

## Smart and Green : The Future of Urban Finance through Fintech Sustainability

<sup>1</sup>Ms. Sneha Banga, <sup>2</sup>Dr. Satyendra Arya

<sup>1</sup>Research Scholar, Department of Management, TMIMT, Teerthanker Mahaveer University  
[snehabanga.6dec@gmail.com](mailto:snehabanga.6dec@gmail.com)

<sup>2</sup>Associate Professor, TMIMT, Teerthanker Mahaveer University, Moradabad, U.P., India,  
[satyendra\\_arya17@rediffmail.com](mailto:satyendra_arya17@rediffmail.com)

### **ABSTRACT**

Financial services have undergone a revolution with the rise of Financial Technology (Fintech), which has altered traditional pricing strategies and made financial services more accessible, especially to those who lack bank accounts. In order to examine Fintech's dual role in advancing green finance and sustainable development, this study synthesises findings from current research. Fintech increases efficiency, lowers transaction costs, and promotes green investment possibilities by utilising technology-enabled innovation. This research, which draws on a number of studies, emphasises the critical role that fintech plays in promoting financial inclusion, especially in rural settings like rural India, where governments want to support the Fintech ecosystem through focused laws and efforts. Additionally, the study explores the relationship between green investment and Fintech innovation, emphasising how Fintech promotes sustainability by promoting ethical investment and stimulating green economic growth. The study also highlights how crucial financial management is to guiding businesses towards sustainable practices, meeting societal expectations, and maintaining financial stability. In summary, this study highlights how Fintech may significantly advance green finance and sustainable development, helping to better align financial operations with social and environmental objectives. Statistical techniques such as Correlation, Chi square test and percentage and descriptive statistics employed to evaluate the relationship between Fintech adoption and Sustainable development and Green Financing and Environmental Sustainability and Urban Stakeholder Sustainability. The study involves collecting primary and secondary data.

**Keywords:** Fintech, Sustainable Development, Finance, Environmental Sustainability

### **Introduction**

Some authors refer to the term **FinTech**, which is a combination of the words "financial" and "technology," as "BankTech" (Zavolokina, Dolata, & Schwabe, 2016). It is a new generation of technology designed to improve and automate the procedures involved in the delivery of financial services. FinTech is basically the combination of technology with finance. It is frequently seen as a threat to traditional banking services since it provides cutting-edge goods and services (Puschmann, 2017). According to Thakor (2020), a number of academics contend that FinTech solutions give priority to customer-centricity, stressing enhancements in services for customers rather than only financial institutions. FinTech business models have been made possible by technological breakthroughs and digital advances, which have had a profound effect on the financial system and the ecosystem as a whole.

**Green finance** technology directs funds from polluting and energy-consuming businesses towards sustainable technologies, supporting environmental protection and governance. Fintech offers green financial goods such as green credit, bonds, insurance, funds, leases, trusts, bills, and carbon financial products (Lei, Weng Chi (Florence), 2024).

(Nouf Alshamsi, 2021) said, 'The burgeoning topic of "green fintech" entails building progressive financial frameworks centred around sustainability and human advancement. Financial institutions are now playing a crucial role in the effort to create a more sustainable global environment that supports human society's multifaceted growth. In order to establish a society that is fair, socially conscious, and ecologically sustainable, a financial system must be in place to cover the costs of the necessary environmental improvements. As a result, the financial institutions need to create an atmosphere that takes into account things like social happiness, continuity around the world, equitable distribution of resources and income, and ethical financial activities.'

According to (Israa Mudheher, 2022) Zyadat (2017) defines **sustainability** as an institution's ability to adapt to social, economic, and ecological changes, while managing risks. This skill enhances an organization's survival, reputation, accountability, and opportunity management, promoting innovation and creativity. It also helps adapt to changes in the micro and macroenvironment. Many believe sustainable development involves acknowledging society's responsibility for protecting the planet's resources and ensuring life continues. Overall, sustainability is crucial for a company's survival and reputation.

Keshav Mishra<sup>1</sup> and Arjun Kannaujia<sup>2</sup>, 2023 examined that **Green finance** is a helpful tool for balancing environmental protection with economic expansion. And at the heart of it all is providing financial support or other forms of assistance

for projects and activities that advance sustainable development. Interpretation in reference to ecologically sustainable development: It covers all of the initiatives made to create a balance between variables connected to growth and the environment. The goal of this concept is to protect natural resources so that future generations can take use of them.

**Green funding** helps to maintain the symbiotic relationship between development, money, and sustainability by endorsing activities that promote sustainable development. As a result, it strives to reduce human exploitation of the environment, encourages the use of renewable energy sources, and helps to preserve natural resources. It therefore acts as a helpful tool for accomplishing goals related to sustainable development.

### **Review of Literature**



Yousef Abu-Watfa and Professor Haitham Nobanee (2022) Fintech promotes both green finance and sustainable development as it has redefined financial services and methods of pricing. Fintech supports sustainable development by ensuring green finance, reducing transaction costs and improving efficiency. Fintech is a terminology, it's combination of two different words financial and technology. According to Financial Stability Board (2017), "Fintech is defined as technology-enabled innovation in financial services that could result in new business models, applications, procedures processes or products with an associated material effect on the provision of financial services.

Kuldeep Singh, Rebecca Abraham Prasanna Kolar (2023) explained in his book, The emergence of fintech has made it possible for a large number of unbanked people to obtain financial services online. Digital financial services have gained popularity during the COVID-19 epidemic, speeding up financial inclusion in spite of societal hurdles. By lowering expenses and raising the transaction limits for digital transactions, several governments have promoted its use. The goal of this research is to create a model for the adoption of fintech in rural India by identifying the best policies and programmes to support the expansion of the fintech industry. It also aims to pinpoint the features of banking systems that favour fintech in order to facilitate better cooperation in the pursuit of financial inclusion. The ISM-MICMAC approach is used in this research's methodology section.

Companies are placing a higher priority on green, sustainable, and responsible investments in order to attain both lucrative growth and environmental harmony. Technology, money management, and market orientation towards eco-friendly investments have all advanced as a result of this trend. Fintech is essential to this change because of its reputation for digital transformation, simplicity of use, transparency, and wider accessibility. It acts as a substitute for conventional financial institutions and contributes significantly to the long-term promotion of environmentally friendly investments. The purpose of this study is to investigate the significance of green investment and how Fintech technologies are advancing it. The findings show that Fintech innovation improves financial venture sustainability by encouraging green investment, which supports green economic growth and advances the development of green finance—a crucial area for many countries.

Mariam Al Shamsi and Haitham Nobanee (2021) Companies are placing a higher priority on green, sustainable, and responsible investments in order to attain both lucrative growth and environmental harmony. Technology, money management, and market orientation towards eco-friendly investments have all advanced as a result of this trend. Fintech is essential to this change because of its reputation for digital transformation, simplicity of use, transparency, and wider accessibility. It acts as a substitute for conventional financial institutions and contributes significantly to the long-term promotion of environmentally friendly investments. The purpose of this study is to investigate the significance of green investment and how Fintech technologies are advancing it. The findings show that Fintech innovation improves financial venture sustainability by encouraging green investment, which supports green economic growth and advances the development of green finance—a crucial area for many countries.

### **Need of the study**

It is crucial to do research on how fintech sustainability will impact urban finance in the future for a number of reasons. First, by examining how fintech technologies might offer more inclusive and accessible financial services, it tackles the enduring problem of financial exclusion in metropolitan areas. Second, by encouraging eco-friendly investments, ecologically conscious behaviours, and prudent financial management, it explores how fintech may advance sustainable urban development. Thirdly, the research looks at how fintech may make money more accessible and efficient in urban areas, especially for underprivileged groups. It also looks at how fintech might help finance practices match environmental goals, such promoting renewable energy and environmentally friendly infrastructure projects. Lastly, by guiding the creation of laws and regulatory frameworks that promote innovation while

### **Scope of the study**

This research paper covers the nexus of fintech, urban finance, and sustainability through a multidimensional examination. It includes an analysis of several fintech developments, such as peer-to-peer lending platforms and digital payment systems, and their potential to advance sustainable urban development and financial inclusion. Apart from that, the research will analyse current programmes that use fintech interventions to promote financial inclusion in urban areas and will also review the legal frameworks that control fintech and urban finance. The study attempts to address important obstacles and possibilities in the process of leveraging fintech for sustainable urban finance by offering concrete policy suggestions to legislators, financial institutions, and urban planners.

### **Research Objectives**

1. To investigate how Fintech might support sustainable development and green financing.
2. To examine into how Fintech solutions may help promote environmental sustainability in Urban areas.
3. To examine how urban firms, people, and financial institutions are adopting and using Fintech technologies and platforms to help achieve sustainable development goals.

### **Research Methodology**

#### **Population**

All age groups are included in the study's target population ranging from those under 18 to those over 65.

#### **Geographical area**

The research will be conducted in a specific geographical area of west Uttar Pradesh and NCR, India. Total number of participations were 200.

#### **Tool**

Questionnaire: Designed in "Google Form" sent to different individuals working in various area, education, business, industrial, farming.

#### **Sample design**

Non-probability snow ball sampling is used due to practical constraints and the specific population being studied.

#### **Data collection**

study will involve collecting primary and secondary data related to the implementation and utilization of Fintech in crowdfunding for social services. Quantitative data will be collected through questionnaire. Qualitative data will be obtained through focus groups.

### **Research Hypothesis:**

1. **H0- Null Hypothesis** There is no significant relationship between the adoption of Fintech and support for sustainable development and green financing.

**H1- Alternative Hypothesis:** There is a significant relationship between the adoption of Fintech and support for sustainable development and green financing.

**2. H0- Null Hypothesis:** There is no significant impact of Fintech solutions on promoting environmental sustainability in urban areas.

**H1- Alternative Hypothesis:** There is significant impact of Fintech solutions on promoting environmental sustainability in urban areas.

**3. H0- Null Hypothesis:** There is no significant difference between Fintech solutions' impact on environmental sustainability in urban areas and age.

**H1- Alternative Hypothesis:** There is significant difference between Fintech solutions' impact on environmental sustainability in urban areas and age

### Conceptual framework

Dependent Variable

Independent Variable

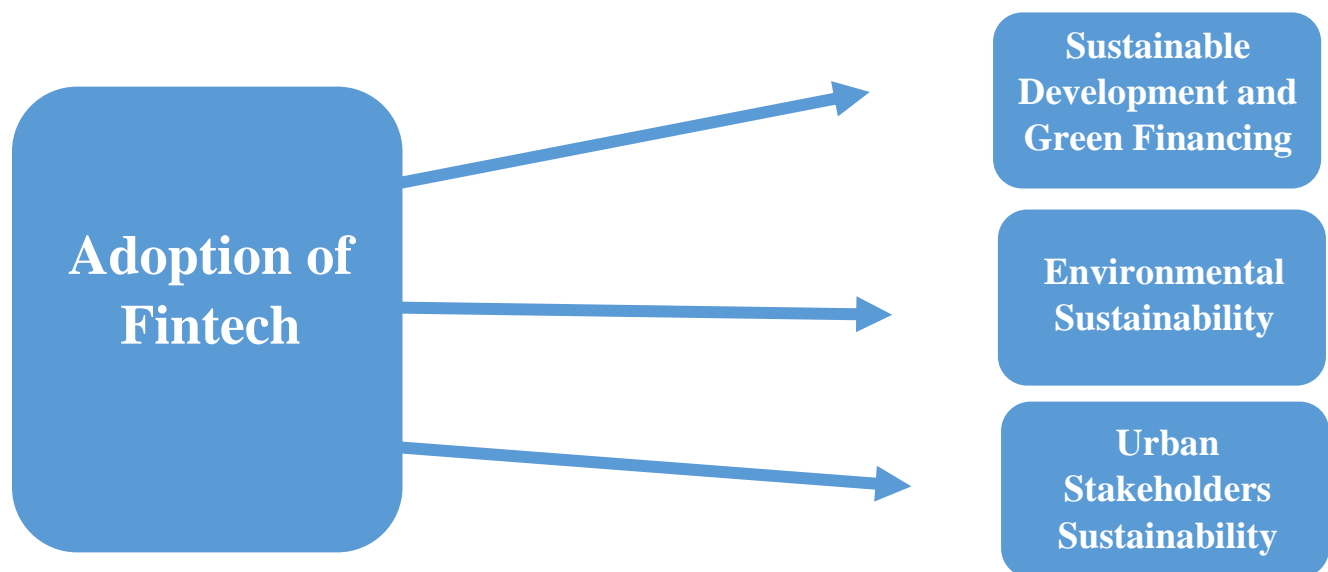


Diagram 1.0

### ANALYSIS AND INTERPRETATION

#### CHI-SQUARE TEST

TABLE 1:

Financial Technology services or platforms you have used . \*sustainable development. Crosstabulation

	How much can Fintech help advance green finance and sustainable development, in your opinion?					Total
	1	2	3	4	5	
Count	7	10	6	5	27	55

Please specify the types of Financial Technology services or platforms you have used .	Expected	6.7	16.7	3.5	7.0	21.0	55.0
	Count						
	Count	18	49	5	17	49	138
	1 Expected	16.9	41.9	8.8	17.6	52.8	138.0
	Count						
	Count	0	3	0	2	0	5
	2 Expected	.6	1.5	.3	.6	1.9	5.0
	Count						
	Count	0	0	2	2	2	6
	3 Expected	.7	1.8	.4	.8	2.3	6.0
Total	Count	25	62	13	26	78	204
	Expected	25.0	62.0	13.0	26.0	78.0	204.0
	Count						

### Chi-Square Tests

	Value	df.	Assume Sig. (2-sided)
Pearson Chi-Square	28.574 <sup>a</sup>	12	.005
Likelihood Ratio	28.825	12	.004
N of Valid Cases	204		

a. 11 cells (55.0%) have expected count less than 5. The minimum expected count is .32.

### INTREPRETATION:

- Observed Counts:** These are the actual counts of respondents falling into each combination of categories. For example, in the intersection of "How much can Fintech help advance green finance and sustainable development, in your opinion?" level 1 (low) and "Types of Financial Technology services or platforms you have used" level 1 (counted as 7), there are 7 respondents who have selected both options.
- Expected Counts:** These are the counts we would expect in each cell if there were no relationship between the two variables. These expected counts are based on the assumption of independence between the variables.
- Chi-Square Tests:**
  - Pearson Chi-Square:** This value (28.574) is the result of the chi-square test. It measures the extent to which the observed counts differ from the expected counts. The larger the value, the greater the discrepancy between observed and expected counts.
  - Likelihood Ratio:** This value (28.825) is another measure of the goodness of fit between observed and expected counts. Like the Pearson Chi-Square, a larger value indicates a greater discrepancy.
- Degrees of Freedom (df):** This represents the number of categories minus 1 in each variable, multiplied together. Here, it's 12.
- Assume Sig. (2-sided):** This is the p-value associated with the chi-square test. It tells us the probability of obtaining a chi-square statistic as extreme as the one observed, assuming that the null hypothesis (no association between the variables) is true.

- In this case, the p-value is .005, indicating that there is a statistically significant association between the types of Fintech services/platforms used and the respondents' opinions on the potential of Fintech to advance green finance and sustainable development.

**6. No. of Valid Cases:** This is the number of valid cases included in the analysis, which is 204 in this case.

Overall, the results suggest that there is a significant association between the types of Fintech services/platforms used and the respondents' opinions on the potential of Fintech to advance green finance and sustainable development. However, further analysis would be needed to understand the nature and strength of this association.

**TABLE 2:**

**Financial Technology services or platforms you have used . \* Environmental sustainability in urban areas.Crosstabulation**

		In your opinion, how do Fintech solutions affect environmental sustainability in urban areas?			Total
		1	2	3	
Please specify the types of Financial Technology services or platforms you have used .	Count	39	12	4	55
	Expected Count	44.2	8.1	2.7	55.0
	1 Count	115	17	6	138
	1 Expected Count	110.9	20.3	6.8	138.0
	2 Count	4	1	0	5
	2 Expected Count	4.0	.7	.2	5.0
	3 Count	6	0	0	6
	3 Expected Count	4.8	.9	.3	6.0
	Total Count	164	30	10	204
	Total Expected Count	164.0	30.0	10.0	204.0

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.711 <sup>a</sup>	6	.456
Likelihood Ratio	6.831	6	.337
N of Valid Cases	204		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .25.

#### INTREPRETATION:

- 1. Observed Counts:** These are the actual counts of respondents in each combination of categories. For example, in the intersection of "In your opinion, how do Fintech solutions affect environmental sustainability in urban areas?" level 1 (low impact) and "Types of Financial Technology services or platforms you have used" level 1 (counted as 39), there are 39 respondents who have selected both options.
- 2. Expected Counts:** These are the counts we would expect in each cell if there were no relationship between the two variables. These expected counts are based on the assumption of independence between the variables.

### 3. Chi-Square Tests:

- **Pearson Chi-Square:** This value (5.711) is the result of the chi-square test. It measures the extent to which the observed counts differ from the expected counts. The smaller the value, the less discrepancy between observed and expected counts.
- **Likelihood Ratio:** This value (6.831) is another measure of the goodness of fit between observed and expected counts. Like the Pearson Chi-Square, a smaller value indicates less discrepancy.

**4. Degrees of Freedom (df):** This represents the number of categories minus 1 in each variable, multiplied together. Here, it's 6.

**5. Assume Sig. (2-sided):** This is the p-value associated with the chi-square test. It tells us the probability of obtaining a chi-square statistic as extreme as the one observed, assuming that the null hypothesis (no association between the variables) is true.

- In this case, the p-value is .456, indicating that there is no statistically significant association between the types of Fintech services/platforms used and the respondents' opinions on how Fintech solutions affect environmental sustainability in urban areas.

**6. No. of Valid Cases:** This is the number of valid cases included in the analysis, which is 204 in this case.

Overall, the results suggest that there is no significant association between the types of Fintech services/platforms used and respondents' opinions on how Fintech solutions affect environmental sustainability in urban areas. The p-value is higher than the conventional significance level of 0.05, indicating that we fail to reject the null hypothesis of independence between the variables.

**TABLE 3**

**Correlation between Age and Fintech solutions affect environmental sustainability in urban areas.**

Correlations			
	Age	In your opinion, how do Fintech solutions affect environmental sustainability in urban areas?	
Age	Pearson Correlation	1	-.042
	Sig. (2-tailed)		.550
	N	204	204
In your opinion, how do Fintech solutions affect environmental sustainability in urban areas?	Pearson Correlation	-.042	1
	Sig. (2-tailed)	.550	
	N	204	204

### INTREPRETATION:

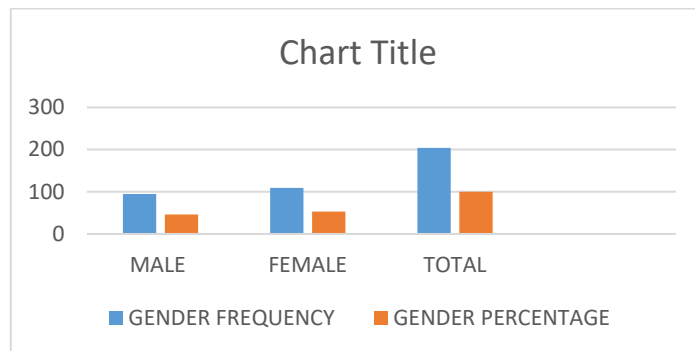
**Pearson correlation coefficient:** The linear link between two variables' strength and direction are measured by the Pearson correlation coefficient. The correlation coefficient in this instance is -0.042.

**P-value** This is the correlation coefficient's corresponding p-value. If there is no actual correlation in the population, or if there is no link between the variables, the p-value shows the likelihood of finding such a correlation coefficient. The p-value in this instance is 0.550.

**Sample size:** This is a representation of the number of observations utilised in the analysis, or the sample size. It is 204 in this instance.

Overall, based on this analysis, there appears to be no significant correlation between age and the perceived impact of Fintech solutions on environmental sustainability in urban areas.

**TABLE 4**

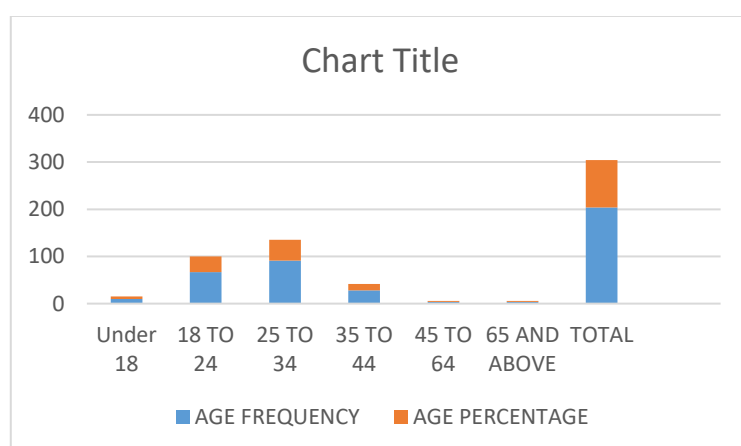


#### INTREPRETATION:

The information supplied summarises the distribution of genders among 204 members of the sample population. Here's the breakdown:

95 people (46.57%) were male.  
109 people (53.43%) were female.

With a somewhat larger proportion of females than males, this summary provides a succinct snapshot of the gender mix of the sample. These summaries are helpful in understanding the demographic makeup of the group being studied and can guide additional research, policy formulation, and marketing studies as well as other decision-making processes.



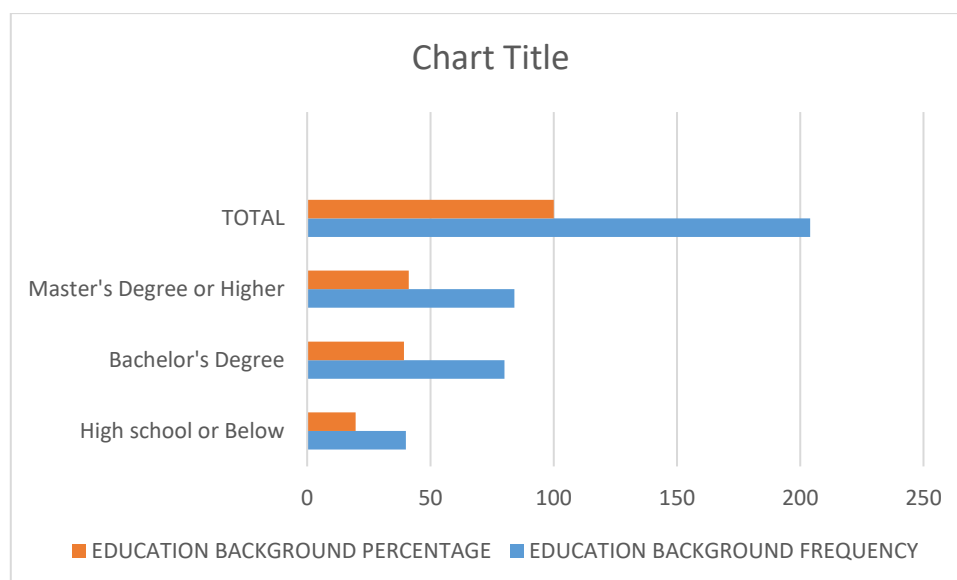
This data sheds light on the sample population's age distribution. Most people in the sample are between the ages of 18 and 34; those in this age range make up 32.84% of the sample, while those in this age range make up 44.61%. This suggests that a sizable share of the sample's adults are younger.

Less people fall into the older age groups: 13.73% of the sample is made up of people 35 to 44 years old, and just 1.96% of the sample is made up of people 45 to 64 and 65 and beyond combined.



In general, the data indicates that the sample group is rather young, with a greater proportion of younger persons falling within the 18–34 age range. For a variety of reasons, including market segmentation, policy planning, and targeted interventions, it is essential to comprehend the age distribution within the sample since different age groups may exhibit unique requirements, preferences, and behaviours.

TABLE 6



The following data provides an overview of the educational attainment of 204 persons in the sample population:

-	Above	High	School:	19.61%
39.22%	have	a	bachelor's	degree.
-	Master's	or	above:	41.18 percent

This summary shows that the sample has a wide range of educational backgrounds, with a sizable share possessing master's degrees or higher qualifications. Comprehending the distribution of educational attainment is crucial in order to customise tactics and treatments that address the diverse needs and viewpoints of persons with disparate educational backgrounds.

### Finding and Suggestions

#### **Findings:**

1. According to the report, Fintech has had a big influence on financial services, increasing their efficiency and accessibility. Through the use of technology-enabled innovation, fintech advances green finance and sustainable development goals by expanding the opportunities for green investments.
2. Especially in remote locations like rural India, fintech is essential to advancing financial inclusion. Governments are proactively bolstering the Fintech industry with specific legislation and initiatives aimed at improving financial accessibility in marginalised areas.
3. The report emphasises the connection between sustainability and fintech innovation, emphasising the latter's capacity to encourage moral investment and spur green economic expansion. It is determined that achieving public expectations and directing enterprises towards sustainable practices require effective financial management.
4. The paper highlights the relationship between sustainability and fintech innovation, highlighting the latter's potential to promote ethical investment and green economic growth. It is concluded that good financial management is necessary to meet public expectations and steer businesses towards sustainable practices.

#### **Suggestions:**

1. It is recommended that policymakers prioritise the establishment of a conducive atmosphere for Fintech innovation, which should encompass favourable legislative structures and inducements to promote green finance endeavours.

2. To improve financial inclusion, especially in rural regions, more Fintech solutions that are suited to the requirements of marginalised communities should be developed.
3. In order to meet public expectations and support sustainable development objectives, businesses should include sustainability concepts into their financial management procedures.
4. To increase knowledge of the advantages of green finance and Fintech solutions in attaining environmental sustainability, education and awareness initiatives are required.
5. Innovation and research in Fintech for sustainable urban finance must be fuelled by cooperation between financial institutions, digital firms, and legislators. To evaluate the effect of Fintech on environmental sustainability and pinpoint areas in need of improvement, more study is required.

#### **Recommendations**

1. It is recommended that policy frameworks that promote Fintech innovation and simultaneously boost green finance and sustainable development be developed and implemented by governments and regulatory agencies. This entails offering legislative advice to guarantee ethical financial activities and incentivizing Fintech businesses to concentrate on ecologically friendly projects.
2. Initiatives for Financial Inclusion: To advance financial inclusion, efforts should be undertaken to extend Fintech solutions in underserved and rural regions. In order to improve financial accessibility and empower communities, governments and financial institutions may work together to give access to digital financial services, such mobile banking and digital payments, in these areas.
3. It is important to create educational initiatives to raise the general public's and stakeholders' knowledge of green finance and Fintech solutions. These stakeholders include businesses, consumers, and legislators. Initiatives for training can provide people the skills they need to use Fintech platforms for investment and financial management that is sustainable.
4. Public-Private Partnerships: To promote innovation in Fintech for sustainable urban finance, cooperation between the public and private sectors is crucial. Public-private partnerships may promote resource sharing, information exchange, and cooperative investment in green initiatives, which can result in the creation of creative solutions to problems with urban sustainability.
5. To fully explore Fintech's potential to advance sustainable development and green finance, further research and development work is required. Research initiatives that discover best practices, create new technologies and techniques, and assess how Fintech advances affect environmental sustainability should be funded.
6. Community Involvement: Promoting grassroots support and igniting significant change requires involving local communities in sustainable finance efforts. NGOs, social businesses, and community-based organisations may all be crucial in encouraging sustainable financial habits and raising funds for environmentally friendly initiatives at the local level.

#### **Contribution to the society:**

The report emphasises how much Fintech has benefited society, especially in terms of developing green financing and encouraging sustainable growth. Financial services have been transformed by fintech innovations, which have increased their accessibility, effectiveness, and inclusivity while also empowering communities and individuals. Fintech bridges the gap between the unbanked and mainstream financial services by using technology-enabled solutions to promote financial inclusion, especially in underserved and rural regions. Furthermore, via encouraging ethical financial practices, green investments, and renewable energy initiatives, Fintech plays a critical role in advancing environmental sustainability. Fintech helps people and companies make environmentally responsible financial decisions by providing cutting-edge platforms and tools. This helps the worldwide effort to fight climate change and protect natural resources.

Furthermore, Fintech fosters collaboration between public and private sectors, encourages community engagement, and promotes corporate responsibility, thereby fostering a more sustainable and resilient financial ecosystem. By integrating sustainability principles into financial management practices and promoting awareness and education on green finance, Fintech drives positive societal impact, ultimately contributing to a more inclusive, equitable, and environmentally sustainable society.

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