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ABSTRACT: *Digital technology permeates today's society. From communicating across borders to delivering essential services, it is transforming how people go about their daily lives and how governments function. Yet to bring about meaningful society-wide impact, this transformation should be safe, trusted and inclusive. Besides improving efficiency, digitalization helps to reduce costs and ensure that the most vulnerable people in society also benefit. The COVID -19 pandemic and other global crises have set back progress on the Sustainable Development Goals (SDGs) and for two years in a row, the world has lost ground on human development, according to the latest Human Development Report. To make up this lost ground and supercharge progress towards achieving the SDGs by the target year of 2030, the world needs powerful tools and strategies for transformation. With Digital Public Goods (DPGs) as its foundation, DPI can deliver a generational leap in societal development. The present study examines the people centric sustainable development through digital public infrastructure enabled financial inclusion among the downtrodden in Idukki District.*

KEY WORDS*: Digital Financial Inclusion, Digital Public Infrastructure, Digital Financial Services*

1. INTRODUCTION

Digital technology permeates today's society. From communicating across borders to delivering essential services, it is transforming how people go about their daily lives and how governments function. Yet to bring about meaningful society-wide impact, this transformation should be safe, trusted and inclusive. The COVID-19 pandemic has emphasized the tremendous potential of digitalization. Marked by the uptick in digital government-to-people payments and the demand for digital solutions from governments, many countries are adopting and adapting to digital technology (Nandan, 2021). Besides improving efficiency, digitalization helps to reduce costs and ensure that the most vulnerable people in society also benefit. Infrastructure has been vital to facilitating the flow of people, money and information. Built on top of public infrastructure, democratic countries with largely free markets have fostered public and private innovation and therefore generated considerable value creation in societies (Sharon, Preethi, & Fabrizio, 2021). Digital Public Infrastructure (DPI) has emerged as the most feasible model due to its low cost, interoperability and scalable design and because of its safeguards against monopolies and digital colonization. The COVID-19 pandemic accelerated the use of these systems as enforced isolation left people with no choice but to rely on these digital alternatives.

The COVID -19 pandemic and other global crises have set back progress on the Sustainable Development Goals (SDGs) and for two years in a row, the world has lost ground on human

development, according to the latest Human Development Report. To make up this lost ground and supercharge progress towards achieving the SDGs by the target year of 2030, the world needs powerful tools and strategies for transformation. And as nations strive towards the SDGs, attention now coalesces on Digital Public Infrastructure (DPI). With Digital Public Goods (DPGs) as its foundation, DPI can deliver a generational leap in societal development. In 2021, UNDP became a co-host of the Digital Public Goods Alliance, stewarding the global community towards forming the digital infrastructure that delivers whole-of-society benefits. Building inclusive digital public infrastructure can boost progress on multiple SDGs, including reducing poverty, improving governance, and building climate resilience. Digital transformation is central to achieving the Sustainable Development Goals. By targeting food and energy security through innovative approaches, the global community can work to elevate 2.4 billion lives from the grip of hunger and 800 million more from extreme poverty (UNDP, 2023). The covid-19 pandemic revolutionizes digital financial services, and hence digital financial inclusion is essential to ensure everyone can access digital financial services and thus promote sustainable economic growth. The development and activities promoting digital financial inclusion must align and help attain 2030 sustainable development goals (SDGs). While the pandemic is anticipated to increase the usage of digital financial services, it has also created challenges for certain countries (Lee-Ying & Hen-Toong, 2022).

In India, DPI has been a key focus area of the government in recent years, especially of People-centric inclusive Development through DPI promoted formalization and financial inclusion in the Budget of 2024-25, with several initiatives aimed at building a robust DPI ecosystem. As India aspires to become a $5 trillion economy in the future, and the world's third-largest economy within a decade, its thriving DPI will be central to delivering on this economic promise and achieving these audacious goals. India today has 850 million internet users, compared to 5.5 million users in 2000. According to the central government, India is world's largest digitally connected democracy. The idea of Digital Public Infrastructure (DPI) and Digital Public Goods (DPG) is gaining momentum to expedite our country's inclusive economic growth, as exemplified by India's emphasis on DPIs within the G20 framework. DPIs can be enabled in Largely two ways- either through DPG or through proprietary solutions. Digital technologies employed by governments have largely been provided by the private sector that offer a host of advantages, ranging from solutions offered by trusted brands, short term savings, and outsourced development and maintenance-enabling quick fix and returns.

2. REVIEW OF LITERATURE

Today, many countries are adopting the approach of building digital public infrastructure to support their visions of a digital future. There are multiple open-source digital public goods being developed to support these journeys (Norwegian Ministry of Foreign Affairs, 2021). Digital financial inclusion fosters equitable and inclusive growth and development by extending credit to economically and socially weaker population of a country by empowering them to make better financial decision and achieve financial independence through providing universal access to a large array of financial services (Charan, March 12, 2024). Today, the relevance of digital finance and financial inclusion for poverty reduction and economic growth is attracting the attention of policy makers and academics, largely because of the number of issues that persistent which if addressed can make digital finance work better for individuals,

businesses, governments and the economy ((Peterson, 2018). Government authorities and health practitioners promote the use of the cashless, contactless modes of payment and other digital financial services to minimize the danger of virus transmission via currency handling, thus providing new possibilities for potential digital financial inclusion adoption (Lee-Ying, Hen-Toong, & Gek-Siang, 2022). It has made many efforts to become more digitalized and digital India Mission is envisioned to be created on digital security and trust. Building digital trust is a major effort for the whole society, trade and also for people using digital services (Naman & Himanshu, March -Arpil 2021). India's efforts have taken a Lego building block approach' towards technology which can be repurposed and recombined to deliver solutions at the social level. These digital public infrastructure blocks have had significant impact on socio-economic development (Ashish & Aroon, 09 May 2024). By providing cheap and instantaneous payment services to ordinary citizens, the design of the Indian payment system challenges the business case for standalone private payment systems. The establishment of a legal framework for data fiduciaries promise to ensure that the individuals can easily access the data generated by their online activity and dictate the circumstances for sharing those data ((Derry, Zuzana, G Frank, Siddharth, & Tiwari, 2019).

3. SIGNIFICANCE OF THE STUDY

The economy of Idukki is basically an agrarian economy. The people here basically take their financial decisions on the financial behaviour of educated ones working at various government and non-government and cooperative sectors (Shaju & Santhimol, 2022). Access to various benefits and skills including life skills and career skills to the disadvantaged sections of the society is very low even at this twenty first century. Their living standard is pathetic and they are in a kind of vicious circle, coming out of it is almost difficult for them. The situation is worse in Idukki district as many over there have no access to basic benefits and solely depend on coolie works at plantations or doing micro enterprises for their livelihood. It is one of the financially, socially and economically backward district in Kerala (Santhimol & Anu, 2021). Hence a study on people centric sustainable development through digital public infrastructure enabled financial inclusion in Idukki district is found relevant.

4. SCOPE OF THE STUDY

The scope of the study is limited to examine the digital public infrastructure enabled financial inclusion among the people at grass root level (downtrodden) who runs micro enterprises in Idukki district of Kerala.

5. OBJECTIVES OF THE STUDY

To examine the digital public infrastructure enabled financial inclusion among the downtrodden in Idukki District

6. METHODOLOGY OF THE STUDY

The study is empirical in nature that uses both secondary as well as primary data. The secondary data have been accessed through journal articles, official report and official websites. The primary data have been collected from 160 sample respondents (at grassroot level, run micro enterprises for livelihood) through structured questionnaire. The collected data have been analyzed through simple percentage and one sample t-test.

7. RESULTS AND DISCUSSIONS

General profile

The general profile of the respondents is discussed under three different heads viz., demographic profile, social profile and economic profile as shown in table 1 to table 3 below:

Table 1: Demographic profile of the respondents

Particulars		**Frequency**	**Percentage**
Gender	Male	82	51.25
	Female	78	48.75
Age	Up to 30 years	19	11.87
	30-45	28	17.5
	45-60	83	51.87
	Above 60	30	18.75
Marital status	Single	36	22.5
	married	124	77.5
Educational qualification	No formal education	43	26.87
	Up to 7^{th} standard	44	27.50
	Above 7^{th} standard but below +2	73	45.62

Source: field survey

From the above table 1 above, it is clear that more than half of the respondents are males (51.25 per cent). They belong to the age group of 45 to 60 (51.87 per cent) and a good percentage of the respondents are married (77.5percent). A considerable number of the respondents have educational qualification above seventh standard but below plus two (45.62 percent).

Table 2: Social profile of the respondents

Particulars		**Frequency**	**Percentage**
Family size	Up to 3	52	32.5
	3 to 6	92	57.5
	Above 6	16	10
Number of income earners in the family	Up to 2	112	70
	2 to 4	43	26.87
	Above 4	5	3.12
Nature of business	Agri related	64	40
	Retail related	14	8.75
	Food related	82	51.25

Source: Field survey

From table 2 above it is seen that the family size of a considerable number (57.5 per cent) is three to six members and many (70 percent) have up to two income earners in the family. More than half (51.25 percent) of the respondents engage in food related micro business.

Table 3: Economic profile of the respondents

Categories		Frequency	Percentage
Monthly income	Up to Rs. 15000	96	60
	Rs. 15000 to 30000	52	32.5
	Above Rs.30000	12	7.5
Monthly expenditure	Up to Rs. 10000	91	56.87
	Rs. 10000 to 20000	63	39.37
	Above Rs.20000	6	3.7
Monthly savings	Up to Rs. 5000	94	58.75
	Rs. 5000 to 10000	57	35.62
	Above Rs.10000	9	5.6
Percentage of investment out of savings	Up to 10%	138	86.25
	10% to 20%	13	8.12
	Above 20%	9	5.63

Source: field survey

From table 3 above it is clear that most (60 percent) of the respondents earn income up to Rs.15000 a month but another 32.5 percent of the respondents earn in between Rs.15000 and Rs.30000. Majority (56.87 per cent) need up to Rs. 10000 in a month to meet their monthly expenditure. The savings of the majority is up to Rs.5000 a month and the percentage of investment of the majority out of such savings is up to ten percent only.

Digital financial inclusion related details

The responses regarding the digital financial inclusion related matters are analysed in table 4 below:

Table 4: Digital financial inclusion related details of the respondents

Categories		Frequency	Percentage
Digital financial services use	Digital savings account	160	100
	Digital current account use	132	82.5
	Digital credit facilities	108	67.5
	Digital transfers	156	97.5
Frequency of use of digital financial services	Daily	98	**61.25**
	Weekly	26	16.25
	Monthly	36	22.5
Main purpose of use of digital financial services	Savings & investments	72	45
	Business transactions	116	**72.5**
	Digital transfers	142	**88.75**
	DBT	160	**100**

	Debt services	64	40
Problems/challenges faced while using digital financial services	Lack of awareness	76	47.5
	Technological issues	112	**70**
	Lack of digital public infrastructure	67	41.87
	Trust issues	152	**95**
	Cost of digital infrastructure	96	**60**

Source: field survey

Table 4 above shows that all (100 percent) the respondents use digital savings account, 82.5 percent of the respondents use digital current account, 67.5 percent uses digital credit facilities and 97.5 percent of the respondents use digital transfers.

The frequency of use of digital financial services by the majority (98 percent) is daily and the most important purposes to which they use digital financial services are i) to avail direct benefit transfer scheme (100 percent), ii) to have digital transfers (88.75 percent) and iii) for business transactions (72.5).

The most significant problems or challenges facing by the respondents while using digital financial services are trust issues (95 percent), technological issues (70 percent) and the cost of digital infrastructure (60 percent).

Digital public infrastructure related details

The details regarding digital public infrastructure in terms of awareness, availability etc are analysed in table 5 below:

Table 5: Digital Public Infrastructure related details of the respondents

Categories		**Frequency**	**Percentage**
DPI awareness	Not aware	78	48.75
	Neutral	12	7.5
	Aware	70	43.75
DPI availability	Free internet connectivity	107	66.87
	e-gadget	156	97.5
	Digital payment apps	154	96.25
	Mobile money services	148	92.5
	Internet banking	142	88.75
	Other financial technology	98	61.25
Improvement in digital financial literacy	Not improved	12	7.5
	Neutral	43	26.87
	Improved	105	65.62
Improvement in digital financial inclusion	Not improved	12	7.5
	Neutral	32	20
	Improved	116	72.5

Source: field survey

From table 5 above it is seen that almost half (48.75 percent) of the respondents do not have good idea about digital public infrastructure but 43.75 percent have good idea on it. They have good opinion about the availability of digital public infrastructure in terms of, e-gadgets, digital payment apps, mobile money services, internet banking but the opinion about the availability of free internet connectivity and other financial technologies are not that much good. The digital financial literacy and digital financial inclusion of a good number of respondents (65.62 percent and 72.5 percent respectively) have improved through digital public infrastructure.

Factors hindering access to digital public infrastructure

Factors hindering access to digital public infrastructure among sample respondents in Idukki district are analyzed in table 6 below:

Table 6: Factors hindering access to digital financial infrastructure

Factors hindering access to digital financial infrastructure	***Mean (test value =3)***	***t-value***	***p-value***
Remoteness of the places of living	4.05	9.627	<0.001**
Absence of legal identity (no property, assets and id cards)	3.66	5.540	<0.001**
Very limited financial knowledge	3.73	6.860	<0.001**
Very low level of income and high bank chares	3.50	3.986	<0.001**
Rigid terms and conditions attached with a financial product	3.48	3.858	<0.001**
Bank doesn't prefer small borrower and unorganised micro enterprise	3.68	6.856	<0.001**

Source: field survey

The table 6 above exhibits that the respondents consider all factors under consideration as significant factors that hinder access to digital financial infrastructure (mean values >3.00 and p-s value <0.001**). But the most dominant factors that hinder the access to digital financial infrastructure are remoteness of the place of living (mean 4.05), very limited financial knowledge (mean 3.73) and lack of positive response from the part of banks towards small borrower micro enterprise (mean 3.68).

8. CONCLUSION

Creation of digital public infrastructure is one of the important milestones in the sustainable development history of our nation. Still, many of the respondents do not have good idea on it. Popularizing the concept and making available such DPI to the people at grass root level at reduced or free cost is the need of the hour. Free internet connectivity is there at many public places right now but its availability is to be extended to many places to Idukki, an industrially backward district as the majority finds their livelihood by running either micro enterprises or doing coolies works at agri-related activities. The concerns like remoteness of the locality, limited financial knowledge and lack of positive response from the part of banks are to be properly addressed.

References

Ashish, D., & Aroon, P. M. (09 May 2024). Digital transformation and Public Administration: The Impacts of India's Digital Public Infrastructure. *Taylor & Francis online*, 575-578.

Charan, S. (March 12, 2024). *Enabling financial inclusion through digital public infrasturture: the efforts to provide financial services to underprivillaged groups face many obstacles as well as the experience in India.* Business Line, Hindu Group of Publications.

Derry, D., Zuzana, F., G Frank, P., Siddharth, & Tiwari. (2019). *The design of digital Financial Infrastructure : Lessons from India.* Monetary and Economic Deparmtent.

Lee-Ying, T., & Hen-Toong, T. G.-S. (2022, March). Digital financial inclusion: A gateway to sustainable development. *Heliyon*, 1-10.

Lee-Ying, T., Hen-Toong, T., & Gek-Siang, T. (2022, June). Digital Financial Inclusion: A Gateway to Sustainable Development. *Heliyon, 8*(6).

Naman, A. M., & Himanshu, A. (March -Arpil 2021). *The role of Digital Infrastructure in Socio-economic development.* Invention Intelligence.

Nandan, N. (2021). *Co-Develop: Digital Public Infrastructure for an Equitable Recovery.* The Rockefeller Foundation, Norwegian Ministry of Foreign Affairs. The Rockefeller Foundation.

Norwegian Ministry of Foreign Affairs. (2021). *Co-Develop Digital Public Infrastructure for an Equitable Recovery.* The Rockefeller Foundation.

Peterson, K. O. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review, 18*(4), 329-340.

Santhimol, M. C., & Anu, S. (2021). Inclusive Higher education to the disadvantaged in Idukki District. *NIU Internatinal Journal of Human Rights, 8*((XI)), 92-98.

Shaju, M. J., & Santhimol, M. (2022). Financial self efficacy among the employees of cooperative societies in Idukki District. *Shodhasamhita: Journal of Fundamental & Comparative Research, 8*(1 (XXXI)), 177-182.

Sharon, B., Preethi, R., & Fabrizio, V. (2021). Emerging insights from digital solutions in Financial Inclusion. *Springer, 9*, 105-114.

UNDP. (2023). *Accelerating the SDGS through Digital Public Infrastructure- A Compendium of the Potential of Digital Public Infrastructure.* G20India. United Nations develpoment Programme.