Post-Adoption Success of Bnpl Apps: Empirical Evidence from Saudi Arabia

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Abstract:

Purpose: *The popularity of BNPL mechanism has led to a massive growth in the number of systems and applications offering its services to a wide range of consumers. This paper extends the DeLone and McLean's information system success model (D&MISS) and Bhattacherjee's IS Continuance Model (ISC) to evaluate the post-adoption success of BNPL apps at an individual level in Saudi Arabia. It examines whether system quality, information quality, and service quality have a positive influence on users' satisfaction and their intention for continued use. Further, it explores the positive impact of satisfaction and continuous intention to use BNPL apps on the perceived benefits.*

Design/ methodology/ approach: *Data was collected through an online questionnaire completed by 1392 BNPL apps users. A total of 1043 valid responses were analyzed through a two-stage partial least squares structural equation modeling.*

Findings: *The study found that system quality and service quality had positive influence on satisfaction and intention for continued use. Positive influence was also found between users' satisfaction; intention for continued use on the net benefits. In contrast, information quality did not positively influence users' satisfaction and their continuous intention to use the BNPL apps.*

Originality: *The research empirically investigates the influence of quality dimensions on users' satisfaction and their continuous intention to use the BNPL apps and the effect on the net benefits. This contribution is crucial because it provides empirical evidence on the post-adoption success of BNPL apps, providing practical and managerial insights beyond the existing evidence of adoption drivers and initial usage intentions.*

Keywords: *Post adoption; Buy Now Pay Later (BNPL) apps; Fintech; DeLone and McLean information systems success model (D&MISS); IS Continuance model (ISC).*

1. INTRODUCTION

There has been rapid growth of the Buy Now Pay Later (BNPL) mechanism which allows customers to purchase goods immediately, receive them right away, and pay for them mostly in interest-free prearranged instalments. Consumers are attracted by the BNPL mechanism primarily due to the interest-free and fee-free features. Buy Now Pay Later (BNPL) mechanism has emerged as a powerful tool of purchasing in the Fintech sector. The undeniable significance and popularity of BNPL mechanism has led to a massive growth in the number of systems and applications offering its services to a wide range of consumers. Usually, the customer applies through the app at the point of sale, either in-person or online, they are then promptly accepted or denied for the transaction. If customers are approved, they pay merchant, complete transaction, and obtain the product or service. The full price is collected from consumer through a series of installments by the BNPL provider [1]. Figure 1 below shows the flow of transactions on BNPL platform.

Consumers are attracted to BNPL payment method mainly because of the planned repayment schedules and the elimination of interest. Unlike purchases made through traditional credit cards that may charge a high interest fee, most BNPL schemes waives interest charges, and in some cases if payment is made within a specific timeframe. Further, consumers tend to adopt BNPL payment scheme due to the ease of use of the platforms, and the ability to purchase several items at once on an instalments plan [3]. The availability of various options through BNPL increases customers' access to products and services that might otherwise be too expensive to buy through traditional payment methods, promoting inclusivity

and enhance purchasing power among a range of socioeconomic groups. The flexibility in finance management offered by BNPL is also a key advantage for consumers. Users can access products or services immediately without concerning about full payment. This makes flexible budgeting possible over extended periods.
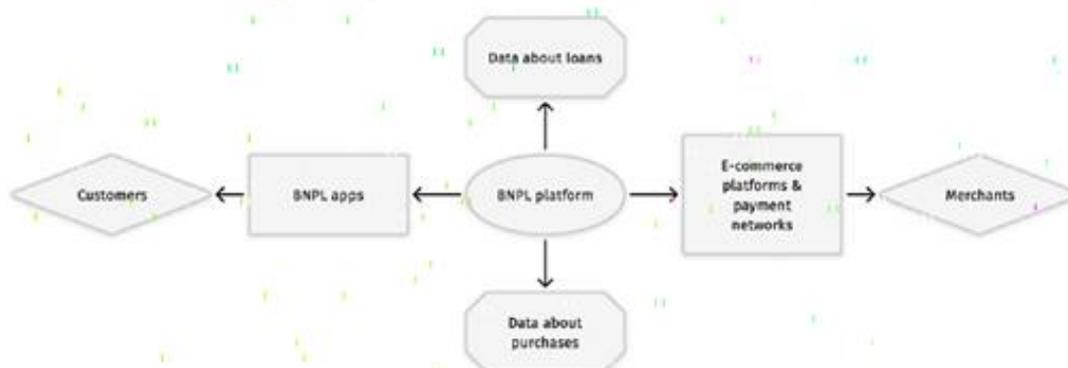
Figure 1. *The flow of transactions on BNPL platform (adapted from [2]).*

Like other contexts, BNPL apps have been widely spread in Saudi Arabia as a powerful purchasing tool. According to a recent report released by [4], the number of BNPL users has increased from 76,000 in 2020 to over 10 million in 2022. This growth indicates the integration of BNPL services into users' daily financial practices. Despite the significant impact of the adoption of BNPL apps, it is important to move beyond the initial adoption status and measure its post adoption success through users' lens. Doing so would guide the improvements and customization of the service and inform regulatory frameworks. This is particularly important to support the Saudi Arabian government's Vision 2030 which emphasizes digital innovation and financial inclusion. Through the holistic evaluation of the post-adoption success of BNPL apps, researchers and practitioners can better assess its value, associated risks, and social implication of BNPL services in the rapidly evolving digital economy of Saudi Arabia.

In response to the increasing growth of BNPL apps, providers are competing to deliver improved and customized services to meet the evolving diverse needs of a wide range of users. Such competition has driven innovative user experience design, customer support, and the integration of value-added features. The motivation for this study arises from the challenges and difficulties users may face when using the BNPL apps after initial adoption. Thus, this paper aims to evaluate the post adoption success of BNPL apps and its benefits on an individual level from users' perspective. To achieve this goal, [5]'s information system success model (D&MISS) and [6]'s IS Continuance model (ISC) were integrated as theoretical foundation in this study. The multidimensional D&MISS model was empirically validated widely in previous studies within several areas, such as e-learning systems [7] and mobile payment systems [8]. The model enables the examination of the complex interplay between what [5] proposed as technical success (system quality), semantic success (information quality), and service-related success (service quality) that shape user experience. Complementing this view, [6]'s IS Continuance Model provides a robust lens for a deeper understanding of users' satisfaction as a key determinant of users' sustained usage of BNPL apps beyond initial adoption. By integrating these two models, this study offers a comprehensive evaluation of BNPL success from users' viewpoint.

The lack of empirical investigation drove the examination of whether users' satisfaction and their intention for continued use of BNPL apps are positively impacted by system quality, information quality, and service quality as well as the influence of satisfaction and continuous intention to use on the perceived benefits on an individual level in Saudi Arabia. It is worth mentioning that among the very limited studies that applied the D&MISS model in the context of BNPL, the sample size was often among specific demographic groups mainly Generation Z. To address this gap, this study is the first of its kind in the Saudi context to provide a holistic evaluation of the post adoption success of BNPL apps and its associated perceived benefits for a wide spectrum of users.

The paper is organized as follows. The theoretical foundation is presented in the following section. In section 3, the research model and hypotheses are discussed. Section 4 described the research method. The findings are presented in section 5. Section 6 concludes this research and highlights some future directions and limitations.

2. THEORETICAL FOUNDATION

The evaluation of a post-adoption system success from a user perspective is a complex and multifaceted challenge for researchers and practitioners [9]. This challenge is particularly heightened in the context of the rapidly evolving Fintech services such as BNPL apps. Given the continually changing technological features, service environment, and users' expectations, it is difficult to measure the effectiveness of a system due to the subjective and context-dependent nature of user experiences [10]. Different factors and concerns could occur during the use of BNPL apps and influence users' satisfaction and willingness for continued use. In the context of this paper, the individual impact refers to the extent to which the use of BNPL applications positively influences the personal lives of individual users. In other words, the overall perceived value which reflects improved daily activities, decision-making and overall quality of life as a result of utilizing the BNPL apps.

Drawing on the foundational D&MISS model, the model servs as a suitable theoretical foundation for evaluating user-centric success of BNPL apps. It provides a multidimensional evaluation framework that encompasses the quality dimension of system, information and service quality, user satisfaction and net benefits. Due to its ability to capture process-oriented nature and independent elements of IS success, the model has been widely applied to measure systems' success in various contexts such as e-Learning [11; 7], e-Commerce [12; 13], m-Health [14] and the banking industry [15]. Complementing this perspective, [6]'s IS Continuance Model is concerned with the post-adoption status of IS use proposing that users' intention for continued system use is impacted by their satisfaction and perceived usefulness [6]. After the adoption of a system, users form their expectations and evaluate their experiences then decide whether to continue their engagement with the system or not. This unique integration between the two models captures the quality driven antecedents influencing user satisfaction and the growing experience-based determinants of continuance intention. Therefore, this dual approach allows for a holistic evaluation of the success of BNPL apps capturing the dynamic process determinants beyond the initial adoption.

Although the D&MISS model has been extensively used in the literature to evaluate the success of various types of systems, previous studies have seldomly utilized it in the context of emerging Fintech apps such as BNPL apps [16]. Among the previous limited studies, [17] investigated the factors influencing the adoption of BNPL apps among Generation Z consumers in Saudi Arabia. In their investigation, the authors integrated the Unified Theory of Acceptance and Use of Technology and the D&MISS model by surveying 380 Generation Z BNPL apps consumers. They found that young users' intention for continued use of BNPL apps was positively impacted by performance expectancy, effort expectancy, and social influence. Their empirical evidence confirmed the significant correlation between the quality dimensions of (system, information, and service) and satisfaction.

[18] surveyed 418 respondents to explore the factors driving consumers to purchase products using BNPL scheme in Dhaka city. Their findings reported that the value of yearly product purchases made using BNPL mechanism has significantly increased due to education, increase in the demands for luxury goods, and improved living standards. In their work, [3] explored the impact of BNPL credit schemes on impulse buying tendency among young adult female consumers in a virtual shopping context. A correlation was found between the sensitivity of the sales conversion tool and online Impulse buying tendency which encourages overconsumption in this context.

In a later publication, [1] studied the interplay between regulation and responsibility with BNPL especially for young adults in Australia. The analysis of the survey responses shows that perceived BNPL benefits was reduced by financial literacy. The study of [19] examined how BNPL usage is reduced by mindfulness and its relation to overall well-being of Australian consumers. Their findings confirmed the ability of mindfulness to reduce BNPL usage by increasing consumers' financial self-control and decreasing their impulse buying tendency.

Against this background, the paucity of studies measuring the post-adoption success of BNPL apps and the associated benefits from users' perspective in a new context namely Saudi Arabia motivated this work. While previous investigations offered valuable insights into the initial adoption of BNPL, no single study exists which provides a holistic evaluation of the success of BNPL apps and the associated benefits from users' perspective beyond initial adoption. This notable gap has been recognized in existing literature through the increasing calls for theoretical sound research and rigorous assessment of the post-adoption success of BNPL apps from the user perspective [20]. The adoption drivers and

initial usage intentions, often among specific demographic groups such as Generation Z, has dominated the existing Fintech literature on BNPL apps. Users' experiences, satisfaction and perceived benefits following their BNPL apps adoption remain underexplored. Given that BNPL apps hold specific design features and are experienced differently across a wide range of user segments and market contexts, this study extends the Fintech literature by integrating the D&MISS model and IS continuous model to measure the post adoption success of BNPL apps comprehensively from user-centered approach.

3. HYPOTHESES DEVELOPMENT

A user-centered post usage evaluation of an IS involves several interrelated elements. Quality dimensions such as system quality (TQ), information quality (IQ), and service quality (SQ) are considered foundational key factors that shape positive user experiences [21]. However, the evaluation extends beyond technical, informational, and service-related levels. Users' satisfaction (ST) is a critical mediating factor which reflects the extent to which the apps meet or exceed users' expectations. Satisfied users are more likely to continue using (CIU) the apps to exploit the full benefits (BF) of BNPL apps. Accordingly, a multidimensional integrated framework that captures the interplay between the various elements is vital for conducting a holistic evaluation. Since the focus of this research is on the post adoption phase, this study adopts the satisfaction and IS continuous intention constructs from the ISC model assuming that those constructs would be positively influenced by the quality dimensions in the D&MISS model and eventually impact the perceived benefits. The research model is depicted in Figure 2 which presents nine research hypotheses.
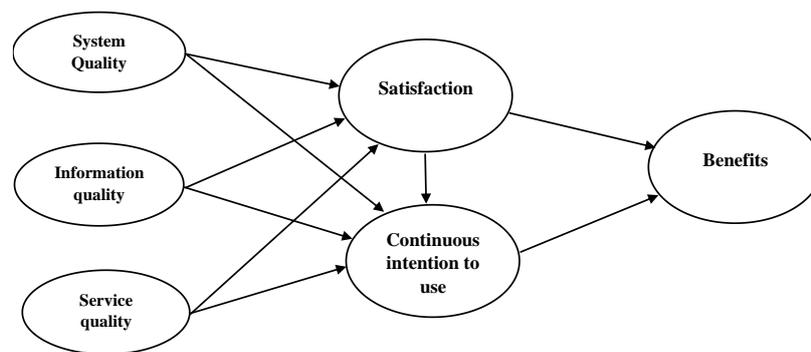

Figure 2. *Theoretical model*

It is widely recognized in the information system research that system quality (TQ) is a major determinant of users' satisfaction and continuous intention to use. According to [5], system quality represents the technical success of a system since it measures the desired characteristics of a system such as system's usability, availability, flexibility, reliability, and ease of use and navigation. [20] applied text analytics technique to analyze users reviews of mobile payment apps to identify key quality factors. Their results confirmed the emergence of app design as a key quality factors leading to the success of mobile payment apps. Accordingly, advanced system qualities such as optimized system design improve user task and productivity which positively influence users' satisfaction and continuous intention to use the system [22; 23]. In the Fintech context, this aspect indicates how users can access a variety of adaptable financial services easily which enhance their satisfaction and prompts their longer engagement. [17] found that TQ had a significant positive influence on Generation Z's satisfaction and increased the probability of their continued use of BNPL apps in Saudi Arabia. Similarly, [24] confirmed the positive correlation between TQ and system use of mobile banking and their impact on satisfaction and loyalty among Saudi consumers. Thus, it is posited that:

H 1 : System quality has a positive effect on users' satisfaction

H 2 : System quality has a positive effect on users' continuous intention to use BNPL apps

Typically, information quality (IQ) represents the semantic success of a system since it is linked to a set of features related to the outputs of a system such as relevancy, sufficiency, accuracy, currency, timeliness, formatting and several other features [22]. Users perceive a system as useful when it delivers accurate and up-to-date regular information tailored to their specific needs, enhancing their satisfaction and encourage continued use [8; 23]. Several past studies confirmed an increased users' satisfaction when the system provided users with reliable and updated information [25]. [26] examined the role of

trust and quality dimensions in the actual usage of mobile banking services. They found that IQ and service quality have positively influenced Omani users' satisfaction and their intention toward continued use. In the context of internet banking, [27] integrated D&MISS model and self-determination theory to examine user's continuance intention. IQ was found, among many other factors, to influence users' intention for continued use. Therefore, it is assumed that:

H 3: Information quality has a positive effect on users' satisfaction

H 4: Information quality has a positive effect on users' continuous intention to use BNPL apps

In the particular Fintech landscape, service quality (SQ) stands out as a critical success indicator. This is because in volatile environments, such as the Fintech environment, users' trust needs to be increased by reducing uncertainty which can be achieved through improved service quality. [5] refer to service quality as providing the essential assistance and support to the users delivered by service provider through instant responsiveness, guidance, and personalization. A high-level of SQ embedded in prompt responsiveness to user's issues and needs have a direct positive influence on their satisfaction and intention for continued use. This proposition was empirically evidenced in the work conducted by [28] who explored the relationship between uncertainty and IT quality in the Fintech industry.

They found that SQ is the most influential quality dimension in promoting trust and encouraging continuance intention among Fintech users. Similarly, [29] investigated the impact of e-Service quality on continuous intention mediated by users' satisfaction and trust among m-health app users. Their findings support the positive effect of e-SQ on continuous intentions. Accordingly, it is postulated that:

H 5: Service quality has a positive effect on users' satisfaction

H 6: Service quality has a positive effect on users' continuous intention to use BNPL apps

Users' satisfaction (ST) is a central indicator to the post-usage behaviours. In the D&M ISS model, ST is conceptualized as user's emotional reaction toward the overall system performance. Users perceive the apps as an effective tool to fulfill their needs and in turn will more likely to feel satisfied while using the BNPL apps. Higher satisfaction occurs when the BNPL apps enable users to realize and exploit the net benefits such as enhanced efficiency, improved quality of life, and the fulfillment of personal needs. In the ISC model, satisfaction plays a pivotal role in shaping users' intentions for continued use, suggesting that longer engagement with the system is expected from satisfied users.

Empirical evidence in the literature supports the strong positive influence of satisfaction on continuous intention to use among users in the Fintech industry. For example, [30] proposed an integrated research model that identify the main constructs for continuous intention within the Fintech context. It was found that satisfaction and trust have mainly been the key drivers for continuous intention. In this sense, realizing the net benefits of BNPL apps is closely related to satisfaction. Satisfied users who perceived greater value such as improved shopping experiences, time savings, higher standard of living will more likely remain engaged with the system and recommend it to others [18; 25]. Thus, it is assumed that:

H 7: Users' satisfaction has a positive effect on continuous intention to use

H 8: Users' satisfaction has a positive effect on the net benefits

Users' continuous intention to use (CIU) is a major driver for perceiving greater benefits from the system. The D&M ISS model refers to net benefits as the tangible and intangible gains users obtain because of sustained system use. ISC model posits that a strong intention for continued use is a key antecedent for obtaining the benefits. Longer engagement with the system allows users to leverage the BNPL apps' conveniences and functionalities fully. In the context of BNPL apps, user's commitment to continuous use is reinforced when they confirm their satisfaction with the system. A user is more likely to be willing to continue benefiting from the system when they demonstrate a strong intention for continued use. This relationship is reinforced empirically in previous studies. [31] investigate how the adoption of BNPL payments impacted customer spending.

Their findings showed that BNPL payments reduced perceived financial constraints and thus increased purchases giving users a better control budgeting leading to greater convenience and improved shopping experiences for users. Therefore, it is hypothesized that;

H 9: Users' continuous intention to use has a positive effect on the net benefits

4. RESEARCH METHOD

Online questionnaire is an appropriate method to collect large number of responses since it can reflect the actual phenomenon vividly [32]. The research questionnaire was designed in line with the recommendation of [33] in terms of including strong and lesser indicator for each construct in order to avoid the inclusion of redundant indicators which could dilute the interpretive value and overall contribution of the research. Therefore, a 26-item questionnaire was used for the factors included in the research model, drawing on previous research that employed the DMIS success model in similar contexts and modified to fit the BNPL context. Table A1 in the appendix presents all the measurement items. The items are measured using a 5 point, Likert-scale with 5 "Strongly agree", 4 "agree", 3 "neutral", 2 "disagree" and 1 "Strongly disagree". The system quality, information quality, service quality and satisfaction were assessed using items adapted from [34; 35]. However, three items adapted from [36; 35] were used to measure continuous intention to use. Whereases the benefits construct was measured through four items used by [34; 18].

4.1. Data collection

Given this research's objective, which is to evaluate the post-adoption success of BNPL apps from a user perspective, the sample should be representative and inclusive of all types of users. Thus, data was collected through an online questionnaire from 1392 participants from the general public, only those who had used BNPL apps to purchase products and services. The research questionnaire was published online using Google Forms. The questionnaire link was sent to users through universities' emails and social networking sites (SNSs) to enhance the sample representativeness and reduce the sampling bias. The survey was open for three months from October 2024 to January 2025. Following [37]'s back-translation method, the questionnaire items were translated into Arabic. For content validation, the translated items were sent to three experts for their review. Based on experts' feedback, a total of 26 measurement items were confirmed and no items were deleted. At the beginning of the online survey, participants were asked whether they have used the BNPL apps. After the elimination of incomplete responses, only 1043 participants who confirmed their use of BNPL apps filled in the entire survey and their responses were used for data analysis. Users who did not use the BNPL apps were directed to leave out the survey. [38] recommend using a sample size that is 15-20 times the number of variables. This study's sample exceeded this recommendation.

5. RESEARCH RESULTS

5.1. Demographic analysis

Participants' demographic data is presented in Table 1. More females (68.7%) participated in the survey than males (31.3%). The majority of the respondents (68.8 %) fall under the age group of 18-25 years, followed by the age group of 26-40 years (14.5%), the 40-49 years age group consisted of (11%), and (5.7 %) of the participants were above 60 years.

In terms of the educational level, a high percentage of the participants (72%) held a Bachelor degree followed by participants who received Secondary education (16.2%), Diploma (7.3%), Master (3.6%), and PhD holders consisted of (0.9%).

The employment status of the participants varied with students having the highest percentage (48.2%) followed by full-time job employees (26.1%). Interestingly, (12.5 %) of the participants were unemployed and (6.4 %) were housewives. The lowest percentage of participants were retirees (3.4 %) and part-time job employees (3.5%).

Table 1. *Participants' demographic data*

Category		Percentage
Gender	Male	31.3 %
	Female	68.7 %
Age	18-25	68.8 %
	26-40	14.5 %
	41-60	11.0 %
	More than 60 years	5.7 %
Educational level	Secondary education	16.2 %
	Diploma	7.3 %
	Bachelor	72 %

	Master	3.6 %
	PhD	0.9 %
Employment	Full-time job	26.1 %
	Part-time job	3.5 %
	Unemployed	12.5 %
	Retired	3.4 %
	Student	48.2 %
	Housewife	6.4 %
Monthly income	< 1000	43.6 %
	From 1,100 and 10,000	26.2 %
	From 10,100 and 20,000	10.5 %
	From 20,100 and 30,000	2.2 %
	More than 30,000	1.3 %
	Prefer not to answer	16.1 %
BNPL Apps usage frequency	Always (multiple times a week)	5.7 %
	Usually (once a week)	5.7 %
	Often (multiple times a month)	24.2 %
	Sometimes (once a month)	41.2 %
	Rarely (once a year)	23.3 %

(43.6 %) of the respondents have a monthly income of less than (1000 SAR), (26.2 %) of the respondents fall in the income group (from 1,100 -10,000 SAR). (16 %) of the participants did not provide an answer to their monthly income. The participants who had a monthly income of (from 10,100-20,000 SAR) were (10.5 %) followed by the income group of (from 20,100 -30,000 SAR) (2.2 %), and only (1.3%) of the participants have an income greater than (30,000 SAR) monthly.

The highest percentage of participants in terms of usage frequency was for those who described their use of BNPL apps as sometimes (once a month) (41.2%) followed by (24.2%) of participants who used the BNPL apps multiple times a month. (23.3%) of the participants used the apps rarely (once a year). Participants described their frequency of use as always (multiple times a week) and usually (once a week) constituted (5.7%) in each group.

5.2. Measurement model

The partial least squares structural equation modelling approach (PLS-SEM) was adopted for data analysis. This approach is suitable for this study's analysis since it enables a comprehensive examination of complex models that include dependent and independent variables [39].

Table 2. *Validity and reliability results*

Measurement items	Loadings	Cronbach α	Composite Reliability	AVE
System Quality (TQ)				
TQ1	0.732			
TQ2	0.716			
TQ3	0.680	0.780	0.852	0.536
TQ4	0.796			
TQ5	0.735			
Information quality (INQ)				
INQ1	0.735			
INQ2	0.811			
INQ3	0.809	0.810	0.869	0.574
INQ4	0.793			
INQ5	0.624			
Service quality (SQ)				
SQ1	0.688			
SQ2	0.724			
SQ3	0.670	0.753	0.839	0.512
SQ4	0.690			
SQ5	0.799			
Satisfaction (ST)				
ST1	0.913	0.881	0.926	0.808
ST2	0.917			

ST3	0.866			
Continuous Intention to use (CIU)				
CIU1	0.895			
CIU2	0.851	0.839	0.904	0.759
CIU3	0.868			
Benefits (BF)				
BF1	0.817			
BF2	0.752			
BF3	0.804	0.789	0.870	0.626
BF4	0.792			

The measurement model was first assessed by examining the internal validity through the individual factor loadings, convergent validity and discriminate validity. The results in Table 2 of the factor loading values show that all survey items exceeded the minimum acceptable threshold of 0.6 as suggested by [40] except for item (TQ6=0.560) which was removed from the item set.

Each construct was significant since the factor load ranged from 0.624 to 0.917. The composite reliability (CR) and Cronbach alpha (CA) were used to assess the reliability of the research data. Analysis of composite reliability (CR) values showed the range was between 0.839 and 0.926 which is higher than the recommended value of 0.7 by [41]. Additionally, internal consistency was confirmed as each constructs have a Cronbach alpha value above 0.6, in line with the threshold recommended by [38]. The Average Variance Extracted (AVE) values was examined to check the convergent validity which was achieved for all constructs as all values were above 0.5 according to [38]. Evidence of discriminate validity existed by applying the Fornell-Larcker test which confirmed that each construct shared more variance with its own measures than it does with any other construct (Table 3). The collective results above suggest that the measurement model is valid and reliable.

Table 3. *Results of the Fornell-Larcker test*

Constructs	1	2	3	4	5	6
TQ	**0.697**					
INQ	0.642	**0.758**				
SQ	0.638	0.688	**0.716**			
ST	0.485	0.405	0.472	**0.899**		
CIU	0.557	0.514	0.572	0.729	**0.871**	
BF	0.573	0.543	0.597	0.691	0.750	**0.791**

Following the assessment of the measurement model, the structural model was assessed to evaluate the significance of the relationships represented by its path coefficients [38]. As shown in Table 4, the hypothesized relationships suggested in this study show statistical significance except for H 3 and H 4.

Table 4. *Results of hypothesis testing*

Hypotheses	Direct of impact	Path coefficients	p-value	Support
TQ → ST	Direct	0.337	0.000	Yes
TQ → CIU	Direct	0.369	0.000	Yes
IQ → ST	Direct	-0.073	0.372	No
IQ → CIU	Direct	-0.156	0.072	No
SQ → ST	Direct	0.489	0.000	Yes
SQ → CIU	Direct	0.393	0.000	Yes
ST → CIU	Direct	0.630	0.000	Yes
ST → BF	Direct	0.565	0.000	Yes
CIU → BF	Direct	0.185	0.000	Yes

Further, the determination coefficient (R^2) test was conducted to measure the proportion of variance between endogenous and exogenous constructs [42]. The analysis of R^2 values represented in Table 5 showed that the proposed model explained 78.2 % of satisfaction variance, 35.7% of the variance of continuous intention to use, and 86.5 % of the benefits variance which, according to [43], has substantial, moderate, and substantial explanatory power respectively indicating a well fit model to the data. The predictive power of the proposed model was assessed through the predictive relevance values (Q^2) presented in Table 5. The results confirmed that the model has sufficient prediction capability as Q^2 values were all above zero [42].

**Table 5.** *R^2 and Q^2 values of endogenous constructs.*

Endogenous constructs	R^2	Q^2
Satisfaction	0.782	0.617
Continuous intention to use	0.357	0.291
Net benefits	0.865	0.614

Notes: $R^2 \geq 0.67$ Substantial, $0.33 \leq R^2 < 0.67$ moderate, $0.19 \leq R^2 < 0.33$ weak, and < 0.19 unacceptable [43].

6. DISCUSSION AND IMPLICATION

The empirical evidence from this study supports the proposition of the proposed model. All of the proposed hypotheses were found to be significant except for two hypothesized relationships. The confirmed hypotheses explained 86.5 % of the benefits variance.

The results confirmed the positive link between TQ user's ST and CIU supporting H1 and H2. This finding is in line with previous studies such as [44] who found a higher satisfaction level with overall experience, transaction speed, fast and stable performance, and intuitive interface of digital wallets within the banking industry. Similarly, [45] confirmed that users' perceived usefulness, satisfaction, and continued use were enhanced significantly through system quality in Fintech apps. This suggests that high levels of users' satisfaction and continued intention to use required optimal system performance could be accomplished through designing easy-to-use apps that are available, flexible, reliable, and have the necessary features and functions. In other words, high quality BNPL apps increase users' ST and enhance their willingness toward continued use. In light of this result, BNPL apps providers and designers need to ensure optimized system performance by continuously fixe bugs and secure transactions. Frequent newly released customized features, such as savings calculators, are also recommended to accommodate the changings users' needs.
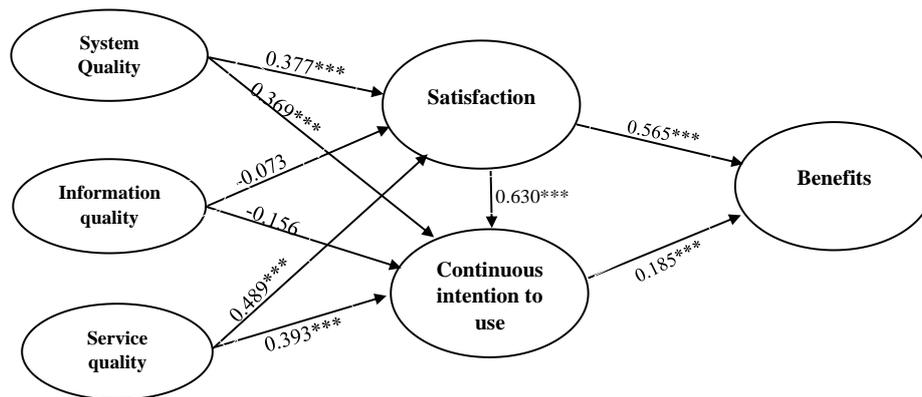
Figure 3. *Structural PLS model Notes: ***p< 0.001; **p < 0.05: *p < 0.1*

IQ has no positive effects on user's satisfaction and continuous intention to use, which is a major finding of this study indicating that H3 and H4 were not supported. This result can be interpreted as it would not necessarily lead users to be satisfied and continue their use of BNPL apps if they are provided with relevant, sufficient, accurate, updated information that are designed in an easy-to-read and understand format. Users may still consider the system useful regardless of the quality of the information embodied in the app. This finding is consistent with the findings of [46] who investigated the post-adoption of m-payment and found that IQ had no effect on users' expectation of ease of use and m-payment usefulness. However, this finding contrasts with the results found by [47] who confirmed IQ as important predictor of CIU the food-delivery apps. These contrasting results suggest that the influence of IQ may vary by context. Perhaps users' prioritization differs when using the apps in various contexts. It seems that BNPL apps users prioritize convenience, usefulness, speed, financial flexibility and transactional simplicity over informational depth. However, detailed information, such as menu clarity and food safety, played a vital role in the success of food-delivery apps. Accordingly, future studies may further investigate cultural or contextual factors contributing to users' perceived significance of IQ during the post-adoption phase.

Another important finding is the significant positive effect of SQ on user's ST and CIU supporting H5 and H6. Aligned with past studies such as [17], who confirmed the significant effect of SQ, IQ, TQ on the adoption of BNPL apps by Generation Z. This finding indicates that BNPL app users would be

satisfied and more likely continue utilizing the apps if they experience high level of response that fulfill their needs ,and receive personalized services, help and guidance. Delivering high quality customers-oriented services is a key success factor for BNPL apps. Satisfied users would continue their use through repeated BNPL purchases that emphasized convenience and supportive service features. BNPL apps providers and designers can benefit from this finding by incorporating advanced AI-based technologies such as Chatbots for improving the quality of services by offering immediate users' support.

Consistent with previous findings [48; 49] the results confirmed the positive influence of satisfaction on continuous intention to use and benefits supporting H7 and H8. Additionally, the positive correlation found between CIU and BF supports H9. This means that the persistence use of BNPL apps relies significantly on users' satisfaction. Higher satisfaction leads to increased engagement with the app which subsequently contributes to greater benefits. The more users engage with the app, the greater benefits they gain in terms of improving users' shopping experience, saving time, improving standards of living and purchasing power and fulfilling personal demands. This result emphasized that CIU is a significant determinant of benefits. Therefore, deeper engagement of user with BNPL app is closely related with their satisfaction and is linked to greater benefits. For users, consistent engagement with the apps perhaps motivates them to unlock and fully exploit BNPL benefits. Accordingly, for BNPL providers the key is to formulate strategies that increase user satisfaction and encourage continued use aimed at maximizing the obtained potential values. This may include providing customized loyalty offers and exclusive discounts for on-time payments users.

This research has theoretical and practical contributions. First, this empirical investigation measured the post-adoption success of BNPL apps from an individual perspective in Saudi Arabia. Thus, providing a deeper understanding of context-specific key determinants and outcomes of BNPL apps and its impact on users. Theoretically, the integration between D&MISS and IS continuous model offered a unified framework that captures the determinants and outcomes of continued BNPL apps use. Typically, the D&MISS model has been applied in the IS literature to assess the initial success of a system rather than assessing the dynamics of continuous user engagement. Moving beyond the conventional application of the D&MISS model, this research fills the gap between initial BNPL app success and extended user engagement.

Second, contrasting the theoretical assumption in the D&MISS model, this research confirmed that IQ has no positive effect on users' satisfaction and their intention to continue using the BNPL apps. This means that in the particular context of BNPL apps, users may prioritize other factors such as trust, security, convenience over the informational content suggesting that the influence of the D&MISS model dimensions vary based on the context, nature of technology, and users' needs. Future investigation may focus on exploring inhibitors preventing users from utilizing the informational content, or moderating factors such as users demographics and regulatory environment that may influence the quality of information in different BNPL contexts.

Although a few previous studies were conducted on BNPL apps in the context of Saudi Arabia [17], none of these studies employed the unique integration between D&MISS model and IS continuous model to fully explore the post-adoption success of BNPL apps. This research provides a holistic overview of the key factors influencing users' satisfaction and their intended continued use along with the associated benefits of BNPL apps. Further, previous investigation, such as [17], focused exclusively on Gen Z. While existing research indicates that youth are the most popular users of BNPL, it does not imply that the adoption and benefits of these apps are restricted solely to this particular age group. In this sense, this study was conducted on a wider and inclusive sample size providing a more comprehensive understanding of the broader applicability of BNPL app and its impacts. This approach allows for the identification of various usage patterns among users enabling BNPL service providers and app designers to personalize the apps and product features to optimize user experience.

The findings from this study offer practical contributions for BNPL service providers and apps designers in the Saudi Arabian context. The empirical confirmation of the positive effects of system quality and service quality on users' satisfaction and continued intention to use suggests the critical need for solid technological infrastructure and high-quality customer support for the post-adoption success of BNPL apps. Providers need to ensure service delivery through an optimized system performance with user-friendly design interfaces that facilitate secured transaction processes to enhance user satisfaction and engagement. More importantly, the research found that users experienced greater

perceived benefits when they are satisfied and intended to continue using BNPL apps. This implies that optimizing customer satisfaction and promoting engagement contribute not only to improved users' retention, but also to the enhancement of the overall values delivered to customers. Hence, BNPL service providers who effectively cultivate deeper and longer-term customer relationships are more likely to achieve enhanced brand loyalty, greater customer lifetime value, and higher frequency transactions.

7. CONCLUSION

This study evaluated the post adoption success of BNPL apps in the context of Saudi Arabia by integrating the D&MISS and IS continuous model as the guiding theoretical frameworks. The empirical validation confirmed the majority of the proposed hypotheses, emphasizing the significant role of system and service quality in shaping users' satisfaction and encouraging their intention for continued use. Additionally, the positive influence found between users' satisfaction, their intention for continued use, and perceived benefits highlights the value of the integrated model in capturing the multifaceted nature of post-adoption success in the rapidly evolving BNPL apps market. Although this study offers several theoretical and practical contributions, some key limitations exist.

First, even though the sample of this study was drawn from a diverse user base in Saudi Arabia, the single geographical location may limit the generalization of the findings to other contexts or demographic groups. Second, the evaluation conducted in this study focused primarily on an individual level and did not include organizational or regulatory levels which may enrich the understanding of BNPL app success. Third, as the hypothesized positive influence of information quality on users' satisfaction and their intention for continued use was not supported, more research is needed, perhaps by utilizing a qualitative research method, to explore other factors such as financial literacy or cultural values that may affect users' perception of the informational content provided by BNPL apps. Further future studies are required to be conducted in different contexts to compare and genialize the results on a wider contexts base.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data is available from the author upon reasonable request.

Conflicts of Interest: NA

8. APPENDIX

Table A1. *Scale items*

Construct	Scale items	Aspects	Citations
System Quality (TQ)	**TQ1** BNPL application is easy to use	Ease of use	Albashrawi and Motiwalla 2019
	TQ2 BNPL application includes the necessary features and functions I need	System features	Al-Fraihat et al 2020
	TQ3 BNPL application is always available for me to perform purchasing activities	System availability	Al-Fraihat et al 2020
	TQ4 BNPL application is flexible to interact with	Flexibility	Al-Fraihat et al 2020
	TQ5 BNPL application launches and runs right away	System reliability	Al-Fraihat et al 2020
	TQ6 BNPL application loads all the text and graphics	System performance	Albashrawi and Motiwalla 2019
Information quality (INQ)	**INQ1** BNPL application provides me with information relevant to my needs	Relevancy	Albashrawi and Motiwalla 2019
	INQ2 BNPL application provides me with sufficient and required information	Sufficiency	Albashrawi and Motiwalla 2019
	INQ3 BNPL application provides me accurate information	Accuracy	Albashrawi and Motiwalla 2019

	INQ4 BNPL application provides me up-to-date information	Up-to-date content	Albashrawi and Motiwalla 2019
	INQ5 I perceive the design of BNPL application (eg. Fonts, style, colour, images, videos) to be good and meets the quality standards	Content design quality	Al-Fraihat et al 2020
Service quality (SQ)	**SQ1** BNPL application provides me real-time services	Responsiveness	Albashrawi and Motiwalla 2019
	SQ2 I receive a satisfactory and timely response from the IT support team whenever needed at BNPL application	Responsiveness	Al-Fraihat et al 2020
	SQ3 There are enough and clear instructions about how to use BNPL application	Providing guidance	Al-Fraihat et al 2020
	SQ4 BNPL application provides proper online assistance and help	Providing help	Al-Fraihat et al 2020
	SQ5 BNPL application provides me personalized services	Personalization	Albashrawi and Motiwalla 2019
Continuous intention to use (CIU)	**CIU1** I intend to continue using BNPL application in the future	Continued usage	Albashrawi and Motiwalla 2019
	CIU2 I plan to continue to use BNPL application frequently	Continued usage	Albashrawi and Motiwalla 2019
	CIU3 I will strongly recommend others to use BNPL application	Recommendation	Al nawayseh, 2020
Satisfaction (ST)	**ST1** I feel satisfied with using BNPL application	Overall satisfaction	Albashrawi and Motiwalla 2019
	ST2 I am satisfied with the performance of the BNPL application	Satisfaction with system performance	Al-Fraihat et al 2020
	ST3 I enjoy using BNPL application during my shopping experience	Enjoyable experience	Al-Fraihat et al 2020
Benefits (BF)	**BF1** BNPL application is a very effective tool and helped me to improve my shopping experience	Improved shopping experience	Al-Fraihat et al 2020
	BF2 BNPL application saves my time in finding products and stores	Time savings	Al-Fraihat et al 2020
	BF3 Using BNPL application improves my standard of living	Improved standard of living	Khan and Haque 2020
	BF4 Using BNPL application facilitates to fulfil my demands	Fulfilling personal demands	Khan and Haque 2020

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