

Attitude Formation towards Digital Payment System: A Case Study of eSewa Mobile Application

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Abstract

Mobile technologies have rapidly gained widespread adoption and provide significant advantages for businesses, including the ability to reach customers more effectively. These technologies offer numerous benefits, such as the ability to interact from virtually anywhere, individualized usage, personalized information and services, and prompt responses. The advancement of mobile technology has facilitated the transition from traditional to digital payment systems. For example, in Nepal, the mobile payment system "eSewa" was introduced by eSewa Fonepay in 2009. Recent years have seen a dramatic rise in e-commerce, largely driven by the pervasive use of mobile devices. This surge in online trading has led to the development of new products and solutions for online payments, influencing consumer attitudes and behaviors. An online survey of 165 individuals was done for the study. Correlation and regression analysis were performed in SPSS was used for the data analysis.

The study identified several factors influencing adoption: perceived reputation, perceived trust, environmental risk, perceived ease of use, perceived usefulness, and perceived mobility. Findings revealed that perceived reputation, perceived ease of use, and perceived usefulness positively affect attitudes towards digital payments. Notably, perceived usefulness had the greatest impact on fostering a positive attitude, while perceived trust, environmental risk, and perceived mobility did not show significant effects.

Keywords: digital payments, mobile technologies, eSewa, online payments, consumer attitudes

Cite this paper

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Introduction

The rapid expansion of mobile technology over the past decade has paved the way for a potential paradigm shift in how businesses reach customers and deliver products and services. Mobile technologies have unlocked numerous opportunities, especially in communication, information sharing, and interaction. According to The World Factbook, approximately 7.1 billion people were using mobile cellular devices, and 3.17 billion were using internet services as of July 2016. In Nepal, 80% of the population owned mobile phones by 2017 (The Asia Foundation). This widespread adoption has led mobile network operators, particularly in developing regions, to launch "mobile money" platforms, enabling the storage and transfer of digital currency akin to sending text messages across long distances at minimal cost.

The integration of mobile phones into payment systems has attracted significant interest from both investors and service providers. Samsung, for example, developed Samsung Pay, while PayPal acquired Paydiant to enhance its market position. In 2014, Apple introduced Apple Pay, and Google acquired Softcard and launched Android Pay in 2015 (Dastan & Gürler, 2016). In Nepal, mobile payment systems began with the introduction of "eSewa"

by eSewa Fonepay in 2009. Since then, more than ten enterprises have launched mobile payment solutions in the country. eSewa, initiated by F1Soft, was Nepal's first integrated mobile and internet wallet service. Since its establishment, eSewa has expanded its offerings to include a diverse range of services, from utility bill payments to insurance and travel bookings. As a leader in Nepal's online payment industry, eSewa aims to drive the growth of a cashless economy, with a user base exceeding 7 million individuals and a network of over 150,000 branded outlets across all 77 districts (Acharya, 2023). While mobile payment systems (MPS) offer clear advantages, such as mobility and convenience, they also face challenges related to trust and security. The perceived trust in digital payment systems is critical, as transactions occur between consumers and mobile devices rather than through direct interaction with another person. Concerns about transaction security and potential fraud are significant barriers to adoption. However, trust can be bolstered through security certifications, user-friendly interfaces, and perceived usefulness.

The purpose of this research is to investigate the factors influencing the adoption of mobile payment systems in Nepal, focusing on how these factors affect users' intentions to utilize digital payment methods. The study aims to understand the role of perceived reputation, perceived trust, perceived usefulness, perceived ease of use, environmental risk, and perceived mobility in shaping attitudes towards mobile payments. The research will examine how these factors contribute to the rapid emergence of mobile payment systems and the shift from traditional payment methods. Given the high mobile penetration rate in Nepal, declining costs of mobile data, and expanding internet infrastructure, there is significant potential for mobile payments to become the preferred method of transaction. Despite the progress in mobile payments globally, including advancements by Paytm in India and Alipay in China, Nepal's mobile payment industry is still in its early stages. Understanding the factors that influence consumer attitudes and adoption of digital payment systems is crucial for transitioning preferences from traditional to digital methods. This study intends to answer the overreaching questions such as, How do perceived reputation, perceived trust, perceived usefulness, and perceived ease of use impact attitudes towards digital payment systems? What are the effects of environmental risk and perceived mobility on attitudes towards digital payment systems? By exploring these questions, the study aims to provide insights into the determinants of mobile payment adoption in Nepal, contributing to the broader understanding of digital payment systems' role in emerging markets.

The structure of this paper is organized as follows: Section 2 will discuss the literature review; section 3 provides the outline of research methodologies applied and data sources. Section 4 presents and discuss the empirical results, and finally conclusions and policy recommendation presented on section 5.

Literature Review

The Theory of Planned Behavior (TPB), introduced by Ajzen (1991), provides a framework for understanding human behavior by examining attitudes, subjective norms, and perceived behavioral control, which collectively shape behavioral intentions. This theory is instrumental in predicting behavior, including the adoption of technology. The Technology Acceptance Model (TAM), developed by Davis (1989), extends this understanding by focusing on perceived ease of use and perceived usefulness as key determinants of technology adoption. TAM is widely used to predict user acceptance of information systems and their subsequent behavior (Özer et al., 2010; Lu et al., 2003). In recent years, mobile technologies have transformed into Mobile Payment Systems (MPS), which utilize devices such as smartphones and tablets to initiate and manage payments (Karnouskos & Fokus, 2004). MPS offer several advantages over traditional payment systems, including increased mobility, personalized services, and user feedback (Barnes, 2002; Kannan et al., 2001). Research into MPS adoption highlights various influencing factors, including perceived ease of use, perceived usefulness, perceived cost (van der Heijden, 2002), mobility, trust, and compatibility (Schierz et al., 2010; Kim et al., 2010; Yang et al., 2012). Notably, perceived trust and perceived reputation are crucial, as they impact customer confidence in MPS (Jin et al., 2007; Moi & Mohtashemi, 2002).

Central banks oversee payment systems to ensure safety and efficiency, differentiating between oversight, which focuses on system-wide safety, and supervision, which addresses individual institutions' solvency and liquidity

(Nepal Rastra Bank Act, 2002; Payment System By-laws, 2015). Effective oversight is essential to prevent financial instability and ensure smooth economic operations. In Turkey, Law No. 6493 mandates that e-commerce businesses cannot store customer payment information, enhancing data security and addressing vulnerabilities in MPS. Privacy and security concerns, such as the risk of data theft and lack of transactional control, significantly impact user trust and adoption (Pavlou, 2003). The perceived risk, facilitated by conditions, performance expectancy, and attitudes, also influences behavioral intention towards digital payments (Chaveesuk et al., 2021). Studies show that security aspects and perceived trust are critical for user satisfaction with digital wallets, influencing adoption rates (Muhtasim et al., 2022). Perceived usefulness, as defined by Davis (1989), is another significant factor, reflecting the belief that a system enhances performance and is valuable in various contexts (Tzou & Lu, 2009). MPS, offering unparalleled convenience and flexibility, aligns well with this definition, making it a practical choice for users. The concept of mobility in MPS allows transactions regardless of time or location, addressing the limitations of traditional systems (Karnouskos et al., 2004). This mobility is particularly beneficial in today's fast-paced environment, where individuals may struggle to conduct transactions across different locations. MPS enables seamless transactions, improving convenience and efficiency for users.

"Mobile money" encompasses a range of electronic financial services conducted via mobile phones, including mobile banking, mobile payments, and mobile transfers (Dermish et al., 2011; GSMA, 2013). The term "mobile banking" is often misapplied to the broader category of mobile money but specifically refers to banking services accessible through mobile devices, typically available only to individuals with bank accounts. In contrast, mobile payments and transfers are designed for users without bank accounts, utilizing mobile wallets linked to SIM cards (GSMA, 2013). Mobile money gained traction with M-Pesa, launched by Safaricom and Vodafone in Kenya in 2007. This service, embedded in SIM cards and accessible without a bank account, allowed users to perform transactions and manage funds via their phones (Pew Research Center, 2013). Similar innovations have spread across developing countries, with successful implementations in the Philippines (SMART Money, GCASH), South Africa (MTN Mobile Money), Uganda (MTN), Tanzania (Vodacom M-Pesa), and Côte d'Ivoire (Orange Money, MTN Mobile Money) (GSMA, 2014). Despite slower adoption in developed economies, mobile money continues to expand globally, with 219 services in operation by the end of 2013, particularly in Sub-Saharan Africa and emerging markets (GSMA, 2013).

Research Methods

Conceptual Framework

The conceptual framework for understanding attitudes towards digital payments incorporates key independent variables such as perceived reputation, trust, perceived usefulness, perceived ease of use, and mobility, adapted from Daştan and Gürler (2016).

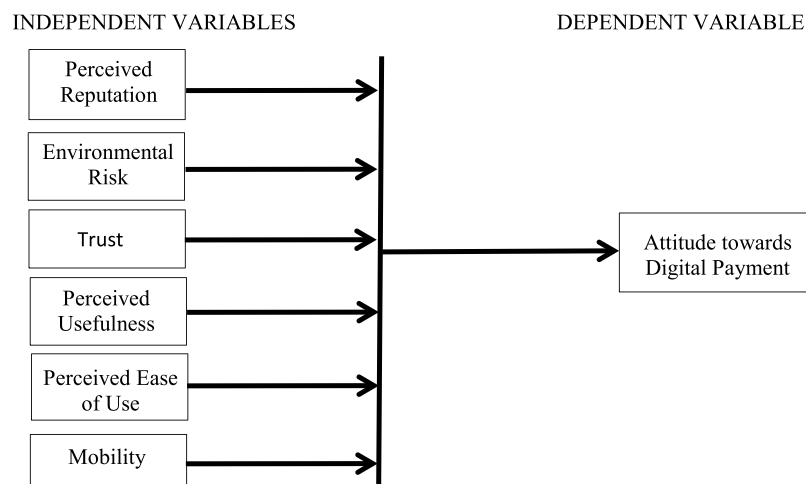


Fig: Conceptual Framework

Privacy and security concerns significantly affect customer perceptions of online payment systems. The lack of direct control over transactions creates uncertainty, fostering mistrust. Pavlou (2003) highlights that the absence of authority over transactions exacerbates risk perceptions, which negatively impacts trust. Additionally, the threat of hacking and potential information theft increases environmental risk. The advent of mobile technologies introduces additional complexities beyond outdated systems (Karnouskos et al., 2004). Griffin's definition of trust, as belief in an object's, event's, or person's behavior under risky conditions to achieve a specific goal, is crucial (Demircan & Ceylan, 2003). In Mobile Payment Systems (MPS), inherent uncertainties can undermine trust, affecting adoption and usage intentions. However, trust in vendors and service providers can mitigate these risks. Perceived usefulness, as defined by Davis (1989), reflects the belief that a system enhances performance or simplifies tasks compared to traditional methods (Tzou & Lu, 2009). Davis's research indicates that perceived usefulness significantly influences the intention to use MPS, highlighting its importance for users who value autonomy from time and place (Davis, 1989; Adams et al., 1992; Fenech, 1998).

Research Design

The study examines factors influencing attitudes towards digital payment systems in Kathmandu, specifically using the eSewa mobile application. Employing a quantitative research approach with a descriptive design, the study utilizes descriptive statistics, t-tests, ANOVA, and regression analysis to assess these factors. A deductive approach, based on literature-derived hypotheses, guides the research. Data is analyzed using SPSS and Microsoft Excel, with reliability measured by Cronbach's alpha. Data collection involved distributing self-administered questionnaires to respondents, supplemented by expert opinions. The conclusions are based on the collected data and responses from the sample population.

Study Setting and Designing

The Primary data is collected directly through methods like observation, interviews, and questionnaires, while secondary data involves previously gathered information not originally intended for the current study. This study focused on primary data, using a structured questionnaire distributed to 122 customers across various commercial banks to understand attitudes towards digital payments. The questionnaire, covered factors such as perceived trust, reputation, environmental risk, ease of use, usefulness, and mobility. It was designed with clear instructions and predominantly featured closed-ended questions. A 6-point Likert scale (1 = Strongly Disagree to 6 = Strongly Agree) was used to gather direct and unbiased responses. The collected data was then compiled and analyzed to draw insights into customer attitudes toward digital payment systems.

Data Analysis

The analysis begins with examining primary data using SPSS, focusing on relationships between entrepreneurial success and influencing factors. Data from 122 respondents were coded and entered into SPSS, with Cronbach's alpha used to assess reliability for scaled items. MS Excel facilitated quantitative data entry and preliminary analysis. Descriptive statistics, including frequency counts, percentages, means, and standard deviations, were used to explore the data. Visual aids such as tables, charts, and graphs illustrated the findings. Correlation and regression analyses were applied to examine relationships, and significance tests were performed to validate results. The analysis aimed to provide comprehensive insights into the factors affecting entrepreneurial success, with conclusions and recommendations based on the data collected and analyzed.

Reliability Test

Cronbach Alpha is the test of reliability. In order to establish reliability of the questionnaire and constructs, the Cronbach Alpha value should be greater than 0.7.

Table

Construct Reliability

S.No	Variables	Cronbach's Alpha	No. of Items
1	Perceived Reputation	.903	3
2	Environmental Risk	.854	2
3	Perceived Trust	.933	3
4	Perceived Usefulness	.949	3
5	Perceived Ease of Use	.893	2
6	Perceived Mobility	.903	3
7	Attitude Towards the Use of eSewa	.936	3

The research had total number of 19 questionnaires, 6 constructs belong to the independent variable whereas 1 of them for dependent variable. Perceived usefulness has the highest Cronbach's Alpha of 0.949 and Environmental Risk has the lowest Cronbach's Alpha of 0.854. The research model has a sound reliability.

Result

Basic Information

Out of 165 distributed research questionnaires, 82.5% were completed and returned. The sample consisted of 58.8% male and 41.2% female respondents, indicating that males are more likely to use eSewa. The age distribution revealed that 63.6% were between 16-25 years old, 34.5% were 26-40 years old, and only a small percentage were older, aligning with eSewa's popularity among younger users. Regarding educational qualifications, 61.2% held a Bachelor's degree, 17.0% had a Master's degree, and 1.2% had higher qualifications, reflecting a high level of online payment awareness. The survey respondents included 52.1% students, 43.0% professionals, and 4.8% business owners, showing that students were the most engaged group in the research. This demographic breakdown suggests that the findings are representative of the eSewa user base, particularly among younger, well-educated individuals.

Descriptive Analysis

The descriptive analysis of the Likert scale questionnaire indicates favorable perceptions of the eSewa mobile payment system among respondents. The analysis reveals that respondents generally agree on eSewa's positive attributes. Specifically, the mean scores for eSewa's reputation, fairness, and honesty are all below 3, suggesting a consensus that eSewa is well-regarded, fair, and trustworthy. Notably, 54 respondents strongly agree, and 81 agree that eSewa has a good reputation, although 10 strongly disagree. For the fairness of eSewa, 66 respondents agree and 49 strongly agree, while 4 strongly disagree. Regarding honesty, 52 strongly agree and 71 agree, with only 7 strongly disagreeing. When assessing environmental risks associated with eSewa, the findings show a more critical view. The mean scores for perceived environmental risk are above 3, indicating that a substantial number of respondents are skeptical about eSewa's riskiness. Specifically, 43.63% disagree that using eSewa involves a high risk, and 44.24% do not perceive eSewa as particularly risky. Concerns about eSewa being riskier are varied, with 26 strongly disagreeing and 18 strongly agreeing.

Respondents overwhelmingly perceive eSewa as secure and trustworthy, with 76.36% considering it secure, 78.18% finding it trustworthy, and 76.96% expressing overall trust in the system. They also view eSewa as improving the performance and ease of payments. The means of 1.96 and 1.95 for ease of learning and use suggest that most respondents find eSewa user-friendly. Additionally, eSewa is valued for its flexibility, with mean scores below 3 for independence from time, place, and travel constraints. Finally, 81.21% of respondents believe that using eSewa is a good idea, 74.54% see it as wise, and 76.36% consider it beneficial, reflecting overall positive attitudes toward the service.

Correlation Analysis

The correlation analysis results indicate strong positive associations between various factors and attitudes towards mobile payment systems. Perceived reputation and perceived trust show high correlations with attitudes, with Pearson Correlation Coefficients of 0.784 and 0.783, respectively, both statistically significant at the 1% level (p-value = 0.001). Similarly, perceived usefulness and perceived ease of use also exhibit strong positive correlations, with coefficients of 0.768 and 0.811, respectively, and are statistically significant at the 1% level (p-value = 0.001). These results underscore that higher perceived reputation, trust, usefulness, and ease of use are strongly associated with more positive attitudes.

Correlations		
Independent Variables		Attitude
Perceived Reputation	Pearson Correlation	.784**
	Sig. (2-tailed)	.001
	N	165
Environmental Risk	Pearson Correlation	.250**
	Sig. (2-tailed)	0.001
	N	165
Perceived Trust	Pearson Correlation	.783**
	Sig. (2-tailed)	.001
	N	165
Perceived Usefulness	Pearson Correlation	.768**
	Sig. (2-tailed)	.001
	N	165
Perceived Ease Of Use	Pearson Correlation	.811**
	Sig. (2-tailed)	.001
	N	165
Perceived Mobility	Pearson Correlation	.725**
	Sig. (2-tailed)	.001
	N	165

***. Correlation is significant at the 0.01 level (2-tailed).*

In contrast, environmental risk and perceived mobility have moderate to strong positive correlations with attitudes. Environmental risk has a Pearson Correlation Coefficient of 0.250, indicating a moderate positive association, while perceived mobility shows a coefficient of 0.725, reflecting a substantial positive relationship. Both correlations are statistically significant at the 1% level (p-value = 0.001). These findings suggest that while environmental risk has a lesser impact compared to other factors, perceived mobility still plays a significant role in shaping attitudes towards mobile payment systems.

Regression Analysis

The regression analysis evaluates the impact of six independent variables—Perceived Mobility, Environmental Risk, Perceived Trust, Perceived Ease of Use, Perceived Reputation, and Perceived Usefulness—on attitudes toward digital payment systems. The regression equation is given by: $\hat{Y} = 0.101 + 0.250X1 + 0.009X2 + 0.103X3 + 0.184X4 + 0.281X5 + 0.221X6$. Among these variables, Perceived Usefulness has the highest regression coefficient of 0.281, indicating its strongest influence on attitudes. Perceived Mobility, Perceived Trust, Perceived Ease of Use, Perceived Reputation, and Perceived Usefulness all show positive coefficients, with Perceived Mobility and Perceived Usefulness being particularly influential.

Model	Unstandardized		Standardized	t	Sig.	Collinearity		
	Coefficients		Coefficients			Statistics	Tolerance	VIF
	B	Std. Error	Beta					
(Constant)	-.101	.125	-	-0.803	.423			
Perceived Reputation	.250	.069	.241	3.598	.000	.316	3.163	
Environmental Risk	-.009	.033	-.011	-0.271	.787	.882	1.134	
Perceived Trust	.103	.075	.104	1.371	.172	.248	4.040	
Perceived Usefulness	.184	.069	.179	2.674	.008	.317	3.150	
Perceived Ease of Use	.281	.075	.272	3.764	.000	.273	3.663	
Perceived Mobility	.221	.060	.207	3.711	.000	.456	2.195	

The stepwise regression analysis reveals that only Perceived Usefulness and Perceived Reputation have significant relationships with attitudes toward digital payments, with p-values below 0.05. The other variables—Environmental Risk, Perceived Trust, Perceived Ease of Use, and Perceived Mobility—do not show significant results, indicating that they do not significantly impact attitudes in this context. The Variance Inflation Factor (VIF) analysis confirms no multicollinearity issues among the independent variables. Thus, the study concludes that Perceived Usefulness and Perceived Reputation are key determinants of attitudes towards digital payment systems, while the other variables have less impact.

Discussion

This study utilized primary data collected through questionnaires to examine factors influencing the adoption of digital payment systems, specifically eSewa. The respondent pool was diverse, with 58.8% male and 41.2% female participants. Age distribution showed a concentration in the 16-25 years bracket (63.6%) and the 26-40 years category (34.5%). Educationally, 61.2% of respondents held Bachelor’s Degrees, while 18.2% had Master’s Degrees. The majority were employed (71%), with 52.1% being students and 4.8% engaged in business. A notable finding was that 83% of respondents favored e-payment methods over cash (12%), underscoring the growing preference for digital transactions due to their efficiency and convenience.

The regression analysis revealed that perceived reputation and environmental risk had minimal impact on attitudes toward digital payments, as their relationships with attitudes were not statistically significant. Conversely, perceived trust, usefulness, ease of use, and mobility showed significant positive correlations with attitudes. Specifically, perceived usefulness and ease of use emerged as critical factors, significantly influencing positive attitudes towards eSewa. The study rejected the null hypothesis for these variables, highlighting their importance in shaping user perceptions. Perceived mobility also played a significant role, emphasizing its relevance in user attitudes towards digital payment systems.

Overall, the study provides valuable insights into the factors affecting digital payment adoption. While perceived reputation and environmental risk were less influential, factors like trust, usefulness, ease of use, and mobility were pivotal. These findings offer actionable insights for enhancing digital payment systems and promoting broader user adoption.

Conclusion and Recommendation

This study aimed to assess the perceptions of individuals regarding the adoption of electronic payment methods for daily transactions. It involved 165 respondents who completed a questionnaire designed to gauge their attitudes towards electronic payments, specifically eSewa. The research utilized primary data collected through these questionnaires, which were analyzed using SPSS software for descriptive and correlation regression analysis. Demographically, 58.8% of respondents were male and 41.2% female. The majority were young, with 63.6% aged 16-25 years. Educationally, 61.2% held Bachelor's Degrees, and 17% had Master's Degrees. Occupationally, 71% were employed, 52.1% were students, and 4.8% were business owners. Notably, 83% preferred e-payment methods over cash, reflecting a significant inclination towards digital transactions due to their convenience.

The analysis revealed that Perceived Reputation, Perceived Usefulness, and Perceived Ease of Use had significant positive relationships with attitudes towards digital payments. Conversely, Perceived Trust and Environmental Risk showed a negative relationship with attitudes. Among the factors studied, Perceived Ease of Use ($\beta = 0.184$) was found to be the most influential in fostering positive attitudes, aligning with broader trends in technology adoption research. Environmental Risk had a negative impact ($\beta = -0.009$), indicating that increased risk perceptions could undermine trust and adoption. The study highlights the importance of Perceived Reputation, Usefulness, and Ease of Use in shaping favorable attitudes towards digital payments. It underscores the need for improved user interfaces and trust-building measures to facilitate broader adoption. For stakeholders, including financial institutions and policymakers, the findings suggest focusing on enhancing usability and mitigating perceived risks to promote digital payment adoption. Overall, the study provides valuable insights into the factors driving digital payment system adoption, offering a basis for strategic interventions to support and expand e-payment usage.

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