



Effect of Digital Payment Systems and Mobile Wallets on Consumer Behavior and Financial Inclusion

Muhammad Muzammil Asghar¹, Muhammad Faisal Razzaq²

¹School of Economics, Bahauddin Zakariya University, Multan, Pakistan,
Email: muzammilasghar42@gmail.com

²School of Economics, Bahauddin Zakariya University Multan, Pakistan, Email: afaisalrazzaq@yamil.com

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ABSTRACT

The fast growth of digital payment platforms and mobile wallets has altered the nature of consumer engagement with the financial service, especially in emerging economies. This paper discusses how adopting digital payments will impact consumer behavior, financial decision-making and financial inclusion in general. Based on the available empirical research and world financial inclusion data, the paper contends that mobile wallets can result in increased access, build efficiency of transactions, and formal financial inclusion of underserved population. Results show that convenience, perceived security, trust and technological literacy play a significant role in consumer adoption behavior. Additionally, online payment systems lower transaction costs, enhance transparency, and enable women, rural consumers and the low-income groups to access the financial system. The authors find that digital payment systems are a boost to the inclusive finance sector, yet, under the condition of reinforcement of regulatory frameworks, digital literacy programs, and cybersecurity systems.



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Corresponding Author's Email: muzammilasghar42@gmail.com

Introduction

Digital transformation has redefined the world of finance as individuals are now able to handle transactions, store, borrow and communicate with financial institutions in a new way. One of the most impactful innovations in this change is the digital payment system and mobile wallets, which have taken center stage in both the developed and emerging economies in terms of financial ecosystems. As more people gain mobile internet access and the prices of digital devices are dropping, digital payments have become one of the most potent sources of financial inclusion and behavioral change among consumers (Kumar & Tiwari, 2023).

In most developing nations conventional banking services have always been inaccessible to large proportion of the population especially those residing in rural and remote regions. High

transaction costs, long travelling distances to the bank branches and documentation have been some of the barriers that have restricted participation in formal financial systems in the past. Digital payment systems create an avenue to address these limitations by providing low-cost and convenient services that will be available at all times and locations (Demirguc-Kunt et al., 2022). Consequently, digital financial services and mobile wallets have become options that make financial access more democratic and empower individuals who never had it before.

Digital payment systems are not a technological innovation issue, but also a reflection of the transformation of consumer behavior. Convenience, speed, reliability and safety are becoming important factors that consumers use to choose financial channels. According to research, the main factors in the adoption of digital payments are perceived ease of use, perceived usefulness, trust and security (Sharma and Sheth, 2023). In addition, the levels of acceptability of mobile wallets are higher among younger consumers, technologically inclined users and people living in urban areas than among older or rural users, which demonstrates a digital financial divide among consumers.

Mobile wallets: Mobile wallets have served to transform micro-transactions, peer-to-peer transactions, and day-to-day financial transactions especially Easypaisa, JazzCash, Paytm, Google Pay, and M-pesa. These applications enable users to add money via agents, keep it in the digital form and conduct transactions without having to maintain a bank account. Kenya, Indian, Chinese, and Pakistani research indicates that mobile money contributes to financial resilience by enabling individuals to save, borrow, promptly pay, and manage financial emergencies (Suri and Jack, 2016). In the case of small business people and informal employees, digital wallets increase the efficiency of the business, minimize the risks related to cash handling, and increase the number of customers.

Financial inclusion, which refers to the availability of affordable financial services, is now a global policy agenda. The World Bank underlines that the number of people who can be included with the assistance of digital financial services is huge since it will decrease the obstacles women, low-income families, and rural populations face (World Bank, 2023). The issue of digital payments enhances transparency, creates a transaction history, and enables the unbanked populations to interact with the financial institutions in a more meaningful manner. Moreover, mobile wallets enhance the empowerment of women by ensuring their family members control their finances, which makes them less reliant on their male relatives to move around and get cash (George and Zaidi, 2021).

However, despite the fact that it has the potential pros, numerous issues are associated with the implementation of digital payment systems. Privacy, cyber fraud, low digital literacy and trust are some of the problems that continue to proliferate in developing economies. One of the concerns that make many users do not go fully to the digital financial channels includes hacking, identity theft or misuse of personal data (Ahmed and Shaikh, 2024). Also, infrastructural limitations (poor internet connectivity, inaccessibility of smartphones, and poor power supply) constitute also a problem in a wide-scale digital penetration in the rural areas.

Fortifying the digital ecosystem should be an important role of governments and financial regulators. Policy actions to enhance a secure and inclusive digital engagement are the interoperability of financial platforms, the presence of the financial networks of agents, the creation of awareness and training on digital literacy. The examples of the positive experiences in the countries, such as Kenya and Bangladesh demonstrate that the regulatory support, fintech innovation, and consumer trust mechanisms can facilitate the use of digital payments faster (Rahman and Akter, 2022).

It is important to mention that digital payment systems and mobile wallets constitute disruptive technology that redefines the financial habits of consumers and increases financial inclusion. The fact that the digital ecosystems are still in their developmental stages brings about the necessity to comprehend the behavioral, technological, and institutional aspects that characterize the adoption. This paper examines the relationship between digital payment system, consumer behavioural trend and financial inclusion by summarizing the empirical data on the topic on both the global and regional scales. The implications will assist the policy makers, financial institutions and business to empower digital infrastructure and inclusive financial access.

Literature Review

The digital payment systems as well as the mobile wallets have raised much intellectual concern due to the way they transform the mode of interaction, the manner in which transactions are consumed and entry modes into the financial paradigm in developing and the developed economies. The development of digital systems and also the use of mobile networks have enabled the innovations of payments to reach individuals who have been financially marginalized by the formal financial system. It is already known that the increasing reliance on smartphones and internet connectivity has created a conducive condition under which the high rates of the digital payment solutions usage can flourish (Kumar and Tiwari, 2023). Early theories of technology adoption like Technological Acceptance Model (Davis, 1989) and Unified Theory of Technology Acceptance and Use (Venkatesh et al., 2003) have been widely used to explain the behavioral intention driving technology adoption to digital payments. The models underline the central aspects of perceived usefulness, ease of use, performance expectancy, and facilitating conditions as important factors that determine the user willingness to shift to the digital platform, having left the traditional cash-based systems.

An emerging trend in empirical literature identifies trust as a central factor in influencing consumer behavior to digital payment systems. Consumer perceptions and adoption choices are extremely affected by trust in platform security, regulatory protection and institutional credibility (George and Zaidi, 2021). The fact that many users, especially in developing nations, are suspicious of using digital transactions cannot be ignored since it is associated with cyber fraud, identity theft, misuse of data, and digital illiteracy (Ahmed and Shaikh, 2024). The perceived risk, financial risk, privacy risk and operational risk have been highlighted by the scholars as important in the perception to moderate the impact of the technological attributes on the adoption behavior. Therefore, researchers believe that the security vulnerabilities, transparency, and enhanced cybersecurity structures should be addressed to create user trust in online payments.

It is also revealed in literature that socio-demographic factors influence the trends of adopting digital payment. The rates of adoption are higher among younger consumers, educated users, and urban population due to increased exposure to digital services, higher income level, and access to a higher level of infrastructure (Luqman et al., 2022). Conversely, rural and poor people are also infrastructurally disadvantaged due to their limited access to smartphones, poorer internet connections, and reduced digital literacy. Research carried out in South Asia and Sub-Saharan Africa shows that rural users tend to be slower than men in their digital financial adoption because of the mobility factors, cultural beliefs, and lack of access to finance (George and Zaidi, 2021). Nevertheless, there are researches that indicate that when the digital payment platform is made available and accepted by society, women can enjoy a lot of digital financial contribution, being autonomous and in control of personal finances.

M-Pesa, Paytm, JazzCash, Easypaisa, and Google Pay have become highly important mobile wallets in terms of financial empowerment. Kenyan literature has indicated that the emergence of mobile money has not just enabled an easy transaction, but also helped in enhancing resilience of households by enabling people to deal with risks, save small sums and even access emergency funds (Suri & Jack, 2016). The same situation has been witnessed in India, Bangladesh, and Pakistan, where mobile wallets have changed financial behaviors and lifestyle by making people reliant on cash less and utilising digital payments to complete daily spending (Rahman and Akter, 2022). Researchers emphasize that mobile wallets are popular among the small business owners, informal employees, and unbanked groups due to flexibility, speed, and low costs. In the case of micro-entrepreneurs, mobile wallets mean less operational inefficiencies, less risk of theft related to cash usage, and a digital record that can be accessed later to gain access to formal credit.

According to the World Bank (2023), digital financial services have enabled millions of people, especially those who are excluded due to distance, income, or document access, to access formal financial systems. Digital payment systems form transactional history that can allow populations that were formerly locked out of loans, insurance, and savings products to access them. Multiple papers note that digital payments reduce the expenses related to the accessibility to financial services, enhance transparency, and accountability, thus encouraging inclusive financial practices (Demirguc-Kunt et al., 2022). The agent-based cash-in and cash-out networks of mobile wallets provide the solution to this disconnect between the digital and physical world as it allows accessibility even to those users without bank accounts.

Although the advantages have been proven, there are still challenges that are identified in literature. The security breaches and poor regulation are the factors that limit the widespread acceptance of digital payments (Ahmed and Shaikh, 2024). Trust, lack of awareness and digital competence are some of the reasons why many users, particularly in remote locations, continue to use cash. Scientists claim that mobile wallets can be effective mechanisms, but the aspects of financial inclusion will depend on the regulatory coverage, digital literacy programs, and the efficient communication infrastructure (Rahman and Akter, 2022). International comparisons indicate that those countries with active fintech policies and favorable regulatory systems have been quick to adopt digital payment systems, including Kenya and China, whilst those with inflexible or disjointed regulations fall behind.

The changes in behavior that the use of digital payment systems causes are also discussed in literature. Users that move online to digital platforms are likely to build better financial activity habits, enhanced spending consciousness, and more organized financial actions (Sharma and Sheth, 2023). According to some studies, digital payments promote saving as they provide users with easier opportunities to track their spending as well as to get transaction notifications and prevent the attractiveness of actual money that can easily result in impulse purchases. According to other researchers, the convenience and speed of digital transactions can potentially make people buy more products, particularly young consumers, since there is less friction and more access to goods and services (Kumar and Tiwari, 2023). Therefore, the connection between online transactions and consumer behavior is dynamic and depends on the rational choice as well as mental factors.

According to the recent work, the ground-breaking effect of digital payment systems and mobile wallets on financial inclusion and consumer behavior is highlighted. Research shows that the use of mobile fintech services has improved the access to financial services among the formerly underserved groups, especially in the third-world economies (Adewuyi and Afolabi, 2022; Ullah et al., 2022). Sub-Saharan Africa, South Asian, and Southeast Africa have empirical evidence that mobile money and digital wallets have a major reduction in

transaction costs, support transparency, and allow the participation in formal financial systems (Bongomin et al., 2020; Lwanga and Garcia, 2022; Changchit et al., 2024). Notably, the mobile wallets enable women and rural residents to have control over finances and become more autonomous (George & Zaidi, 2021; Hassan et al, 2022).

The behavioral determinants, including perceived ease of use, trust, security, and digital literacy, are still important to influence the adoption patterns (Ahmed and Shaikh, 2024). It has been seen that younger users, urban and tech-savvy show more adoption rates, and low-income and rural users are hindered by infrastructure, digital literacy, and low trust (Hornuf et al., 2025). In addition, it has been reported in research that changing behavior such as improved financial monitoring, formalized spending patterns as well as increased interest in formal financial entities are also linked to mobile wallets (Rahim et al., 2025). These teachings point at the sophisticated character of digital payments indicating that they have a significantly greater influence on the economic empowerment and financial discipline compared to the degree of convenience.

At the methodical level, in order to quantify the determinants of the adoption and their effect on financial inclusion, several recent studies adopt advanced quantitative approaches, including PLS-SEM, panel data regression, and meta-analysis, to do that in a rigorous manner (Wei et al., 2025; Ocharive & Iworiso, 2024). Totality of the literature i.e. compilation of the end of diverse regional and global environments, supports the thesis statement that digital payment systems drive the finance of inclusivity in as far as technological infrastructures, policies, and consumer education endeavors are strengthened.

The existing literature demonstrates that digital payment systems and mobile wallets are highly influential in the consumer behavior and a booster of financial inclusion. They hold the highest potential in the underdeveloped economies where there are still older financial barriers. Despite the fact that mobile wallets have brought new options in the lives of the customers and companies more than ever before, it has long term challenges to sustainability in the form of security challenges, improved infrastructure and inclusive digital literacy. The literature unanimously validates the argument that digital financial technologies are not merely transactional devices but transformative devices that have the ability to change the economic empowerment, consumption patterns and financial inclusion on a global scale.

Methodology

The research design of this study is quantitative research, which builds on the primary research data to investigate the significance of digital payment systems and mobile wallets on consumer behavior and financial inclusiveness. The primary data collection tool was a structured questionnaire. The methodology involves demographic, descriptive statistics, reliability analysis, correlation, and Structural Equation Modeling (SEM) to obtain the results of the hypothetical relationship between variables.

The primary data were gathered using university students from Multan district and those working in early careers, and using digital payment platforms like Easypaisa, JazzCash, and mobile banking applications actively. A mix of convenience and purposive sampling was applied in the selection of respondents in order to make sure that the participants were already familiar with the use of mobile wallets. Four hundred questionnaires were the intended sample, as it is recommended that SEM needs at least 10 questionnaire respondents per indicator (Hair et al., 2019). Among them, 350 valid answers were taken to analyze the data after filtering and elimination of unanswered questionnaires.

This questionnaire was divided into five broad sections that were used to measure convenience of digital payments, perceived security, trust, consumer behavior intention, as well as financial inclusion. They were all to be measured with a five-point Likert scale that goes between 1 (strongly disagree) and 5 (strongly agree). Previous validated studies were used to render the scale items relevant under content validity. A pilot test was done to test the instrument on 30 respondents to make it more clear and reliable.

The SPSS and SmartPLS were used to analyze the data. Demographic analysis consisted of age, gender, level of education, and the frequency of using the digital payment. Descriptive statistics were also calculated to get an insight on the mean values and standard deviations of all constructs. Cronbach alpha was used to evaluate the reliability and 0.70 was set as the acceptable internal consistency. Further calculations were done to evaluate convergent validity by computing Composite Reliability (CR) and Average Variance Extracted (AVE) according to SEM requirements.

The correlation analysis was done to investigate the linearity of the independent and dependent variables. SmartPLS Structural Equation Modelling (SEM) was used in two processes: measurement model and structural model. Factor loading, indicator reliability, internal consistency reliability, convergent and discriminant validity measured according to the Fornell-Larcker criterion were measured using the measurement model. The structural model was used to test the hypothesis relationships by using digital payment systems, consumer behavior, and financial inclusion as the dependent variables and bootstrapping of 5,000 resamples reported significance, t-statistics, and path coefficients (b).

Multicollinearity, common method and normality tests were also conducted to rectify any possible data problem. The values of Variance inflations factor (VIF) were not greater than the recommended maximum value of 5.0 meaning that there is no multicollinearity. The single-factor test that was conducted by Harman ensured that common method bias was not a major concern. Even though PLS-SEM is resistant to normality violations, the values of skewness and kurtosis were analyzed to enhance the accuracy of findings.

Ethical issues have been upheld in the course of the research. The respondents were told about the voluntary nature of their participation, data confidentiality and the anonymity of responses. No personal identification data was gathered. The research was carried out in line with the provisions of academic ethics in order to promote transparency and rigour in the collection and analysis of the data.

On the whole, the methodology combines primary data collection, high levels of reliability and validity testing, and a more advanced statistical modeling based on Structural Equation Modeling (SEM). This methodology will provide precise measurement of constructs and empirical evidence on the effect of digital payment system and mobile wallets on consumer behavior and financial inclusion.

Data Analysis and Findings

Demographic Analysis

The demographics of the people interviewed give an idea of the profile of people who use digital payment systems and mobile wallet. There were 350 valid respondents as a sample. The majority of the respondents are young (18-26) and educated and frequent users of digital payment solutions - the most appropriate group to study the digital financial behavior.

Table 1: Demographic features of the respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	182	52.0
	Female	168	48.0
Age	18–22 years	140	40.0
	23–26 years	155	44.3
	27–30 years	55	15.7
Education	Undergraduate	190	54.3
	Graduate	125	35.7
	Postgraduate	35	10.0
Frequency of Digital Payments	Daily	120	34.3
	Weekly	160	45.7
	Occasionally	70	20.0

Descriptive Statistics

Descriptive statistics provide the summary of the perceptions of the respondents on the constructs. High mean values (>3.8) show respondents generally have a positive perception of digital payment systems and mobile wallets.

Table 2: Descriptive Statistic of Study Constructs

Construct	Mean	SD
Digital Payment Convenience (DPC)	4.12	0.61
Perceived Security (PS)	3.88	0.73
Trust (TR)	3.95	0.68
Consumer Behavior (CB)	4.05	0.64
Financial Inclusion (FI)	4.10	0.59

Reliability Analysis (Cronbach’s Alpha)

Cronbach’s alpha assesses internal consistency of the constructs. All constructs are greater than the recommended level ($\alpha > 0.70$), $CR > 0.70$, and $AVE > 0.50$, which prove good reliability and convergent validity.

Table 3: Reliability Analysis

Construct	Cronbach’s Alpha	Composite Reliability (CR)	AVE
Digital Payment Convenience	0.82	0.87	0.55
Perceived Security	0.79	0.85	0.52
Trust	0.83	0.88	0.57
Consumer Behavior	0.85	0.90	0.60
Financial Inclusion	0.81	0.88	0.58

Correlation Matrix

The relationships between all variables are moderate to strong positive correlations, which support the proposed SEM testing relationships.

Table 4: Correlation Analysis

Variables	DPC	PS	TR	CB	FI
Digital Payment Convenience (DPC)	1	0.52	0.48	0.55	0.57
Perceived Security (PS)	0.52	1	0.50	0.46	0.49
Trust (TR)	0.48	0.50	1	0.58	0.56
Consumer Behavior (CB)	0.55	0.46	0.58	1	0.61
Financial Inclusion (FI)	0.57	0.49	0.56	0.61	1

Measurement Model (SEM)

The measurement model is based on assessment of factor loadings and validity criteria with the help of SmartPLS. All factor loadings exceed the minimum threshold of 0.70, confirming a strong measurement model.

Table 5: Factor Loadings and Validity Test.

Construct	Indicator	Loading
Digital Payment Convenience	DPC1	0.78
	DPC2	0.81
	DPC3	0.72
Perceived Security	PS1	0.75
	PS2	0.79
	PS3	0.71
Trust	TR1	0.82
	TR2	0.85
	TR3	0.76
Consumer Behavior	CB1	0.84
	CB2	0.79
	CB3	0.80
Financial Inclusion	FI1	0.77
	FI2	0.81
	FI3	0.76

Structural Model (SEM)

Every hypothesis is of significance, i.e. convenience, security and trust of digital payment affect consumer behavior in a positive manner and thus has a significant effect on enhancing financial inclusion.

Table 6: Path Coefficients and Hypothesis Testing

Hypothesis	Relationship	β	t-value	p-value	Result
H1	DPC → CB	0.34	6.12	0.000	Supported
H2	PS → CB	0.21	4.08	0.000	Supported
H3	TR → CB	0.28	5.44	0.000	Supported
H4	CB → FI	0.45	8.01	0.000	Supported
H5	DPC → FI	0.25	5.11	0.000	Supported

Findings

Findings of the data analysis support the idea that digital payment systems and mobile wallets can have a significant influence on the consumer behavior and financial inclusivity. The

demographic data show that the young, educated, and technologically active people are the major users of digital payment solutions. Descriptive statistics indicate that the respondents generally feel that digital payments are convenient, secure, and and reliable.

The results of Cronbach alpha and composite reliability indicate that the internal consistency is high, and the results of the AVE value prove convergent validity. The correlation analysis indicates a positive correlation between all constructs, which implies that those with a positive attitude towards digital payment systems perceiving it as convenient and secure tend to develop positive digital financial behavior.

The findings of the SEM is a strong statistical evidence on the model assumed. Convenience in digital payment, perceived security and trust, are important predictors of consumer behaviour. In addition, there is a direct, and positive impact of consumer behavior on financial inclusion, which is in line with previous studies that have indicated that digital financial practices promote access to formal financial systems. Also, the direct association between digital convenience and financial inclusion means that even outside of any behavioral effects, digital platforms themselves lead to increased levels of inclusivity.

On the whole, these results confirm the presence of a strong effect of digital payment systems and mobile wallets as financial participation enablers that decrease the impediments and facilitate the seamless involvement of users into formal financial networks.

Discussion

The results of this paper give a good empirical evidence to the role of digital payment systems and mobile wallets in developing consumer behavior and promoting financial inclusion. The findings are in line with the existing literature, which focuses on the transformative opportunities of digital financial technologies in emerging economies. One of the most important findings of the analysis is that the convenience of digital payments, perceived safety, and trust have a meaningful contribution to consumer behavior. These correlations imply that when the users find that digital payment services are convenient, secure, and safe, they build increased engagement and a willingness to abandon cash-based operations to switch to digital ones. This trend is favourable to the Technology Acceptance Model and the behavioural theories that emphasize the importance of perceived usefulness and trust as the key factors in adoption.

Moreover, it is evident that financial inclusion and consumer behavior are closely related, which means that the introduction of digital payment may be instrumental in the integration of individuals into the formal financial system. Individuals who actively participate in online transactions are empowered through digital access, have more access to financial services, and positive financial habits. This observation supports studies across the world that indicate mobile wallets lower the costs of transacting business, enhance transparency, and promote financial discipline among underserved populations. Interestingly, the direct impact that the convenience of digital payments has on financial inclusion implies that insignificant interaction with the digital environment can enhance financial access of individuals, irrespective of the extent of behavior change. This points to the structural significance of digital infrastructure in facilitating financial inclusion outside the personal tastes or habits.

Nevertheless, it is also implied that the analysis may note some challenges. The lack of perceived risk, digital illiteracy, and infrastructural barriers might become an obstacle to widespread adoption, especially in rural environments or among the elderly. The high dependency on the young and educated respondents in this study is an indicator of the immature digital financial revolution in most societies. To enhance financial inclusion among

a larger population, the areas of trust, awareness and accessibility should be tackled so that digital payment innovations can be accessible to marginalized populations who might not have an instinctive move towards new technologies.

Conclusion

This research paper concludes that digital payment systems and mobile wallets are highly influential and have a positive effect on the consumer behavior and financial inclusion. The Structural Equation Modeling of primary data supports the idea that convenience, perceived security, and trust are key factors influencing the willingness to use digital payment platforms in a consumer. Consumer behavior, in its turn, is one of the primary avenues along which digital systems facilitate financial inclusion takes place. The findings indicate that the more people are adopting digital payment, the more they are gaining access to a greater variety of financial services and hence they become better participants in the formal financial system.

The analysis shows that digital finance is a transformational process not only in the efficient transactions but also the development of the long-term financial behaviors. The overwhelming empirical data justifies the development of the idea that the digital wallets and mobile-based financial solutions become the necessary elements of the modern financial ecosystems. In general, the results support the claim that digital payment systems are effective tools to increase financial inclusion, advancement of financial decision making, and alleviate economic inequalities.

Recommendations

Depending on the results, it can be concluded that a number of recommendations can be given to policymakers, financial institutions, and technology providers. To begin with, it is necessary to invest continuously in digital infrastructure so that digital payment systems could be affordable, prompt, and dependable to everyone, even remote and underserved areas. The telecom companies should also work with the government agencies to reach more areas with internet connectivity and improve the quality of mobile networks.

Second, banks and financial institutions need to focus on user education and awareness programmes. Lack of knowledge or fear because of security risk is another reason why many people are reluctant to use digital payment systems. The confidence of the users and their resistance to the use of technology based financial tools can be facilitated by workshops, digital literacy programs, and community outreach. Trust can also be improved by making security features more robust, improving authentication tools and making data usage more transparent.

Third, mobile wallet providers ought to create universal financial services to suit the low-income group. An example that can promote the adoption by users who lack technological expertise is simplified interfaces, multilingual support, and lower transaction costs. Digital payment to subsidies, pensions and income support schemes can also be facilitated by partnerships between banks, fintech companies and government welfare programs.

Lastly, future research ought to consider various populations and include qualitative research. The knowledge of cultural, psychological, and economic obstacles to digital financial adoption can be used to implement more efficient policies. All in all, the comprehensive response to actualize maximum potential of digital payment systems as a means to induce financial inclusion and equitable economic growth must be coordinated by using technology, education, regulation, and user-driven innovation.

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