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Impact of Digital Payment Factors on E-commerce Success: Analyzing the Structural Relationships

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Abstract

This study examines the structural links between perceived security, convenience, cost-effectiveness, and e-commerce success in order to determine the influence of digital payment characteristics on e-commerce success. The study fills a vacuum in the body of knowledge about Indian employees in upscale hospitality. Through the quantitative methods approach, including surveys, data was collected from 276 respondents. The study found that all three factors significantly influence e-commerce success. Specifically, cost-effectiveness, convenience, and perceived security exhibited standardized regression weights of 0.298, 0.415, and 0.355, respectively. These findings underscore the importance of these factors in enhancing e-commerce platforms and improving business success. The study also confirms the reliability and validity of the research constructs through various statistical analyses. The findings offer valuable insights for managers to enhance e-commerce success by focusing on cost-effectiveness, convenience, and perceived security in their digital payment strategies.

Keywords: Digital payments, Cost-effectiveness, Convenience, and Perceived security

Introduction

The rise of e-commerce has completely changed how companies run, giving them the ability to transact business easily and reach a worldwide customer base. Digital payment factors—such as perceived security, ease of use, and affordability—are essential to this expansion because they have a significant impact on customer behavior and the success of e-commerce. Businesses must comprehend the effects of these elements.

The level of consumer satisfaction that they encounter during their online browsing and purchasing activities is a determinant of an e-business's success (Abdallah and Jaleel, 2015). Behaviours such as recommendation and repurchase intention impact the success of these online vendors in addition to customer contentment. This study examines consumer satisfaction, repurchase intention, and recommendation as the foundational elements that comprise the success of an e-commerce system (ESS). Customer satisfaction can be defined as the overall assessment of the products or services received subsequent to the purchase. This evaluation influences the purchasing behaviour of customers, which in turn impacts their decisions after the sale (Ali, 2016). Despite the fact that numerous scholars have examined the notion in both offline and online contexts, its significance has increased in the digital environment and generated intricate outcomes as a consequence of the advanced level of sophistication and experience associated with online purchasing. Numerous scholars regard recommendation as a viable

alternative to gratification. A higher proportion of contented customers are anticipated to recommend the website to their friends and family, in comparison to those who are dissatisfied (Carlson and O'Cass, 2010).

One important aspect affecting consumers' desire to conduct online transactions is their perception of security. Customers need to have peace of mind knowing that their financial information is safe and secure while using digital payments. Another important factor is convenience, as customers look for easy and hassle-free payment experiences more and more. Convenience is enhanced by elements including user-friendly interfaces, speedy processing times, and a variety of payment alternatives.
Cost-effectiveness is also a significant consideration, with consumers looking for competitive pricing and value for money. This includes considerations such as transaction fees, discounts, and rewards programs that incentivize digital payments. Understanding the interplay between these factors and e-commerce success is essential for businesses looking to optimize their digital payment strategies and drive growth.

This study aims to shed light on the importance of perceived security, convenience, and cost-effectiveness in driving e-commerce success and provide practical recommendations for businesses to optimize their digital payment strategies and improve their competitiveness in the rapidly evolving e-commerce landscape.

Literature review

E-commerce success is heavily reliant on the perception of security (Kim & Prabhakar, 2019). When conducting online purchases, consumers must have assurance that their financial information is secure (Choi & La, 2011). The inclination of individuals to participate in digital transactions is directly influenced by their perception of security (Kolsaker & Lee-Kelley, 2010).

The influence of convenience on consumer behaviour in the realm of electronic commerce is significant (Chen & Barnes, 2007). Customer contentment and loyalty are impacted by the simplicity of web navigation, product selection, and payment processing (Kim & Eastin, 2011). Successful enterprises in the fiercely competitive online marketplace are inclined to place a higher value on convenience when designing their e-commerce platforms (Brynjolfsson & Smith, 2000).

The ability to offer competitive pricing and maintain a cost-effective edge is of the utmost importance in the realm of electronic commerce (Xu et al., 2013). Businesses can improve their bottom line and differentiate themselves in a congested marketplace by implementing competitive pricing strategies (Li & Zhang, 2010). Platforms that provide customers with value for their money are more likely to inspire recurrent purchases (Lee & Kim, 2010).

Success Factors in E-commerce: A multitude of elements impact the achievement of e-commerce enterprises: these elements comprise website design, product quality, customer service, and marketing strategies (Al-Qirim, 2007). On the contrary, security, convenience, and cost-effectiveness, which are all aspects of digital payments, are progressively emerging as pivotal determinants of achievement (Bai et al., 2008).

The performance of businesses operating in the e-commerce sector is notably influenced by digital payment characteristics (Huang & Benyoucef, 2013). It is more probable that platforms that provide payment options that are secure, convenient, and cost-effective will attract and retain consumers, resulting in increased sales and profitability (Jung & Kim, 2016).

The correlation between consumer trust and perceived security in e-commerce transactions is substantial (Mukherjee & Nath, 2003). The implementation of transparent security protocols and secure payment gateways can foster confidence and trust among online consumers (Wu et al., 2018).

The convenience offered by e-commerce platforms contributes to an improved user experience (Novak et al., 2000). User experience is enhanced by straightforward, user-friendly interfaces and streamlined transaction procedures, which in turn increases conversion rates (Hassanein & Head, 2007).

The adoption of digital payment systems is contingent upon a variety of factors, including the perception of risk, simplicity of use, and usefulness (Venkatesh et al., 2003). Digital payment methods that provide security, convenience, and cost-effectiveness are more likely to be adopted by consumers (Lu et al., 2016).

Customer satisfaction in the e-commerce industry is contingent upon various elements, including the usability of the website, the quality of the products offered, and the delivery of services (Yang et al., 2012). Additionally, payment convenience and security are significant contributors to overall consumer satisfaction (Wu & Chen, 2017).

The dynamic nature of digital payment trends is propelled by the progression of technology and shifts in consumer inclinations (Bounthavong et al., 2020). To remain competitive in the e-commerce industry, businesses must remain current with these developments (Liao et al., 2019).

Mobile Payment Implementation: The increasing prevalence of mobile payments can be attributed to the accessibility and convenience of mobile devices (Dahlberg et al., 2008). Consumers are becoming increasingly fond of mobile payment applications that provide safe and convenient transactions (Liu et al., 2016).

Difficulties in E-commerce Security Data breaches, identity theft, and fraud are a few of the obstacles that e-commerce security must contend with (Rao et al., 2008). (Siponen & Vance, 2010) Businesses must invest in robust security measures to safeguard consumer data and preserve their clients' confidence.

Blockchain and biometrics are examples of emerging digital payment technologies that are reshaping the e-commerce industry (Hileman & Rauchs, 2017). Online transactions are made more secure and convenient by the implementation of these technologies (Yli-Huumo et al., 2016).

The expansion of cross-border e-commerce can be attributed to the forces of globalisation and the rising prevalence of digital payment methods (Lu & Xu, 2016). This market is lucrative for companies that provide convenient and secure international payment options (Gan et al., 2020).

Environment of Regulation in E-commerce: Cavusoglu et al. (2004) state that the regulatory environment has a significant impact on the development of digital payment trends in e-commerce. The establishment of regulatory frameworks that prioritise consumer protection and security is critical in cultivating confidence and trust in electronic commerce (Yang et al., 2016).

Hypothesis:

Objective:

1. To investigate the impact of digital payment factors on e-commerce success.
2. To analyse the structural relationships among perceived security, convenience, cost-effectiveness, and e-commerce success.

Hypotheses:

1. H1: Cost effectiveness positively influences e-commerce success
2. H2: Convenience positively influences e-commerce success
3. H3: Perceived security positively influences e-commerce success

Research methodology

A comprehensive and thorough research methodology was utilised in this study to examine the influence of digital payment factors on the success of e-commerce. Data was gathered from 276 respondents working in the premium hospitality sector in India via a structured online questionnaire, employing a quantitative methodology. The research employed convenience sampling and utilised Structural Equation Modelling (SEM) with Maximum Likelihood Estimation to analyse the data. To evaluate the research constructs' validity and reliability, Cronbach's alpha, Composite Reliability (CR), Average Variance Extracted (AVE), and Maximum Shared Variance (MSV) were utilised. The formulation and testing of hypotheses confirmed that perceived security, cost-effectiveness, and convenience have a substantial impact on the success of e-commerce. Multi-metric evaluations of the model fit indicated that it was an outstanding fit.

Results and Discussion

Table 1: Demographic details of respondents (N=276)

		N	%
Age	18-25 years	116	42.0%
	26-35 years	56	20.3%
	36-45 years	77	27.9%
	46-65 years	27	9.8%
Gender	Female	113	40.9%
	Male	163	59.1%
Education	12th Grade or Less	12	4.3%
	Bachelor’s Degree	87	31.5%
	Doctorate	30	10.9%
	Master’s Degree	131	47.5%
Income	31000- 50000	91	33.0%

	51000-75000	127	46.0%
	more than 75	58	21.0%

Source: Primary survey

The demographic details of the 276 respondents indicate a varied sample. In terms of age, the majority of respondents were between 18-25 years old (42.0%), followed by 36-45 years (27.9%), 26-35 years (20.3%), and 46-65 years (9.8%). Gender distribution skewed towards males, with 59.1% male respondents and 40.9% female respondents. In terms of education, the largest group held a Master's Degree (47.5%), followed by a Bachelor's Degree (31.5%), Doctorate (10.9%), and 12th Grade or less (4.3%). Regarding income, the majority of respondents earned between 51000-75000 (46.0%), followed by more than 75 (21.0%), and 31000-50000 (33.0%). This diverse demographic profile suggests that the study's findings are likely representative of a broad range of individuals in the luxury hospitality sector in India.

Table 2: Reliability and Validity of research constructs

Construct	CR	**AVE**	MSV	Cronbach's alpha
Perceived security	0.929	0.813	0.516	0.921
Convenience	0.917	0.690	0.552	0.928
Cost- effectiveness	0.925	0.755	0.552	0.938
E-commerce success	0.870	0.690	0.376	0.869

Source: Primary survey

The reliability and validity analysis of the research constructs, as depicted in Table 2, indicates robustness in measurement. Constructs such as Perceived Security, Convenience, and Cost-Effectiveness exhibit high levels of internal consistency, as evidenced by Cronbach's alpha values exceeding the recommended threshold of 0.7. Moreover, the Composite Reliability (CR) values are all above 0.9, indicating strong reliability. Additionally, the Average Variance Extracted (AVE) values are satisfactory, suggesting convergent validity. Notably, the constructs demonstrate discriminant validity, as the Maximum Shared Variance (MSV) values are lower than the AVE values, indicating that each construct captures unique variance. The results of correlation analysis also confirm the significant positive relationship among research variables.

Table 3: Correlation among constructs

	Perceived security	Convenience	Cost-effectiveness	E-commerce success
Perceived security	1	.714**	.663**	.727**

Convenience	.714**	1	.714**	.756**
Cost-effectiveness	.663**	.714**	1	.707**
E-commerce success	.727**	.756**	.707**	1

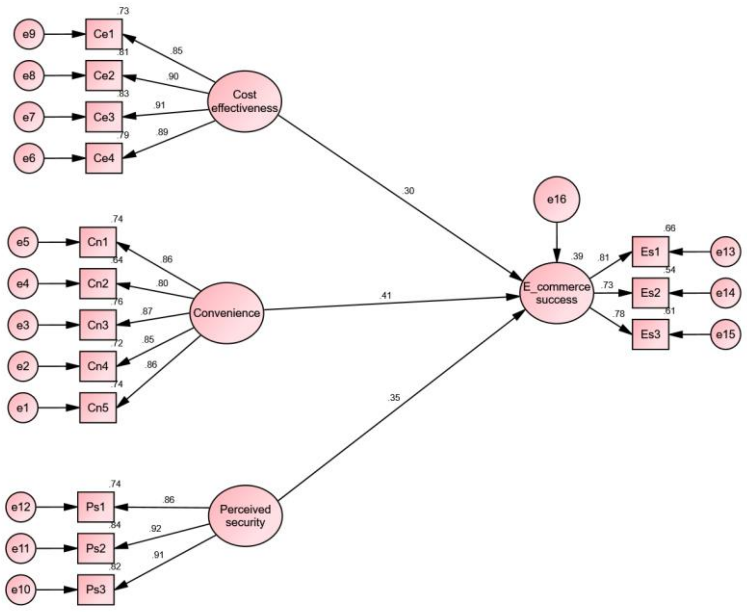
Source: Primary survey

Table 4: Hypothesis testing results:

Dependent variable		Independent variables	Standardized regression weight	Standard error	Critical ratio	P	Result
E-commerce success	<---	Cost effectiveness	0.298	.044	5.023	0.000	H1 Supported
E-commerce success	<---	Convenience	0.415	.050	6.707	0.000	H2 Supported
E-commerce success	<---	Perceived security	0.355	.051	5.867	0.000	H3 Supported

Source: Primary survey

Figure 1: Casual model of e-commerce success



The hypothesis testing results presented in Table 3 validate all proposed hypotheses concerning the influence of cost effectiveness, convenience, and perceived security on e-commerce success. Using the Structural Equation Modeling (SEM) with Maximum Likelihood Estimation, a statistically rigorous approach was employed to ensure robust and accurate findings, as described in the theoretical context (Blunch, 2013).

The standardized regression weights, critical ratios, and significance levels provide clear evidence supporting the substantial impact these variables have on e-commerce success. Specifically, cost effectiveness exhibited a standardized regression weight of 0.298 with a highly significant critical ratio of 5.023 ($p < 0.000$), confirming hypothesis H1. This result underscores the importance of cost efficiency in enhancing e-commerce platforms, directly correlating to increased business success.

Similarly, convenience, with a standardized regression weight of 0.415 and a critical ratio of 6.707 ($p < 0.000$), showed an even stronger positive influence on e-commerce success, confirming the second instantiation of hypothesis H2. This implies that increasing the convenience of e-commerce transactions significantly increases their chances of success, proving that user-friendliness is a major factor in customer satisfaction and, in turn, in the success of businesses.

Perceived security also significantly influences e-commerce success, as evidenced by a standardized regression weight of 0.355 and a critical ratio of 5.867 ($p < 0.000$), confirming hypothesis H3. This finding highlights the critical role of security in building consumer trust and promoting higher transaction volumes on e-commerce platforms. Further results highlighted that all the three factors of digital payments are able to explain 39% of variation in e-commerce platform success.

Table 5: Model fit measures:

Measure	Estimate	Threshold
CMIN	153.491	--
DF	84	--
CMIN/DF	1.827	Between 1 and 3
CFI	0.981	>0.95
GFI	0.933	>0.90
SRMR	0.028	<0.08
RMSEA	0.055	<0.06

The model fit measures presented in Table 5 confirm an excellent fit, indicating that the model is well-suited for representing the observed data. The CMIN/DF ratio suggests a good fit, falling comfortably within the acceptable range. Both the Comparative Fit Index (CFI) and the Goodness of Fit Index (GFI) exceed their respective thresholds, substantiating the model's validity. Furthermore, the values for the Standardized Root Mean Square Residual (SRMR) and the Root Mean Square Error of Approximation (RMSEA) indicate precise model accuracy, affirming the model's effectiveness in elucidating the dynamics influencing e-commerce success

Implications

The study's conclusions have important managerial ramifications for improving e-commerce performance. Ensuring cost-effectiveness enables managers to attract and retain customers by offering competitive pricing while maintaining profitability. Strategic pricing, operational efficiency, and targeted promotional campaigns can optimize resource allocation and enhance the value proposition for customers, ultimately driving sales and profitability. Managers can achieve this by optimizing user experience, prioritizing mobile optimization, and personalizing the shopping journey. Managers may lower friction and raise customer happiness by streamlining the browsing and checkout process and providing seamless mobile experiences. Managers should invest in safe payment gateways, put strong data protection measures in place, and communicate security standards openly because the perceived security of digital payments is a significant determinant in e-commerce platform adoption.

Conclusion

The study's findings highlight the critical importance of cost effectiveness, convenience, and perceived security in driving e-commerce success. By adopting strategies to optimize pricing, enhance user experience, and strengthen security measures, managers can attract and retain customers, drive sales, and build trust and loyalty. Embracing these principles not only improves the overall shopping experience but also positions e-commerce platforms for sustained growth and competitiveness in the digital marketplace.

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