge and skills. All the remaining blocks, namely Jawan Sikanderpur, Chandaus, Akrabad, Atrauli, Bijauli, Dhanipur, Gonda, Khair, and Iglas, were reported only the value less than 0.25 showing poor digital financial knowledge and skills.



Source: Author Calculation

The village wise digital financial knowledge and skills index (DFKSI) is shown in the table 5. The survey found that Nagla Danda village of the Tappal block of Khair Tehsil reported a high index value of 0.32, followed by Barauli Khas village of JawanSikanderpur block of Ghabana Tehsil with 0.30 value as against Aligarh district scenario of 0.17 showing satisfactory digital financial knowledge and skills. The lowest digital financial knowledge and skills index is found in the Meerpur village of Dhanipur block and Nagla Rana Baraula village of Gonda block with a value of only 0.10, showing poor digital financial knowledge and skills. Except for the villages, namely Barauli Khas, Bhamraula, Nagla Danda, and Tappal, all the other sixteen villages were found in the category of poor digital financial knowledge and skills. Surprisingly, no villages are to be found in good and excellent categories of digital financial knowledge and skills, showing the depth of digital financial knowledge and skills backwardness.

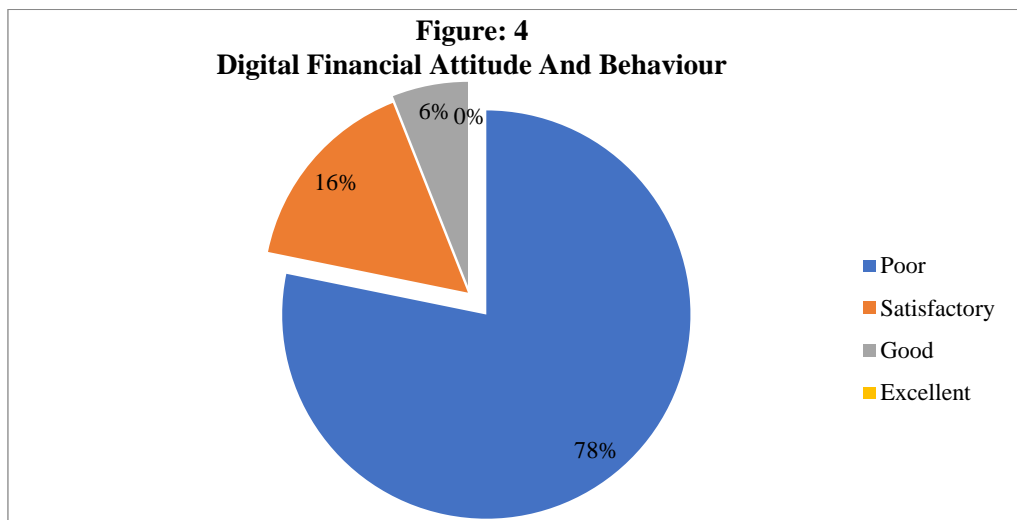
Table: 5
Village-wise Digital Financial Knowledge & Skills

Village	Poor	Satisfactory	Good	Excellent	DFKS
Barauli Khas	52.0	36.0	12.0	0	0.30
Bhamraula	56.0	40.0	4.0	0	0.28
BhimpurHaripura	92.0	8.0	0.0	0	0.14
Bithauli	80.0	20.0	0.0	0	0.17
Deta Saidpur	84.0	16.0	0.0	0	0.14
GadaKhera	72.0	24.0	4.0	0	0.22
Gopalpur	92.0	8.0	0.0	0	0.13
Harbanshpur	72.0	28.0	0.0	0	0.20
Madan Garhi	76.0	24.0	0.0	0	0.19

Mahamudpur Jamalpur	68.0	32.0	0.0	0	0.22
Meerpur	100.0	0.0	0.0	0	0.10
NagariaPatticharam	92.00	8.0	0.0	0	0.13
Nagla Danda	40.0	56.0	4.0	0	0.32
Nagla Rana Baraula	100.0	0.0	0.0	0	0.10
Rajpur	96.0	4.0	0.0	0	0.11
Ramnagar	96.0	4.0	0.0	0	0.11
Rampur	92.0	4.0	4.0	0	0.14
Rampur Shahpur	76.0	20.0	4.0	0	0.20
Rustamnagar	76.0	24.0	0.0	0	0.18
Tappal	44.00	52.0	4.0	0	0.29
Total	77.80	20.4	1.8	0	0.18

Source: Author Calculation

6. Digital Financial Attitude and Behaviour: The third indicator of digital financial literacy is attitude and behaviour toward digital financial technologies. The digital financial attitude and behavior index of Aligarh district is only a value of 0.22 reveals the poor level of digital financial attitude and behavior. A significant percentage of respondents (78.2 percent) come under the category of poor digital financial attitude and behavior, followed by a satisfactory digital financial attitude and behavior (15.8 percent). However, no one comes under excellent digital financial attitude and behavior, and only six percent in good digital financial attitude and behavior.



Source: Author Calculation

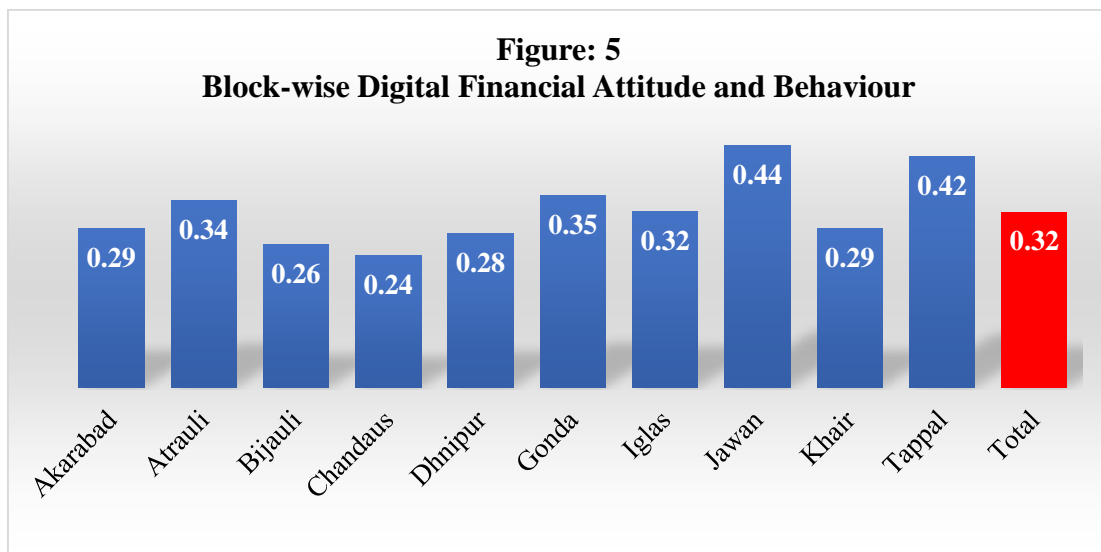
Table: 6

Tehsil-wise Digital Financial Attitude and Behaviour

Tehsil	Poor	Satisfactory	Good	Excellent	DFAB
Atrauli	87.0	11.0	2.0	0	0.19
Gabhana	73.0	21.0	6.0	0	0.23
Iglas	77.0	19.0	4.0	0	0.22
khair	64.0	18.0	18.0	0	0.27
Koil	90.0	10.0	0.0	0	0.19
Total	78.2	15.8	6.0	0	0.22

Source: Author Calculation

The tehsil wise digital financial attitude and behavior of respondents of Aligarh district are shown in the table 6. The highest digital financial attitude and behavior index is found in Khair Tehsil with a value of 0.27 only followed by Gabhana and Iglas tehsils with a value of 0.23 and 0.22 respectively showing a poor digital financial attitude and behavior. The lowest index value found in Atrauli and Koil tehsils with the value only 0.19. The figure 5 displays block-wise digital financial attitude and behavior index. The block-wise digital financial attitude and behavior index found that the Jawan Sikanderpur block from Ghabana tehsil with the value 0.44 showing the satisfactory level of digital financial attitude and behavior followed by Tappal block of Khair Tehsil (0.42). The lowest digital financial attitude and behavior is found in Chandaus block from Ghabana Tehsil, with a value of 0.24 showing a poor digital financial attitude and behavior.



Source: Author Calculation

The village wise digital financial attitude and behavior index (DFABI) is shown in the table 7. The survey found that the Tappal village of the Tappal block of Khair Tehsil reported a high index value of 0.39, followed by Barauli Khas village of JawanSikanderpur block of Ghabana Tehsil with 0.29 value as against Aligarh district scenario of 0.22

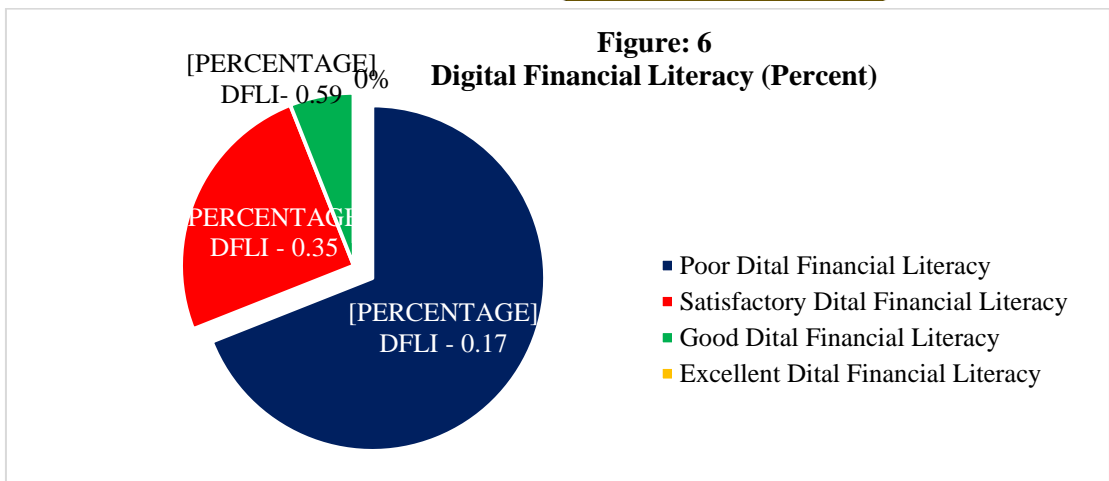
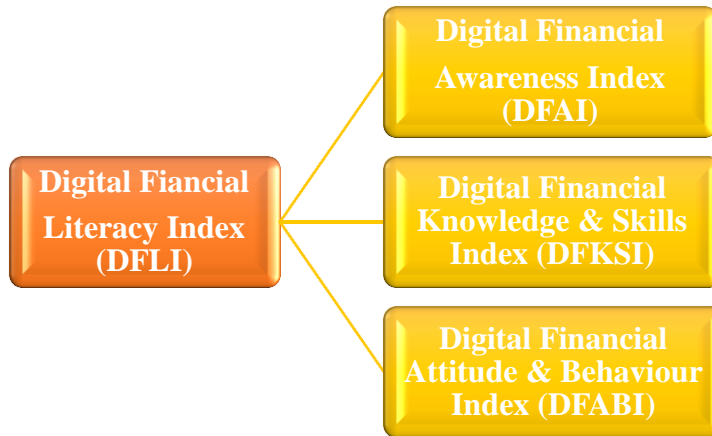
showing satisfactory digital financial attitude and behavior. The lowest digital financial attitude and behavior index is found in the Rustamnagar village of Bijauli block showing poor digital financial attitude and behavior. Most of the villages were found in the category of poor digital financial attitudes and behavior. Surprisingly, no villages are to be found in the excellent category of digital financial attitude and behavior and only six percent in good digital financial attitude and behavior, showing the depth of digital financial attitude and behavior backwardness.

Table: 7
Village-wise Digital Financial Attitude and Behavior

Villages	Poor	Satisfactory	Good	Excellent	DFAB
Barauli Khas	60.0	24.0	16.0	0	0.29
Bhamraula	68.0	24.0	8.0	0	0.24
BhimpurHaripura	84.0	16.0	0.0	0	0.20
Bithauli	84.0	16.0	0.0	0	0.20
Deta Saidpur	60.0	40.0	0.0	0	0.22
GadaKhera	68.0	16.0	16.	0	0.28
Gopalpur	84.0	16.0	0.0	0	0.19
Harbanshpur	80.0	12.0	8.0	0	0.22
Madan Garhi	76.0	16.0	8.0	0	0.24
Mahamudpur Jamalpur	88.0	12.0	0.0	0	0.19
Meerpur	100.0	0.0	0.0	0	0.18
NagariaPatticharam	88.0	12.0	0.0	0	0.19
Nagla Danda	60.0	24.0	16.0	0	0.27
Nagla Rana Baraula	100.0	0.0	0.0	0	0.18
Rajpur	88.0	12.0	0.0	0	0.19
Ramnagar	92.0	8.0	0.0	0	0.18
Rampur	48.0	52.0	0.0	0	0.25
Rampur Shahpur	96.0	4.0	0.0	0	0.18
Rustamnagar	100.0	0.0	0.0	0	0.17
Tappal	40.0	12.0	48.0	0	0.39
Total	78.2	15.8	6.0	0	0.22

Source: Author Calculation

5. Digital Financial Literacy Index (DFLI): Considering the importance of the Digital Financial Literacy, the objective of this study was to construct the Digital Financial Literacy Index (DFLI) model and its comparison at various levels. The model was developed by comprising the indices, namely the Digital Financial Awareness Index (DFAI), Digital Financial Knowledge and Skills Index (DFKSI), and Digital Financial Attitude and Behaviour Index (DFABI).



Source: Author Calculation

The digital financial literacy index of Aligarh district is only 0.24 shows a poor level of digital financial literacy. About 69 percent of respondents were found in the category of poor digital financial literacy, and their DFLI is only 0.17, followed by satisfactory digital financial literacy (25 percent), and DFLI is only 0.35. Surprisingly no one comes under excellent digital financial literacy and only six percent in good digital financial literacy with the DFLI value of 0.59 showing good digital financial literacy. But the overall digital financial literacy index in the rural areas of Aligarh district is 0.24 represents poor digital financial literacy and express the depth of backwardness. This result shows that there is no need for a series of policy interventions from the parts of various stakeholders to improve the digital financial literacy of the respondents.

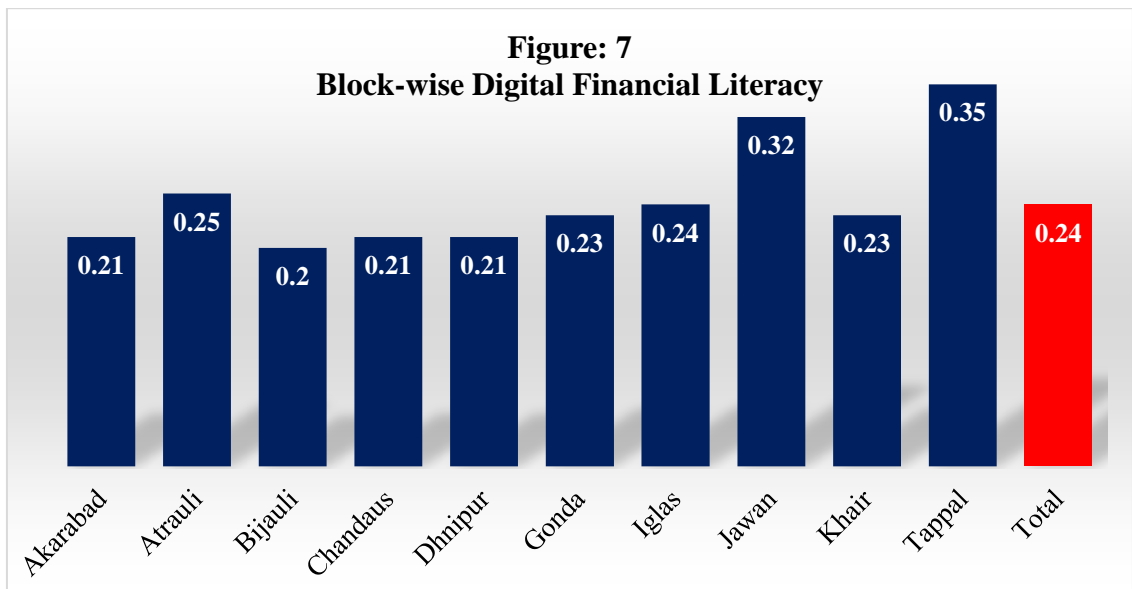
Table: 8
Tehsil-wise Digital Financial Literacy

Tehsils	Poor	Satisfactory	Good	Excellent	DFLI
Atrauli	76.0	22.0	2.0	0	0.22
Gabhana	61.0	31.0	8.0	0	0.26

Iglas	73.0	23.0	4.0	0	0.23
khair	57.0	27.0	16.0	0	0.29
Koil	78.0	22.0	0.0	0	0.21
Total	69.0	25.0	6.0	0	0.24

Source: Author Calculation

The tehsil wise digital financial literacy of respondents of Aligarh district is shown in the table 8. The highest digital financial literacy index is found in Khair Tehsil with a value of 0.29, followed by Gabhana tehsil with a value of 0.26, showing just satisfactory digital financial literacy. The lowest index value found in Koil and Atrauli tehsils with the value only 0.21 and 0.22, respectively. The figure 6.7 displays a block-wise digital financial literacy index. The block-wise digital financial literacy index found that the Tappal block of Khair Tehsil with the value 0.35 and JawanSikanderpur block from Ghabana tehsil with the value 0.32 is the highest index showing the satisfactory level of digital financial literacy. The lowest digital financial literacy is found in Bijauli block from Atrauli Tehsil, with the value of 0.20, only showing a poor digital financial literacy. All the blocks except Tappal and Jawan Sikanderpur are categorized as poor digital financial literacy blocks.



Source: Author Calculation

The village wise digital financial literacy index is shown in the table 9. The study found that the Tappal village of the Tappal block of Khair Tehsil reported a high index value of 0.38, followed by Barauli Khas village of Jawan Sikanderpur block of Ghabana Tehsil with 0.33 value as against Aligarh district scenario of 0.24 showing satisfactory digital financial literacy. The lowest digital financial literacy index is found in the Rajpur village of Khair block showing poor digital financial literacy. The villages, namely Bhimpur Haripura, Bithauli, Deta Saidpur, Gada Khera, Nagla Rana Baraula, Rajpur, Gopalpur, Ramnagar,

Rampur Shahpur, Mahamudpur Jamalpur, Rustamnagar Meerpur, Nagaria Patticharam are found in the category of poor digital financial literacy. Surprisingly, no villages are to be found in the excellent category of digital literacy, showing the backwardness of digital financial literacy.

Table: 9
Village-wise Digital Financial Literacy

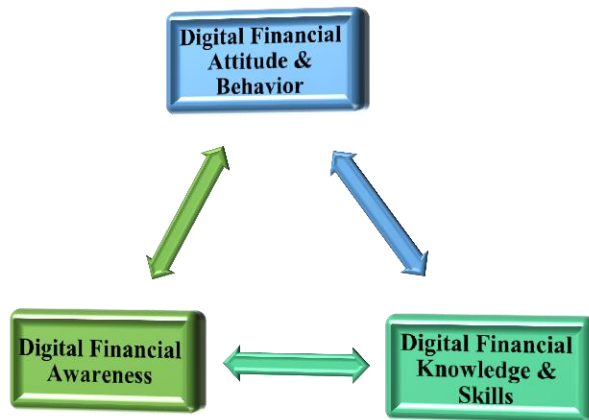
Village	Poor	Satisfactory	Good	Excellent	DFLI
Barauli Khas	48.0	28.0	24.0	0	0.33
Bhamraula	52.0	40.0	8.0	0	0.30
BhimpurHaripura	72.0	28.0	0.0	0	0.21
Bithauli	72.0	28.0	0.0	0	0.22
Deta Saidpur	84.0	16.0	0.0	0	0.19
GadaKhera	72.0	12.0	16.0	0	0.26
Gopalpur	88.0	12.0	0.0	0	0.21
Harbanshpur	68.0	24.0	8.0	0	0.27
Madan Garhi	40.0	52.0	8.0	0	0.30
Mahamudpur Jamalpur	64.0	36.0	0.0	0	0.25
Meerpur	100.0	0.0	0.0	0	0.16
NagariaPatticharam	76.0	24.0	0.0	0	0.20
Nagla Danda	36.0	48.0	16.0	0	0.33
Nagla Rana Baraula	88.0	12.0	0.0	0	0.19
Rajpur	96.0	4.0	0.0	0	0.17
Ramnagar	84.0	16.0	0.0	0	0.22
Rampur	48.0	52.0	0.0	0	0.27
Rampur Shahpur	72.0	28.0	0.0	0	0.22
Rustamnagar	76.0	24.0	0.0	0	0.19
Tappal	44.0	16.0	40.0	0	0.38
Total	69.0	25.0	6.0	0	0.24

Source: Author Calculation

As it is shown in the above results through survey, the digital financial literacy is very low in the rural areas of Aligarh district. The effective and fruitful digital financial inclusion (DFI) can be achieved through creating awareness and understanding, skill, and knowledge about digital financial products and services and also to transform the perceptions, attitudes, and behavior of people towards the digital financial technologies. The digital financial inclusion is one of the significant challenges in the digital age due to the lack of digital financial illiteracy of rural people, and it requires inclusive dialogues and policies across the rural areas through proper financial education. Banking the unbanked, including the excluded, educating the illiterate, and connecting the unconnected, is a major milestone towards universal growth and prosperity of the nation. So, there is a need for digital

financial transformation by developing such an ecosystem for digital financial inclusion, which serves the bottom of the pyramid through well informed and learned financial decision making. The leveraging of both technology and finance, digital financial inclusion through financial education, can be a powerful drive towards attaining the well-development sound financial system of our country.

6. Linkages between the Indicators of Digital Financial Literacy:



There is an inter relationship between the three indicators of digital financial literacy index, namely, digital financial awareness, digital financial attitude and behavior, and digital financial knowledge and skills as a conceptual framework. The increased awareness about digital financial products and services may lead to the transformation of individuals' perception, behavior attitude, and behavior towards changing technologies and thereby expected that higher digital financial knowledge and skill. This conceptual framework discloses the inter-correlation and linkage model among these indices of digital financial literacy. The table 10 shows the correlation coefficient matrix of the indicators of digital financial literacy. The result represents that there is a high positive and significant relationship between these three indicators, and these results are consistent with the conceptual model.

Table: 10
Correlation Co-efficient

Variable	Digital Financial Awareness	Digital Financial Attitude & Behavior	Digital Financial Knowledge & Skill
Digital Financial Awareness	1.00		
Digital Financial Attitude & Behavior	0.5484	1.00	
Financial Knowledge & Skill	0.6353	0.5072	1.00

Source: Author Calculation

7. Conclusion: After analyzing the adaptability and level of digital and financial literacy of rural people, serious policy measures for improvement of both literacies to find rural people's voices and acquire skills and knowledge. The various training sessions can be conducted at the grass-root level for the empowerment of ICT and digital and financial literacy. By taking into the consideration of requirements of the society, multiple initiatives are taken by several institutions to bring multitudes of stakeholders together and provide them training for digital literacy and financial inclusion. The societies can be benefited through introducing such digital and financial products and services, which is most conducive to their level. The government and other institutions can be modified and implemented such a policy framework for improving the level of financial and digital literacy at the society level so that their absorbability and its usage fruitfully utilized.

Digital and financial literacy is a way by which individuals can enhance their understanding of the financial concepts, markets, and products to take effective action to improve overall well-being and avoid distress in financial matters, especially vulnerable people of the rural area and thus improve their financial status. Although various initiatives have been undertaken by the government and financial institutions to improve it, the level of digital and financial literacy is very poor in India due to their incapability to absorb the same. This level of literacy cannot accelerate the pace of financial inclusion and will hamper the rural transformation.

The inadequate awareness of digital financial literacy, especially among the rural population, is a significant confront in the society, more so in light of the government's recent demonetization and plans to make India a cashless economy. There is an immediate action needed to create awareness among the citizens, especially in rural and semi-urban areas regarding digital finance services and also enable/support in access to digital financial services options. The post-demonetization period, transactions like e-commerce & m-commerce success is largely attributed to the phenomenal growth of various digital payment technologies such as card payments, electronic fund transfers, payment gateways, e-payments, smart cards, mobile money wallets, etc. There is an immediate requirement of creating awareness and skill among the citizens, especially in rural and semi-urban areas, regarding digital finance services and products and also enable/support in access to digital finance service options.

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