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## HOW CASHLESS PAYMENTS SUPPORT SUSTAINABLE FINANCIAL INCLUSION

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### Abstract:

Cashless payments are emerging as an important mechanism to expand financial access, especially in the context of underserved communities. QR-based technologies and digital banking can reduce the provision of physical banking infrastructure and can reduce transaction costs by providing a more secure and transparent platform for every financial transaction. Despite the rapid growth of the cashless ecosystem, the role of cashless transactions in supporting financial inclusion remains crucial. However, underserved communities remain underexplored. This paper investigates how cashless payment systems support sustainable financial inclusion among underserved communities by expanding financial accessibility, enhancing service efficiency, improving transparency and financial security, reducing environmental impact, and supporting long-term economic participation. In addition, the study highlights key challenges that may hinder the effective and inclusive adoption of cashless payment systems among vulnerable populations. This study uses a conceptual research approach, synthesising existing literature on cashless payments, mobile wallets, QR-based transactions, and digital banking to identify how cashless systems contribute to sustainable financial inclusion. The findings indicate that cashless payment systems contribute to sustainable financial inclusion for underserved communities through wider access to financial services, improved transparency and security, lower environmental and operational costs, and enhanced opportunities for long-term economic empowerment. The study concludes that cashless payment systems play a critical role in ensuring that financial inclusion

operates effectively and sustainably over time, particularly for underserved populations. To realise these benefits, all parties, such as policymakers, financial institutions, and technology providers, need to work together to strengthen digital infrastructure, regulatory frameworks, and user capabilities.

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Cashless Payments; Digital Finance; Economic Empowerment; Financial Inclusion; Fintech; Sustainability; Underserved Communities



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## Introduction

Financial inclusion is a key foundation for building a strong and resilient economy. As one of the fastest growing and most well-known ideas in today's financial world, has gotten a lot of attention from both governments and corporations because it might change the way people can get financial services (Becha et al., 2025). This financial inclusion is also an essential part of social and economic growth (Mishra et al., 2024a). According to Reis (2021), financial inclusion has become a key policy and an important strategy for poverty reduction in developing countries. Characteristics of financial development include promoting inclusive growth, improving income equality among marginalised groups, and improving the distribution of financial and non-financial resources (Ngonyani, 2022). So, to enhance overall resilience, such as being prepared to manage and reduce risks as well as making informed decisions to invest in education or engage in business activities, it is when individuals have access to payments, savings, insurance, and credit. Many individuals with low incomes face challenges in accessing traditional banking services, particularly those residing in rural areas or lacking a bank account (Shahen & Sharaf, 2025). Reshaping the financial landscape through the rapid growth of digital technology by offering new ways for people to access financial services (Kamboj & Sharma, 2025). Technologies such as mobile money, QR-enabled payments, and e-wallet applications make it easier to transact using only mobile money apps instead of going to the bank (Sathish & Vidya, 2025). In addition, this digital technology creates many new opportunities and new ways for these people to join the financial system. One of them is when they want to pay bills. They just need to pay online and no longer need to carry cash. With the advent of this digital technology, it can give people new options and new access routes to financial services that were previously unavailable. Indirectly, the growth of digital finance enables this cashless ecosystem to reduce dependence on the use of physical cash and also reduce operational and environmental costs, thereby enhancing transparency across financial

transactions. Every member of society needs access to money to meet their needs and participate in economic and social life (Bugár & Somogyvári, 2025). The growth of digital finance has opened up many opportunities to reduce and minimise financial transaction costs, as well as to meet the increasing demand of users from time to time and to expand the accessibility of financial services (Becha et al., 2025). The payment landscape in a cashless ecosystem requires a profound transformation to eliminate cash transactions, and the trial of digital currencies is not surprising. Therefore, in promoting sustainability, particularly in the context of financial inclusion, the role of payments has received minimal attention in this context which is concerning given that effective payment systems can enhance access to financial services for underserved populations (Mamun & László, 2025a).

## Literature Review

### *Cashless Payments and Digital Finance*

The definition of cashless payments is all payments or transactions involving buying and selling made without physical cash (Bank for International Settlements, 2024). The factor that driving the rapid development of digital payment systems is the widespread use of smartphones and the enhancement of mobile internet capabilities (Irianto & Chanvarasuth, 2025). According to the Shahen and Sharaf (2025) conducted a study on the topic, the advancement of digital technology has transformed and impacted almost every sector, including the modern economic sector, communication and healthcare sectors, as well as education, business, and finance sectors. By using cashless payment technology, it not only helps users to send, receive or store value electronically at a lower cost than traditional banking. In fact, the increase in digitalisation through the internet can significantly improve in the context of globalisation and can change the payment system from manual methods to online transactions to be more advanced and in line with current developments. The change and transition of cashless payment technology from traditional banking to electronic payment is increasing over time (Sultana et al., 2025). According to Shaikh et al. (2023), the widespread use of smartphones in the market inspires digital transformation and reduces the number of informal and undocumented transactions and increases digital use in many regions indirectly. In the context of underserved communities, cashless or digital payment systems provide formal financial services and offer alternative access points when traditional banking infrastructure is limited or unavailable.

Apart from that, digital payment systems can reduce costs and time when dealing with conventional banking systems (Kahveci & Gurgur, 2025). Digital payment systems can also make financial transactions faster, more efficient, and accessible to low-income groups. Other than that, the implementation of new technologies such as mobile payment QR codes can proceed and be well-received if stakeholders understand their role and know the benefits that will be obtained (Irianto & Chanvarasuth, 2025). In this context, digital banking has gained traction as a transformative tool to address the limitations of traditional banking systems (Rotinsulu et al., 2025). Therefore, cashless payment has become the primary payment application where it allows an individual to use the financial system and demonstrates its role as a transformative tool for digital inclusion. According to Ramayanti et al. (2025), cashless payments are financial transactions carried out without physical cash using digital instruments such as mobile wallets, QR-based payments, online banking, and electronic money. Various innovative payment alternatives, such as mobile money, e-wallets, plastic cards, and online payment systems, now enhance these cashless transactions. The growing and widespread use

of mobile phones and the internet has driven the growth of various mobile applications, including e-money platforms (Sultana et al., 2025).

In addition, in the world of advancement in this digital era, the key global instrument, namely digital transformation, plays an important role in promoting financial inclusion among and within contexts, especially in the context of developing new markets where access to conventional banking is often limited. So, the relationship between consumer confidence in digital transactions and their understanding of legal protections is crucial to ensure that cashless payments can support sustainable financial inclusion today, tomorrow, the day after, and beyond.

### ***Underserved Communities and Financial Exclusion***

Advancing financial inclusion (FI) relies on technology and a strong global commitment to connect underserved communities with the formal financial sector (Akanfe et al., 2025). According to Mahendra Dev (2006), the meaning of underserved communities is that they have limited access to formal financial services. Most of these communities are those who have relatively low levels of financial literacy or digital literacy and cannot use basic financial services such as payment systems, savings accounts or credit facilities (Lye et al., 2025). This situation prevents these communities from accessing financial services. Among the barriers is the lack of nearby bank branches, which prevents rural residents from accessing these financial services (Andrianaivo & Kpodar, 2012). In addition, high transaction fees and minimum balance requirements cause individuals to choose not to use financial services (Beyene et al., 2024). Not only that, but a lack of financial literacy or a lack of confidence in using digital tools is also preventing underserved consumers from accepting and using this digital financial system. As a result, underserved communities are more vulnerable to cases such as theft and loss because they use traditional payment methods, such as cash, and are more likely to be victims of crime. This situation arises from the challenges of managing money, which delays the processing of financial transactions during emergencies. Therefore, underserved communities need solutions for every challenge they face to be easily accessible and resolve these issues.

### ***Financial Inclusion Theory***

According to Mishra et al. (2024b), financial inclusion refers to the ability of people and companies to access financial products and services that are practical, affordable, and suitable to meet their specific needs. These products and services include transactions, payments, savings, credit and insurance. They should be provided in a transparent and environmentally responsible manner. According to the idea of financial inclusion, this idea emphasises that everyone, regardless of their economic level or social background, should have access to financial services. The theory suggests that this access should be mandatory. Every group should have access to all services available to meet their needs, including payments, savings and other services. It is not enough to simply have access to financial services to achieve true inclusion; these services must also be user-friendly and fit into existing circumstances. This is due to the fact that consumers will be more likely to save money, spend money and manage their finances in the long term if they believe that the website is easy to use. In addition, they will show greater confidence in their ability to use cashless payment systems. According to Ha et al. (2025) studies on the important role played by mobile phones in advancing financial companies have been conducted extensively. This Financial Inclusion Theory focuses on

accessible, simple-to-use, affordable and sustainable financial services for all and helps explain why underserved people use cashless payment systems in this research. With the help of financial inclusion theory, which offers a strong theoretical framework, it is possible to understand how to gain access to financial services more easily. Indirectly, this approach has the potential to improve the economic well-being and social well-being of underserved groups. Therefore, in this study, cashless payments are conceptualised as one of the enabling mechanisms or platforms that support inclusion, empowerment and resilience among underserved communities, and Financial Inclusion Theory provides a theoretical basis for understanding how cashless payment systems reduce access barriers and support sustainable participation in financial services among underserved communities.

### ***Financial Inclusion and Sustainable Development***

Financial inclusion and sustainable development have become two development objectives with far-reaching beneficial consequences for society and the environment (Yap et al., 2023). This financial inclusion directly supports the United Nations Sustainable Development Goals (SDGs) and provides access to financial services that enable vulnerable populations to accelerate consumption, accumulate assets, invest in educational or business opportunities, and escape poverty.

The first step towards financial inclusion is having a bank account and a bank branch in available proximity (Bugár & Somogyvári, 2025). The relationship between financial inclusion and sustainable finance is inherently complementary (Mamun & László, 2025b). Financial inclusion also plays an important role in strengthening the local economy as it enables micro-entrepreneurs and all small businesses to expand their business operations, accept digital payments and engage with a wider market (Al-Smadi, 2025). There is a growing need for education that is more in-depth regarding the manner in which financial inclusion can be used to enlighten financial resilience (Sethi et al., 2025).

Additionally, according to Yap et al., (2023) in the context of sustainability, it should be ensured that economic growth is aligned with the social and environmental development of the surrounding area. This includes promoting equitable access to resources and opportunities for all community members, as well as implementing policies that support sustainable practices and community engagement so that they can be sustained in the long term.

### ***Linking Cashless Systems to Sustainable Financial Inclusion***

In the effort to achieve equitable access to financial services for all segments of society financial inclusion has emerged as one of the main drivers of socio-economic development Rotinsulu et al. (2025). So, to align financial inclusion and support environmental sustainability, it is necessary to reduce reliance on paper and cash logistics and broader sustainable development goals to ensure that these goals are achieved. According to Ramaiya et al. (2024), to increase efficiency, transparency, environmental responsibility, and long-term usability, cashless payments need to be introduced because they can minimise physical documentation, provide a digital transaction history, and increase the accountability of the financial system. One of the factors that contributes to strengthening financial inclusion is the widespread role of mobile phones and the ability of the cashless system to function. In addition, the use of digital financial services can record all data and help ensure that transactions reach the recipient without leakage. A high level of transparency is necessary, especially to build trust

among users. When it comes to government aid transfers, sometimes users are quite worried about the integrity, so it ensures that recipients can verify the integrity of the funds they receive and fosters confidence in the system. The objective of this initiative is to encourage the use of digital financial services platforms in the long term. In this context, it is crucial to focus on underserved populations to promote their adoption of cashless financial services, with the technology enabling them to manage their daily transactions with more flexibility. Furthermore, according to Shahan and Sharaf (2025), cashless services are currently one of the primary platforms for promoting financial inclusion. So this is very important for every single level of society to learn and adopt. Digital transactions have the ability to enhance social protection systems and ensure that every transaction is carried out without any leakage. Both of these benefits may be achieved via the use of digital transactions. This is particularly true in the context of payments made by the government to those who are receiving assistance, since it ensures that the monies are transmitted straight to the recipients, without the participation of any middlemen or fraudulent activity. In point of fact, the inherent capabilities of cashless systems are the source of the potential for cashless systems to enhance the relationship between sustainability and financial transactions. This potential may be attributed to the fact that cashless systems are being used more often. This level of predictability may also promote confidence in financial services, which may encourage long-term usage, particularly in the context of communities with low incomes. This is especially true for the use of financial services. This is particularly true when considering groups who are classified as living in poverty. "Cashless systems are now considered a key tool to encourage financial companies that provide the flexibility to enable transactions across multiple platforms," Shahan and Sharaf (2025) said in their study. "Cashless systems give customers the ability to conduct transactions across multiple platforms."

Furthermore, in the era of technological advancements that are increasingly implementing cashless payments, this is considered one of the advances to move forward. According to Al Ghunaimi et al. (2025), cashless payments are considered an improvement in the world of the financial sector through various innovations for existing services. Among the facilities provided is the buy now pay later (BNPL) service. In addition, there is a digital credit scoring system where this system allows users to have access to form their own financial identity so that they can monitor every transaction that occurs. Access is important not only for the economy but also for individuals in the long term (Chen et al., 2026).

## **Results and Discussion**

In this section, the subsection is divided into 5 subsections. Every single subsection explains components that are related to underserved communities and financial security. A little bit of touch about environmental impact. And supporting economic empowerment, and the last subsection explains about the challenges.

### ***Expanding Access for Underserved Communities***

In the context of underserved communities, there are a lot of challenges and barriers among them such as in terms of location, infrastructure conditions and uncertain prices. So these challenges are barriers for them to use cashless payment systems. According to Birigozzi et al. (2025), concerns about the emergence and development of cashless payment systems are due to concerns about existing barriers. Therefore, with the presence of this cashless payment application on their phones, users can minimise these barriers. Indirectly, this can increase

financial inclusion and open up many economic opportunities for all groups, especially underserved communities. Society can accomplish such transactions using cashless payments. According to Shahen and Sharaf (2025), the most important contribution that cashless payment systems provide is their ability to extend access to financial services for populations that are located in areas with low incomes or in rural regions. This capability is the most significant contribution that cashless payment systems give.

Transactions that do not involve the use of cash are able to fill in gaps that are frequently overlooked by traditional banking institutions due of the high costs associated with establishing physical branches in remote locations. The fundamental capability of cashless payment systems is to perform this function. There is a possibility that cashless payment technologies might be of assistance in the eradication of these impediments. These technologies would enable users to conduct transactions by using mobile applications, even with the most basic of mobile phones. As digital platforms grow, they may create a more inclusive financial climate. It will be possible for underserved communities or organisations, particularly those located in low-income and rural regions, to engage more actively in this environment. Additionally, it will make it possible for people to send and receive money, pay bills, and manage savings without the requirement for institutional infrastructure for these activities. The growth of payment systems has led to the indirect digitisation of money and has made it feasible for this capacity to be utilised from a range of places all over the world to make digital payments because of this development.

### ***Enhancing Transparency and Financial Security***

The ability to move funds from one area to another put's individuals in a more dangerous position in terms of their likelihood of becoming engaged in criminal behaviour. For this reason, it is quite necessary for residents in underserved areas to have peace of mind about their financial situation. The use of digital payment systems could be of assistance in reducing the impact of this risk. In addition, with the help of this digital platform, customers are able to track every transaction record, which gives them the ability to effectively manage their expenditure. In order to increase the number of individuals who use this application, it is essential to earn the trust of users by providing them with financial security and transparency. Important components in building transparency and financial security must be present in the cashless payment system ecosystem. This is because each of these components plays an important role and can indirectly improve the financial security and efficiency of this system.

Issues such as corruption, financial mismanagement, and fraud can be reduced by using digital payments. This is because digital payments can generate records of transactions that occur transparently and accurately. Apart from that, the components in digital payments are easier to understand and learn. This can increase the level of trust in users. When users feel confident and trust in using digital payments for each transaction, they will encourage them to continue using financial services for a long time. According to Birigozzi et al. (2025), one of the important components in the modern economy is digital payments. This growth is due to several factors, such as technology over time, as well as the increase in the use of internet access. Long-term financial planning benefits every user if they are confident and believe that using the mobile application system will have a positive impact and can make it easier for them to carry out every buying and selling transaction.

### ***Reducing Environmental Impact***

Taking into consideration the fact that these establishments are a significant driver of the transition from traditional compliance to a cashless financial system, it is of the utmost importance to always make certain that they function effectively. This is especially important in areas or conditions that are difficult to administer maintenance for. It is imperative that this step be taken as soon as possible in order to ensure that these establishments do not require any environmental amenities. For example, as was indicated before, every new development would definitely be followed by carbon emissions produced by the logistics of distributing cash to remote or rural places. This would be the case regardless of whether or not the development happened. As a result, the implementation of this cashless payment system has the potential to reduce the quantity of carbon emissions that are produced. A cashless financial system also has the potential to develop a financial ecosystem that might promote economic activity that is both cleaner and more efficient. This ecosystem could be established through the use of cashless transactions. This is in agreement with the overarching goal of global development, which is to make it possible for every platform to use mobile payment systems in areas that are underserved without adversely affecting the environment in any way. This objective is attainable through the implementation of a cashless banking system.

### ***Supporting Economic Empowerment***

According to Ghosh et al. (2024), a cashless environment has the potential to work in an orderly manner and allow small businesses to accept payments quickly. This is a significant benefit for entrepreneurs. This is what precipitated the current predicament. Fintech platforms may also give clients with access to financial commodities that were previously unachievable. These commodities may include microloans, savings choices, and credit rating systems that are based on the user's digital transaction history. People may be able to improve their financial stability, expand their enterprises, and build economic resilience if they are exposed to an environment that does not include the use of cash transactions. As more people develop a digital financial identity through consistent use, they become better equipped to participate in the wider economic system. The cashless world is most widely used among individuals and entrepreneurs. One of the reasons is that this digital payment system allows individuals and groups of entrepreneurs to receive and make instant payments for every purchase and sale transaction. With the availability of mobile payment applications and the consistent use of mobile wallets, individuals in underserved areas are more willing to use the platform and conduct their business activities while also protecting themselves from high crime risks.

### ***Challenges to Sustainable Financial Inclusion***

Almost every country has a QR mobile payment channel (Irianto & Chanvarasuth, 2025). Several challenges may limit the ability of cashless system applications to achieve strong financial inclusion. Many individuals especially the elderly and rural residents, lack the skills to navigate financial applications safely, making this a major barrier to using cashless systems. Additionally, problems with access to smartphones also contribute to strong financial inclusion and can widen the digital divide. It is possible that a community that is not well served by the system would have a difficult time learning how to utilise this mobile payment application due to the process that is necessary. It is of the utmost importance that all parties involved, particularly those pertaining to financial institutions, service providers, and governments, take action to address these issues in order to guarantee that the cashless environment will continue

to be useable, accessible, and secure for all individuals. The actions that are being taken are being taken in order to provide assistance in addressing the problems that have been brought to light. Taking into account all of the elements, these results provide a conclusive answer to the aims of the study. This is because all of the factors were taken into consideration.

## **Research Method**

In order to accomplish this goal of this study, the method that is used is known as a conceptual research management approach. In order to use this technique, a comprehensive review of the existing literature on cashless payments, mobile wallets, transactions based on QR codes, and digital banking. By using this method, it is possible to get the desired result. A study of the most important qualities of how cashless environments have the potential to promote sustainable and equitable financial growth is contained in the following paragraphs. This research explores. The objective of this study is to provide major insights that have the potential to be employed in the relevant sectors, including policymakers, financial institutions, and technology suppliers alike. This research is being carried out with the intention of developing such potential.

## **Limitation**

In the report, it was claimed that there were a number of restrictions that were present. Due to time restrictions, the focus of this research is restricted to the function that cashless payment systems play in boosting the involvement of individuals who are of a financially disadvantaged background. The study has not yet begun; this is the beginning. These digital payment technologies are discussed in terms of how they help improve access to financial services, enhance transparency and security, decrease environmental impact, and encourage long-term economic involvement among marginalised populations. Mobile wallets, QR-based payments, and digital banking are all examples of these technologies. Mobile wallets are a kind of technology that may be used for digital payments. Specifically, it focuses on the manner in which these technologies contribute to the execution of these goals in order to achieve them. The topic that is offered in this article is comprehensive, and it does not focus in on any one nation. This is in reference to the second point. It would be more useful to be more precise with respect to the norms and regulations, cultural obstacles, and levels of financial literacy that may possibly contribute to the effective adoption of cashless payments in the context of financial inclusion. This is because it would be more helpful to be more specific. This is the situation that would occur as a result of the fact that it would be more favourable. In conclusion, but more importantly, technical advancements are the result of ongoing technological growth that takes place over lengthy periods of time. This is not to say that technological advancements are the least important. There is also a succession of rules that takes place in conjunction with these changes that are taking place. Because of this, there is a possibility that some intermediate service platforms and the techniques by which they are implemented would have difficulties and have capabilities that are limited. There is a possibility that some of the platforms, services, or behaviours that are covered in this article may develop or change over the course of time. This is something that is reasonable to consider. The occurrence of this is not out of the question. As a consequence of the introduction of new technology and regulations, it is conceivable that the significance of particular ideas may become less relevant. This is a possibility.

## Conclusion

The purpose of this concept paper is to provide an overview of a number of key components, such as financial inclusion, that have the potential to support cashless payment systems for a variety of reasons, including widespread accessibility, high transparency, and minimum impact on the environment. The cashless payment system today opens up many positive opportunities, including its ability to facilitate implementation for users. Not only that, the success of cashless payments plays a crucial role in ensuring the progress and development of this ecosystem in the long term, making it safe for every level of society, especially underserved communities. In conclusion, all parties need to work together and play a significant role, including the government, financial institutions, and technology providers, to ensure that financial inclusion can continue to operate for an extended period.

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