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NATIONAL UNIVERSITY OF MANAGEMENT

THESIS

NID AS AN ALTERNATIVE SOLUTION TO ENHANCE THE LOYALTY PROGRAM REDEMPTION PROCESS IN CAMBODIA

BY

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Phnom Penh
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FACULTY OF
DIGITAL ECONOMY

MINISTRY OF EDUCATION, YOUTH, AND SPORT

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Degree of Bachelor of Digital Economy

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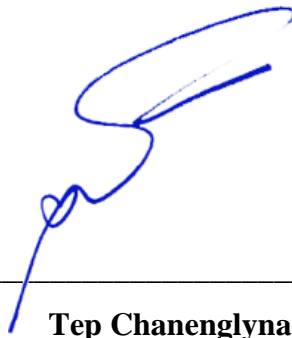
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DECLARATION

I declare that this thesis is my own work and has not been submitted for a degree at any university. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

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ABSTRACT

The purpose of this research is to investigate the relevance of loyalty programs in Cambodia and to examine the loyalty program relevancy, loyalty redemption process, and the challenges it entails. Utilizing a combination of methods, this research gathered data through surveys and telephone interviews. The quantitative findings revealed that a significant percentage of respondents find the current loyalty redemption process cumbersome and time-consuming. A majority expressed concerns over the inconvenience of managing multiple loyalty cards and the cognitive strain of remembering associated details. On the other hand, qualitative responses from comprehensive interviews painted a vivid portrait of user interactions, experiences, and perceptions toward the loyalty redemption process, highlighting the need for a more streamlined and user-friendly approach. The research also gauges the potential of the NID app to refine the redemption process in Cambodia. In essence, this research provides critical insights for businesses and academics about loyalty schemes in Cambodia's unique environment and underscores the pressing need for innovative solutions like NID.

Keywords: Loyalty Program, Loyalty Redemption Process, NID (NFT-based Identity)

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CHAPTER 1: INTRODUCTION

1.1 Background of the Study

Loyalty programs, which systematically reward and encourage loyal behavior beneficial to organizations, have been evolving for centuries, contrary to the belief that they are a modern marketing strategy (Liu, 2007; Sharp & Sharp, 1997). Shelper (2023) provides an insightful look into the historical progression of these schemes. As the popularity of loyalty programs has surged across various industries (Bijmolt et al., 2010), there's been a marked increase in the market demand for efficient management solutions to ensure their smooth operation.

In the Cambodian market, there appears to be a significant rise in loyalty programs, which can be observed in a range of industries such as food and beverage, retail, the service industry, hotels, the entertainment industry, and even financial services. These businesses attempt to provide numerous loyalty benefits to their clients, though the feasibility of the redemption processes has yet to be explored.

1.2 Statement of Problems

The rise of loyalty programs in Cambodia is prominent, as can be seen with the mega-companies in the country adopting these schemes. However, the study of the redemption process in Cambodia is still limited. Despite the up-rising number of studies regarding loyalty programs and their surrounding characteristics, there is no study that the researcher could find that demonstrates the common loyalty redemption methods used by users or whether the procedures currently employed are feasible in the Cambodian user's context.

Hence, this study aims to contribute to the knowledge gap by investigating the relevancy of loyalty programs, the current redemption process, and the challenges faced by users and offering the proposed solution, NID, as an alternative solution to enhance the redemption process.

1.3 Research Questions

This study aims to address three research questions:

- Relevance of Loyalty Programs: To what degree are loyalty programs relevant in Cambodia?

- Current Process and Challenges: What are the redemption methods used and problems that users have faced in the Cambodian context?

- The Potential of NID in Enhancing Redemption: How can the NID app serve as a viable solution to improve and streamline the current loyalty redemption process?

1.4 Research Objectives

The key objective of this research is to examine the prevalence of loyalty program usage in Cambodia, as well as the redemption methods and common problems faced by people in the Cambodian context. The study seeks to investigate how the suggested NID app contributes to improving the existing redemption process in this geographical setting by examining typical redemption methods and identifying problems that people have faced while redeeming their loyalty benefits.

1.5 Significance of Study

The importance of this study lies in providing actionable insights suited for businesses and industries in Cambodia, improving their understanding of the complexities surrounding loyalty program dynamics and redemption procedures. One of the study's most important findings is the importance of loyalty programs and members' perceptions and behaviors toward these programs. Furthermore, the study emphasizes the complex interaction between redemption methods and the difficulties they entail. The potential of the NID app has been identified as a particularly interesting route. This app is positioned as an alternative solution, set to improve the redemption process and bring in a more user-centric experience. Aside from these practical implications, the study is notable for its intellectual contribution. It explores the relatively unknown domain of loyalty redemption dynamics in Cambodia, filling a significant gap in previous research and expanding the academic landscape with its results.

1.6 Scope and Limitation

Although our objective is to perform comprehensive studies in all provinces of Cambodia, owing to time restrictions and the nature of how the survey was distributed, the survey results indicated a concentration of individuals in the capital city. Because the survey was distributed online, only those with a digital device and an internet connection were able to access the survey questionnaire; thus, the results gathered for our study show an overwhelming number of people in Phnom Penh, Cambodia's capital city.

Despite these limitations, the study provides useful insights and consequences for academic and industrial stakeholders. The research gains depth in analyzing the local dynamics and trends by confining its coverage to Phnom Penh, the capital city of Cambodia. The findings nonetheless give valuable insights into consumer behavior and preferences in the context of loyalty programs and their redemption processes.

The academic contribution remains noteworthy. This study aims to fill a knowledge vacuum by shining light on the special peculiarities of loyalty programs in the region, thereby enhancing understanding of consumer behavior and program success in this specific geographical and cultural setting.

CHAPTER 2: REVIEW OF LITERATURE

2.1 Introduction to the Loyalty Program

Loyalty programs are systematic marketing initiatives that reward and thereby encourage loyal behavior, which is presumably beneficial to the organization (Liu, 2007; Sharp & Sharp, 1997). In the literature review, several dates are used to denote the inception of the loyalty system (Hoffmann, 2013). However, according to Shelper (2023) and Berman (2006), loyalty programs have a long history spanning centuries. They gained traction with stamp-based programs that evolved into the frequent flyer program introduced by airlines, evolving into the sophisticated program it is today.

2.2 Types of the Loyalty Program

There are many ways that loyalty programs can be classified. Hoffmann (2013) discussed various classifications from the literature, referencing works by Holz (1997), Butscher (2002), Rowley (2004), and Berman (2006). However, none provided a definitive classification of loyalty programs. Notably, Berman (2006) proposed a prominent typology of loyalty programs, classifying them into four types: members receiving an extra discount at the register, a "buy n units and get 1 free" offer, refunds or points based on cumulative purchases, and customized offers and mailings.

2.3 The Growth of the Loyalty Program

Individual loyalty program memberships in the United States have seen growth from 2006 to 2016. Specifically, the number of loyalty program participants in the U.S. increased from 3.3 billion in 2014 to 3.8 billion in 2016 (Statista, 2023). Berman (2006) noted that nearly 90% of Americans participate in some form of loyalty program, such as credit card, retail store, or airline rewards programs, with most customers enrolled in multiple programs. The demand for loyalty programs and their management tools has surged over the years, and this trend is expected to persist. The Global Loyalty Programs Market Intelligence and Future Growth Dynamics Databook (2023) reported that the global loyalty market expanded at a CAGR of 13.1% from 2018 to 2022 and is projected to grow at a CAGR of 12.2% from 2023 to 2027, reaching a value of US\$215,497.1 billion by 2027 from US\$135,135.9 billion in 2023. This growth trajectory mirrors that of the loyalty management market, which, as reported by Fortunate Business Insights, was valued at \$5.29 billion in 2022 and is forecasted to rise to

$28.65 billion by 2030, reflecting a CAGR of 23.7% (Loyalty Management Market Share & Growth Analysis, 2023).

2.4 Influence of the Loyalty Program

The influence of loyalty programs on consumer behavior has been extensively documented in the literature. Muhammad et al. (2021) found that loyalty programs significantly impact consumer satisfaction. Similarly, Gómez et al. (2006) observed that participants in loyalty programs exhibit more positive attitudes, contentment, trust, and commitment than those who do not participate. This sentiment is echoed by Lakshman and Faiz (2021), who emphasized the role of customer loyalty programs in retaining customers. Furthermore, both Thompson and Chmura (2015) and Liu (2007) highlighted that loyalty programs enhance a firm's value proposition, leading to more profitable customers and increased overall revenue.

2.5 Transitioning the Loyalty Program in the Digital Age

The integration quality of omni-channel has been shown to positively influence customer engagement and the receptivity of relationship programs, subsequently affecting customer loyalty (Gao & Huang, 2021). As competition intensifies, businesses are continually refining their products and services. Modern consumers are presented with an unprecedented array of choices, both in terms of sophistication and the channels available for engagement. The pivotal factor in this dynamic is the organization's ability to manage the consumer experience effectively (Berry et al., 2002).

Historically, plastic cards have been instrumental in fostering loyalty. However, the inconvenience of carrying numerous cards and the obligation to remember redemption details have made them less favorable. The shift is evident as businesses are increasingly transitioning to mobile-based loyalty systems, rendering plastic cards less central to loyalty program distribution (Son et al., 2020).

In their quest for efficiency, businesses are embracing digital solutions like mobile apps. Alnawas and Aburub (2016) highlighted the positive correlation between customer satisfaction and purchase intentions in a mobile environment. Yet, as Li (2018) points out, not all branded apps succeed in retaining user interest. Similarly, while Bellman et al. (2011) found that branded mobile applications can enhance brand interest, they also noted that their effectiveness varies.

CHAPTER 3: RESEARCH METHODOLOGY

This section discusses the general techniques employed in the study, including the research strategy, sample selection, research methodologies, data collection instruments, and data analysis.

3.1 Research Strategy

This study employs a mixed-methods approach, integrating quantitative and qualitative data collection approaches. The quantitative approach, as stated by Lakshman et al. (2000), is to examine the numeric outcome, while the qualitative approach is used to study a more in-depth understanding of a subject matter.

3.2 Population and Sampling

The study aims to study the population of people in the Cambodian region. The survey was contributed online with no restrictions as to who could access it, whether they were members of loyalty programs or not.

Because the survey was distributed online, non-probability sampling was used. It specifically employs the convenient sampling approach since it is easy and inexpensive. Convenience sampling aids in overcoming many of the constraints of research (Taherdoost, 2016). The survey used a snowball approach to boost the number of responses.

The study utilizes the sample size recommended by Conroy (2016). With the population of people in Cambodia being over 5000, the sample size of this study is set to be 171.

Table 1: Sample Sizes for Prevalence Studies

Acceptable Margin of Error	Size of the Population					
	Large	**5000**	**2500**	**1000**	**500**	**200**
± 20%	24	24	24	23	23	22
± 15%	43	42	42	41	39	35
± 10%	96	94	93	88	81	65
± 7.5%	171	165	160	146	127	92
± 5%	384	357	333	278	217	132
± 3%	1067	880	748	516	341	169

Source: Conroy (2016), the RCSI Sample Size Handbook

3.3 Research Method

The study used surveys and phone interviews to collect both quantitative and qualitative data. Phone interviews were conducted to delve deeper into qualitative experiences, while the survey aimed to gather quantitative insights.

3.4 Data Collection

3.4.1 Quantitative Data Collection

The quantitative portion of the study was launched with a pilot survey. This online questionnaire, created with Google Forms, has 19 various inquiries. The goal was to assess the survey questions and response options for comprehensiveness and relevancy. The poll was distributed online using convenient sampling and a snowball sampling approach, and 87 people responded within a week. The questions, which ranged from multiple-choice to open-ended, were designed to provide a comprehensive picture of the respondents' loyalty usage and redemption patterns. This was only to assess the validity of the alternatives presented to respondents, and the result was not used as part of the research for drawing any conclusions but mainly to build and develop our comprehensive survey.

A more comprehensive survey was launched based on the pilot's observations. This extensive online questionnaire, which was also established on Google Forms, asked the respondents 30 distinct questions regarding their loyalty program usage, perception, and experience with the redemption process.

3.4.2 Qualitative Data Collection

The qualitative aspect of our research was strengthened via phone interviews and the examination of open-ended responses from our survey. The interview was conducted in a semi-structured format, which, according to Wilson (2014), is an interview style that mixes organized questions with unstructured inquiry and is effective for learning about a topic while also allowing new topics to be raised.

These semi-formal interviews included ten separate participants, all of whom were active members of at least one loyalty program. To guarantee a balanced viewpoint, we recruited five people from each gender. The selection sought to identify any specific trends or patterns in loyalty program utilization and their overall experience while redeeming the benefits. The major goal of these interviews was to acquire a better understanding of real-world loyalty program experiences and behaviors.

In addition to the interviews, our extensive survey's open-ended responses supplied a plethora of qualitative data. These comments provided personal perspectives, views, and ideas from a larger audience, deepening our understanding.

3.5 Data Analysis

3.5.1 Quantitative Data Analysis

In the quantitative portion, descriptive analysis was used. This method was used to answer the first and second research questions, including the relevancy of loyalty programs in Cambodia, the current methods by which loyalty programs are redeemed, and the problems that users have faced. These were later used to help answer the last research question, which was how NID could help streamline the current process and ease the challenges that users faced.

3.5.2 Qualitative Data Analysis

As for the qualitative section, thematic analysis was employed. According to Braun and Clarke (2012), thematic analysis is simple, adaptable, and increasingly popular for qualitative data analysis. It is a strategy for methodically discovering, organizing, and providing insight into meaning patterns (themes) in a dataset that allows researchers to see and make sense of common or shared meanings and experiences by concentrating on meaning across a dataset. Through this analysis method, the researcher was able to find trends and patterns across the data and the theme of respondents' loyalty program usage, experiences, and perceptions toward it.

CHAPTER 4: RESEARCH FINDINGS

The section will address the findings, quantitative and qualitative, as we have previously reviewed and deliberated in the methodology section.

The survey gathered a total of 207 responses; however, due to the wrong demographic and invalid answers, 33 responses were dropped. (n=174)

4.1 Demographic

The gender distribution of responses is nearly evenly split between males and females, with males accounting for 46% and females accounting for 49%. A tiny percentage (5%) decided not to reveal their gender. This equal gender representation guarantees that the study's findings are relevant from both male and female viewpoints.

Table 2: Demographics of the Respondents

Profile	Categories	Responses	Percentages
Gender	Male	80	46
	Female	86	49
	Prefer not to say	8	5
Age	Range: 16–40; average age: 25	174	100
Resident Area	Phnom Penh	163	93.68
	Other provinces	11	6.32
Education Level	No schooling	2	1.15
	High school	13	7.47
	Undergraduate	1	0.57
	Bachelor's Degree	140	80.46
	Master's or Ph.D.	18	10.34

Source: Constructed by the author using the survey data

The respondents' ages vary from 16 to 40, with a mean of 25. This suggests that the vast majority of responses are from younger individuals.

A vast majority (93.68%) of the respondents reside in Phnom Penh, making it the primary location of interest for this study. Only a small fraction (6.32%) comes from other provinces

The majority of respondents are well-educated, with 80.46% having a bachelor's degree or more. Furthermore, 10.34% have advanced degrees, either a Master's or a Ph.D. While 7.47% have completed high school, just a tiny percentage have no schooling (1.15%) or are associated with a degree (0.57%). This indicates the insights collected are mostly from an educated demographic.

The survey predominantly covers the viewpoints of young, urban, and well-educated people. The insight would be very useful for companies or services that seek to get a better understanding of loyalty programs regarding this population in Phnom Penh, Cambodia.

4.2 Usage and Behavior toward the Loyalty Program

The number of loyalty programs used by users is detailed as follows:

Table 3: Amount of Loyalty Programs Registered by Users

Loyalty program joined by users	Respondents	Percentages
0	17	9.77%
1	20	11.49%
2	26	14.94%
3	15	8.62%
4	33	18.97%
5	28	16.09%
6	9	5.17%
7	8	4.60%
8	5	2.87%
9	3	1.72%
10	4	2.30%
12	1	0.57%
15	1	0.57%
a lot	4	2.30%
Grand Total	**174**	**100.00%**

Source: Constructed by the author using the survey data

When the number of loyalty programs possessed by each participant was measured, the figures ranged from 0 to 15, with a minor portion selecting "a lot" without stating an actual number. Furthermore, less than 10% of all respondents reported not being a part of any loyalty program. Over 90% of users are involved with at least one loyalty program. From the data gathered, loyalty programs are quite prevalent among the assessed population.

Table 4: Average Loyalty Programs Registered by Users

Gender	Responses	Average Loyalty Programs joined
Male	80	3.71
Female	86	3.73
Prefer not to say	8	3.75
Education Level		
No schooling was completed	2	0.5
High school	13	2.15
Bachelor's Degree	140	3.66
Master's or Ph.D.	18	5.88

Source: Constructed by the author using the survey data

In terms of the average number of loyalty programs registered by participants, gender variations are minor. From an educational standpoint, there is a striking trend: except for people with little schooling, the average number of loyalty programs one is linked to grows as the level of education increases. Those with advanced degrees (Master's or Ph.D.) are substantially more engaged with loyalty programs than those with lower education levels.

4.3 Loyalty Program Usage and Frequency

This section will explore the frequency with which users engage with their loyalty programs.

Table 5: Loyalty Program Usage and Frequency

Frequency	Responses	Percentages
At least once a week	82	52.23
Less than once a week	32	20.38

Less than once a month		41	26.11
Rarely		2	1.27

The data provides intriguing insights into the regularity with which respondents participate in their loyalty schemes. A substantial majority, 52.23%, use their loyalty programs weekly, highlighting the critical role these programs play in their regular shopping or service consumption habits. In contrast, 26.11% of users participate less than once a month, suggesting that, while they acknowledge the importance of these programs, they may not be exposed to frequent incentives or chances to use them. Another 20.38% falls somewhere in the middle, interacting less than once a week but more frequently than once a month, indicating a moderate degree of involvement. Interestingly, just 1.27% of customers don't use their loyalty programs regularly, indicating potential areas for firms to improve their program offerings.

4.4 User's Perception toward the Loyalty Program

This section will investigate people's motives for joining loyalty programs and how they may influence their behavior.

Table 6: User's Perception toward the Loyalty Program

Questions	Categories	Responses	Percentages
Reasons for joining the Loyalty Program (Can select more than one answer)	Discount	137	87.26
	Points Exchange	101	64.33
	Reward	86	54.78
	Exclusive Offer	52	33.12
	VIP Treatment	47	29.94
	Other	4	2.54
Chosen a shop because they offer good benefits (Yes, no, maybe selection)	Yes	117	75.97
	No	4	2.6
	Maybe	33	21.43
Chosen a shop because they are already a member there (Yes, no, maybe selection)	Yes	118	76.62
	No	9	5.84
	Maybe	27	17.53

Would shop more because of	Yes	124	79.49
the easy redemption process	No	7	4.49
(Yes, no, maybe selection)	Maybe	25	16.03

Source: Constructed by the author using the survey data

The data conveys an in-depth description of the major motives for people to join loyalty programs. A substantial 87.26% of respondents identified discounts as their top reason, indicating the attractiveness of monetary savings for fostering customer loyalty. Following closely is the ability to collect points to exchange for items or services, underscoring the allure of monetary incentives. Over half of respondents, 54.78%, are driven to loyalty programs because of rewards, while 33.12% and 29.94% are drawn to loyalty programs because of exclusive deals, respectively. A lesser percentage, 2.54%, mentioned other reasons, which might include a range of individual-specific motivations that were not listed.

This finding was also supported by the qualitative inquiry. Based on the phone call interview, the majority of the respondents stated that rewards, exclusive access to products or services, promotional discounts, and reward point collection were some of the primary motivations for joining loyalty programs, while the redemption process and the price of registration also played a secondary role in influencing participants to join the programs. Furthermore, many participants also stated that they prefer to shop at or interact with businesses where they have memberships or loyalty programs. The perks and prizes provided by these programs have a considerable impact on consumers purchasing habits, with some going out of their way to take advantage of their loyalty programs, especially if there are attractive offers

4.5 Redemption Methods and Challenges

While traditional methods remain prevalent, newer digital avenues have emerged, offering convenience and speed.

Figure 1: Redemption Methods Used by Users

Redemption Methods
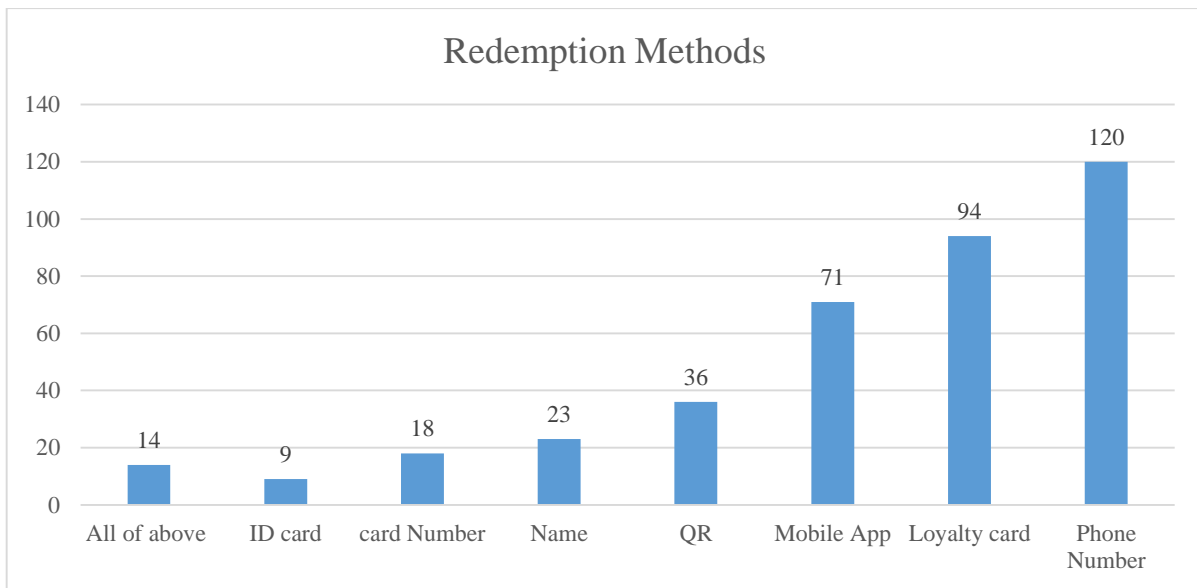
Source: Constructed by the author using the survey data

The majority (76.43%) of 157 participants who registered in loyalty programs preferred utilizing their phone number for loyalty program redemptions, followed by the traditional loyalty card (59.87%). Mobile applications are another popular option, with 45.22% of respondents choosing this technique. QR codes and names are used by 22.93% and 14.65% of participants, respectively, while card numbers and ID cards are used by 11.46% and 5.73% of participants, respectively. Surprisingly, 8.92% of respondents use all of the techniques available. This data suggests that while digital methods like phone numbers and mobile apps are gaining popularity, traditional methods remain relevant.

4.5.1 Problems with the Current Process

The redemption process of loyalty programs can be impeded by several challenges. A whopping 59.24% (or 93 out of 157) of respondents reported forgetting their loyalty card as the main difficulty in loyalty program redemption. The absence of an internet connection was recognized as a significant issue by 33.76% (or 53 out of 157) of respondents. Switching phone numbers and the hassle of handling several cards were mentioned by 31.21% (or 49 out of 157) of respondents, respectively.

Figure 2: Problems Faced by Users
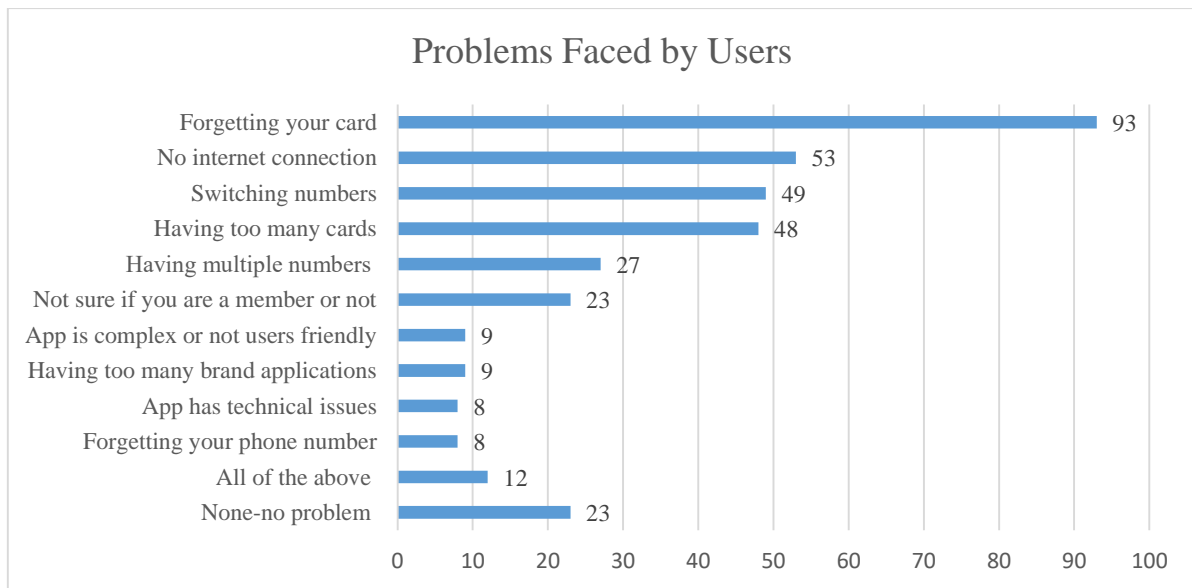
Source: Constructed by the author using the survey data

Digital issues were also frequent. According to our survey data, 17.20% (or 27 out of 157) of users complained about the difficulty of handling several phone numbers, while 5.10% (or 8 out of 157) of the participants reported forgetting their registered phone number, having technical problems with applications, and finding apps confusing or difficult to use. Furthermore, 5.73% (or 9 out of 157) felt overwhelmed by the number of brand applications.

Interestingly, 14.65% (or 23 out of 157) were unsure about their membership status, suggesting that loyalty program providers may have communication gaps. On the plus side, 14.65% (or 23 out of 157) reported no issues throughout the redemption procedure, while 7.64% (or 12 out of 157) reported encountering all of the listed challenges.

The analysis of our qualitative findings also shows that most of the users who are holders of loyalty programs express their difficulty in having to juggle and manage between different redemption methods. The confusion of using multiple contact details, especially when having multiple phone numbers or IDs, complicates the redemption process. Many participants raised this as a major pain point, making the process inconvenient. Other leading factors in the current process are the extended wait times during redemption and unreliable brand apps that might crash or fail to recognize details.

4.5.2 Struggle with the Current Process

Participants were also asked to select what criteria could be identified as the current struggle of the redemption process.

Figure 3: Struggles with the Current Process

Struggles with the Current Process
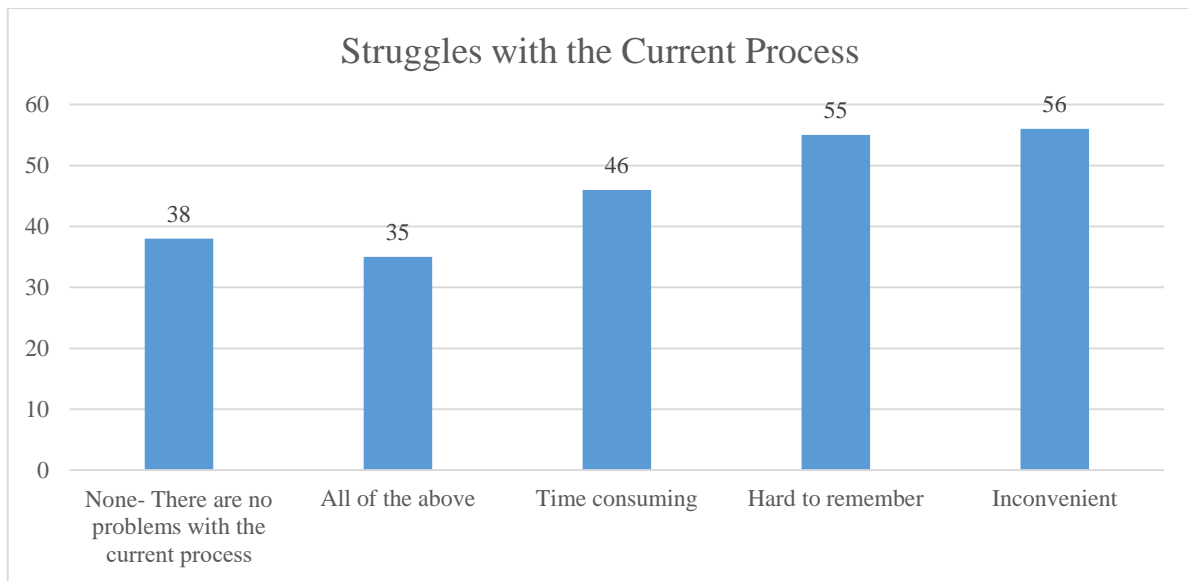
The most often mentioned concern was the process's inconvenience, which was expressed by 56 participants (35.67%). This was closely followed by 55 participants (35.03%), who found it difficult to remember specific information or steps, and 46 participants (29.30%), who thought the procedure took too long. Surprisingly, 35 participants (22.29%) reported facing all of the above obstacles, demonstrating the diverse nature of the issues users experienced. On the plus side, 38 participants (24.20%) reported no problems with the present redemption procedure.

4.5.3 Level of Frustration

Participants were asked to gauge their frustration level with the loyalty program redemption process. The results were distributed across a scale of 1 to 5, with 1 being the least frustrated and 5 being very frustrated.

Figure 4: Level of Frustration with the Current Process
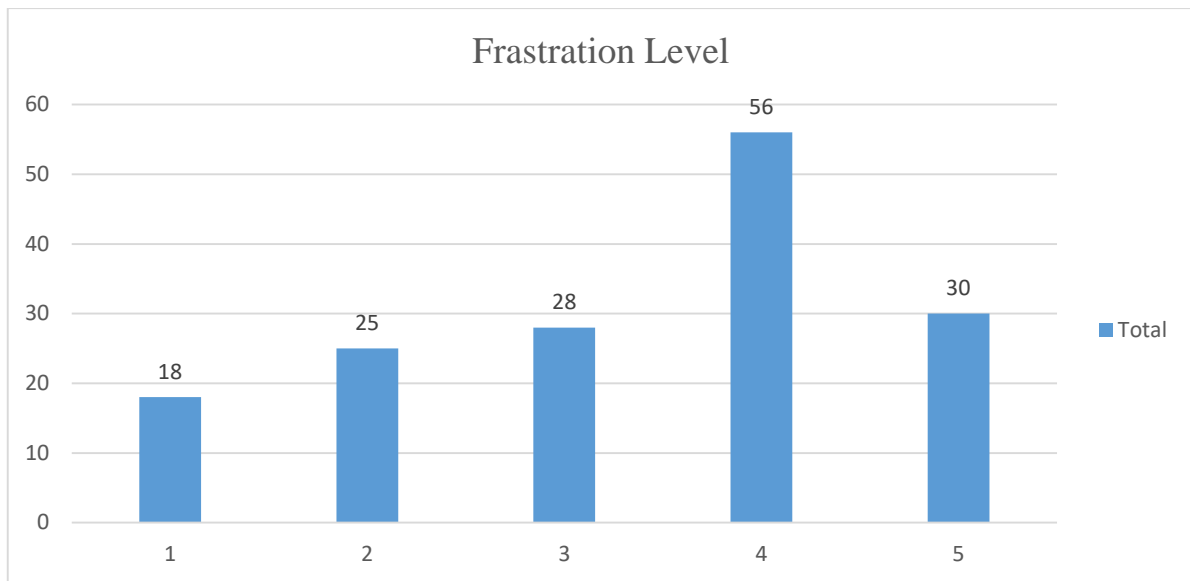
A considerable number of participants, 56 (35.67%), indicated a level of frustration of 4, suggesting a high level of discontent with the existing procedure. This was followed by 30 participants (19.11%) who assessed their discontent on a scale of 1 to 5, indicating extreme dissatisfaction.

In contrast, 28 individuals (17.83%) reported a moderate frustration level of 3, indicating a balanced assessment of the procedure. People with lower degrees of frustration, 2 and 1, were represented by 25 (15.92%) and 18 (11.46%) people, respectively.

The data shows that a sizable proportion of respondents are dissatisfied with the loyalty program redemption procedure, underscoring the need for enhancements and more user-friendly solutions.

CHAPTER 5: NID (NFT-Based Identity)

5.1 Introduction to NID (NFT-BASED IDENTITY)

NID (NFT-based Identity) is a Web3 platform that allows users to build a digital ID that contains a range of IDs in one place, such as phone numbers, email addresses, loyalty card numbers, bank numbers, national IDs, utility bill IDs, and many more.

Figure 5: NID's Framework

Source: Constructed by the NID Team (2023)

NID employs a non-fungible token, which is a unique digital identity that cannot be duplicated or swapped, is stored in a blockchain, and is used to verify ownership and validity. To assure ownership that cannot be duplicated and ownership that cannot overlap, NID is issued as NFT, which is unique, evidence of ownership, tradable, and may contain digital files as well as ID information, following ERC-721.

Individuals in our rapidly changing world are caught in a complex web of identifying numbers that saturate every part of their existence. These identification numbers have become an inevitable part of modern life, from work environments to daily routines to financial transactions to personal papers. From fundamental identities like bank account numbers and national ID cards to more specific designations like driver's license numbers, utility bill numbers, credit and debit cards, phone numbers, and even loyalty card numbers.

As people traverse the complexities of transactions and activities that require the use of these identities, the sheer impossibility of remembering every delicate digit becomes clear. This situation triggers a chain reaction of interlinked problems, and the pressure is most noticeable.

NID helps to solve a variety of issues, such as carrying annoyance, memorization cognitive strain, juggling multiple IDs, precious time consumption, dispute expenses, navigating across institutions, and organizational ID challenges. For instance:

Carrying Annoyance: The simple annoyance of carrying about a slew of actual ID cards serves as a continual reminder of the difficulty of identification management. This is especially true with loyalty cards, where individuals may have many cards, each tied to a different program and each with its own set of unique IDs.

Memorization Cognitive Strain: The cognitive work necessary to memorize a complicated array of codes is taxing. This cognitive strain is amplified when users are required to recall many loyalty IDs and phone numbers, each of which is linked to a separate program, adding to the mental pressure.

Juggling Multiple IDs: Keeping track of multiple loyalty cards, each with its own set of identifiers, is a complicated juggling act. Users must manage not just the actual possession of these cards but also recall which card relates to which program.

Precious Time Consumption: The time-consuming process of collecting, cross-referencing, and typing several complicated ID numbers across many contexts costs substantial time, resulting in transactional delays and inefficiencies. This time-consuming process is especially important when members need to utilize their loyalty benefits promptly.

Dispute Expenses: Errors caused by poorly entered ID numbers can quickly evolve into disputes, costing significant financial expenditures to resolve these inconsistencies. This is a real concern with loyalty IDs, as misinterpretation can lead to arguments about redeemed incentives or advantages.

Navigating Across Institutions: Different institutions and platforms require their ID numbers and cards, adding to the complexity and possibility of misunderstanding while connecting with different systems. This complexity is heightened in the case of loyalty cards, which require consumers to memorize various sets of IDs or phone numbers with which they initially registered for the membership programs.

Organizational ID Challenges: The increase of different IDs across several domains exacerbates the issue of properly maintaining these identifiers. This is especially true for loyalty cards and identification cards, which, if unorganized, can result in missed opportunities for rewards and advantages.

5.2 NID Features and Functionality

NID starts on a mission to reimagine the user experience in an environment filled with convenience, efficiency, and monetization possibilities, incorporating a myriad of features and complete with an assortment of perks. The capacity for users to engage in a variety of activities, seamlessly integrated within a cohesive framework, is at the very foundation of this innovative platform.

Avatar: The development of individualized avatars, which act as distinct profile identities for users, is central to NID's capabilities. This revolutionary feature allows users to not only develop a distinct digital presence but also to encompass themselves within a customizable digital representation. With this functionality, users may perform a variety of operations, such as creating avatar profiles, adding names, altering names, and even removing names based on their changing preferences.

Account Connection: The capabilities of NID extend beyond individual identity management to include the seamless integration of numerous account connections. NID supports the safe attachment of users' vital information in a uniform and orderly manner by using the fundamental qualities of non-fungible tokens (NFTs). This feature is crucial because it eliminates the need for users to search for QR codes, manually enter account numbers, or do several copy-and-paste operations when beginning transactions, paying utility bills, or transferring funds. Users are no longer burdened by the time-consuming effort of locating required identifying data when engaging in transactions or financial operations. Instead, by merely entering their NID, the platform scans, locates, and populates the necessary account IDs in a matter of seconds. This new leap not only improves speed but also accuracy, lowering the possibility of human mistakes and eliminating the friction associated with standard identification entry techniques.

Market Place: NID's thriving marketplace provides three critical services: NID Purchase, NID Trading, and NID Auction. This dynamic center enhances and adds tremendous value to the NID experience, enabling new types of participation. The NID marketplace is a revolutionary node where utility meets value creation and innovation meets economic opportunity. Users enter a digital realm where identity management becomes both functional and aesthetic through NID purchases, NID trading, and NID auctions. This marketplace is more than just background; it acts as a canvas for individuals to create their digital identity journey,

representing customization, economic empowerment, and the digital age's limitless possibilities.

In a fast-changing digital ecosystem, NID stands out as a game changer, enabling users to reinvent their approach to identity management. NID efficiently handles the numerous issues involved with managing an ever-expanding array of identification numbers by offering a platform that supports the storage of multiple IDs into a single digital ID. This unique approach represents a significant departure from traditional procedures, allowing users to effortlessly integrate and protect their critical identification information in a single digital area.

The capacity to create a digital identity suited to a user's tastes and demands is the hallmark of NID capability. This personalization allows individuals to create an identity that reflects their specific characteristics and needs, ending in a digital depiction that reflects their uniqueness. This dynamic characteristic not only provides a sense of ownership over one's digital identity but also allows the smooth integration of many identity numbers, overcoming the limits of old analog systems.

The ability of NID to condense a varied variety of important identifying information into a single digitalized ID software lies at the heart of its competence. This integration includes a plethora of identifiers that play critical roles in numerous facets of people's lives. NID acts as an all-encompassing repository for these diverse identities, from the essential bedrock of national ID cards and bank account numbers to the complexities of utility bill references, phone numbers, and loyalty program IDs. This consolidation eliminates the need to manage several physical cards or the time-consuming job of memorizing complicated numbers.

NID's consistent dedication to security is one of its most enticing features. In an age of cyber risks and identity theft, NID offers a safe refuge for users to protect their critical personal information. The platform's digitalized nature, by employing blockchain technology and reinforced by strong encryption and authentication measures, guarantees that users' important information is protected from unwanted access. This guarantee frees consumers from the continual fear of security breaches, allowing them to embrace the digital age with confidence without jeopardizing their integrity.

NID's convenience is nothing short of transformational. Gone are the days of frantically seeking out missing physical cards, battling the complexity of several ID numbers, or succumbing to the inconvenient task of managing many identities. The simple and efficient

user experience provided by NID's intuitive interface and simplified functionality eliminates these problems. Users may easily access their identification information anytime they need it.

In simple terms, NID heralds a new era of identity management, exemplifying the digital age's promise. NID improves the way people interact with their identification numbers by allowing them to create personalized digital IDs, integrate a variety of identifiers, improve security measures, and provide unrivaled simplicity. Its influence extends beyond individual users, resonating with corporations, institutions, and academics as it reshapes the digital interaction landscape. NID shines as an innovative light, illuminating the route toward a more secure, efficient, and user-centric approach to identification in the modern world.

5.3 NID's Technology

NID's foundation is built on the Polygon blockchain, a decision impacted by several essential factors such as usability, utility, stability, and security. Polygon stands out as a forward-thinking and user-friendly platform designed to address Ethereum's scalability and infrastructure development challenges. The Polygon SDK, a dynamic and flexible platform designed to facilitate the development of numerous application types, lies at its heart. Polygon has emerged as an increasingly popular solution for apps seeking to construct big ecosystems through seamless interaction with a diverse spectrum of blockchains in the emerging blockchain landscape. This strategic approach allows our application to make use of the numerous benefits afforded by Polygon's architecture, placing us on the path to development and interoperability.

5.4 NID as a Solution

A range of issues related to the loyalty program redemption process have been discovered through both quantitative and qualitative research approaches. From the findings section, we have discovered that users are primarily concerned with inconvenience, difficulty in recollection, and the time-intensive nature of the redemption process. Our findings also showcased the common redemption methods used by users and the problems that users have faced during the redemption process. Thus, this section of the study will look at the problems and demonstrate how NID could contribute to helping with the current process.

Figure 6: Current Redemption Process and NID Integration

Current Process

Consequences for forgetting the physical card

- Inconvenient
- Hard To Remember
- Time Consuming

Need KYC to verify

- Forget Card
- Have Many Cards

- Phone number
- Mobile app
- Name
- ID , etc

Physica card

User

Never faced problems

Redeem

Phone number, mobile app, etc

- Switching number
- Having multiple number
- Forgetting phone number
- Too many applications
- Not sure if they are members or not
- **The app is not user-friendly**
- **The app is too complex**
- **No internet connection**

Consequences for Digital Solution

- Inconvenient
- Hard to Remember
- Time consuming

NID Intergration

User

NID (NFT-based Identity)

Redeem

Source: Constructed by the author (2023)

Individuals in today's digital era struggle with the complications of keeping various identification numbers, ranging from loyalty numbers to phone numbers. The sheer number of these IDs, along with the development of brand-specific applications and the actual annoyance of physical loyalty cards, frequently leads to inconvenience, the need to recall specific IDs, and a delay in the process during redemption procedures. This multidimensional difficulty emphasizes the importance of a simplified solution.

NID offers a transformative solution to these challenges by centralizing and digitalizing identity management. It provides a disruptive answer to these difficulties. NID, which is built on the strong Polygon blockchain, allows users to combine several IDs, such as loyalty cards, phone numbers, IDs, and names, into a single, secure digital platform. NID guarantees greater security by using the power of blockchain technology, while it's user-friendly interface streamlines access and maintenance of identification information, removing the conventional hassles and inefficiencies associated with numerous IDs. This novel technique not only simplifies identity management but also paves the way for a more efficient and user-centered digital experience.

5.5 Limitation of NID

NID excels at centralizing user data and providing a streamlined interface that alleviates many of the common issues associated with loyalty redemptions. However, while its capabilities are extensive, they are not all-encompassing. Certain obstacles continue for brands that need exclusive usage of their applications for redemptions. These include inconsistent internet access, complex interfaces, and technical outages within the brand application. Furthermore, NID is not designed to provide the detailed status or detailed information that brand applications may provide. In such cases, the burden falls squarely on the shoulders of the individual brands. While NID provides an effective structure for improving the user experience for the vast majority of users, businesses must identify and solve the intrinsic limitations of their platforms.

5.6 User's Perception of NID

Participants were exposed to the notion of NID at the end of the survey. Although it is still in the conceptual stage, this novel platform promises to address many of the stated challenges and alter how we handle and view digital identities. Participants were questioned about their thoughts on NID to measure their potential acceptability and anticipation for such a solution. They weighed in on different areas, such as the perceived usefulness of NID, its potential contribution to the current process, and the likelihood of using NID once it becomes accessible. The outcomes of this survey are presented in the table below, providing insights into potential users' initial feelings and thoughts when introduced to the NID idea.

Table 7: User's Perception of NID

Questions	Measurement	Rating	Responses	Percentages
How helpful do you think NID can be?	Scale 1-5, with 1 being "Not at all helpful" and 5 being "Extremely helpful"	1 2 3 4 5	0 3 38 64 51	0 1.92 24.36 41.03 32.69
To what extent do you think NID could contribute to the current process?	Scale 1-5, with 1 being "No contribution" and 5 being "Significant contribution"	1 2 3 4 5	0 4 40 79 33	0 2.56 25.64 50.64 21.15
Would you consider using NID once it's released?	Scale 1-5, with 1 being "Definitely would not consider" and 5 being "Definitely would consider"	1 2 3 4 5	0 4 28 72 52	0 2.56 17.95 46.15 33.33

Source: Constructed by the author using the survey data

From the data collected, it's evident that there's a strong inclination towards the perceived helpfulness of NID. A significant 73.72% of respondents believe that NID would be beneficial, rating its potential helpfulness as either 4 or 5 on the scale. This indicates a positive reception and trust in the capabilities of NID. Interestingly, none of the respondents rated it as "Not at all helpful", and a mere 1.92% gave it a low rating of 2. This overwhelmingly positive response suggests that the target audience sees value in what NID offers.

The majority (71.79%) of respondents are enthusiastic about NID's potential contribution to the present process. Half of them feel NID will make a significant contribution, giving it a 4 on a scale of 1 to 5. This impression is reinforced by the fact that just a tiny fraction (2.56%) believe it would have little impact. The evidence supports the view that NID is more than simply a supplemental tool, but that it might be a substantial enhancer, if not a game changer, in the present process.

The readiness to accept a new solution is a vital predictor of its expected success, and the indicators are good in the case of NID. A sizable 79.48% of respondents stated that they are interested in utilizing NID whenever it is released. Almost half of them are strongly considering adopting it, demonstrating their belief in NID's value proposition. On the other hand, just a tiny percentage (2.56%) are less inclined to consider it, showing a low level of opposition or skepticism against the application.

CHAPTER 6: DISCUSSION AND IMPLICATION

Loyalty programs have grown in popularity as strategic tools across the world. This global trend of expanding loyalty programs manifests itself in the Cambodian context, underscoring its growing prominence in the region. The existing research constantly emphasizes the importance of these initiatives in increasing customer engagement and retention. Our research suggests that a considerable number of Cambodian customers are not only passive participants in these initiatives. Instead, they actively participate in several loyalty programs, demonstrating the market's vitality. This active participation is shown not just in the number of memberships they hold but also in the frequency with which they interact with these programs. Furthermore, the results we obtained imply that the attractiveness of a loyalty program or the prospect of appealing loyalty rewards influences many Cambodian customers' purchasing decisions. While this behavior is consistent with worldwide trends, it highlights the Cambodian market's special dynamics and opportunities. Furthermore, the redemption process, which is central to these programs, appears as a crucial element, with quantitative and qualitative studies underscoring its significance. In essence, our research not only aligns with but also enriches the existing literature, spotlighting the multifaceted influence of loyalty programs on consumer choices in Cambodia and its alignment with global trends.

The redemption process, which is critical to the effectiveness of loyalty programs, frequently presents obstacles that can greatly influence customer perceptions and decisions. While current literature encompasses redemption difficulties on a worldwide basis, our research dives further, focusing on the Cambodian context. We discerned that Cambodian consumers, despite their evident affinity for loyalty programs, frequently confront intricacies during the redemption phase. These complexities range from navigating a plethora of redemption channels to the cognitive cost of remembering particular program details and the inconvenient cohabitation of traditional and digital redemption methods. It is worth noting that, although the literature focuses mostly on physical and mobile app-based redemptions, our study provides a thorough examination of the redemption methods used in Cambodia. Furthermore, our findings shed light on the individual pain areas experienced by users, emphasizing the process's overall problems, which include its inconvenience, the difficulty in retention of details, and its time-intensive nature. Thus, our study not only resonates with worldwide findings but also deepens the dialogue by emphasizing the unique problems inherent in the Cambodian environment.

Addressing the redemption challenges pinpointed, our research proposes the NID solution, a revolutionary strategy suitable for the Cambodian context. Unlike the rest of the research, which lacks precise recommendations for enhancing the redemption process, our study offers a practical alternative. NID decentralized, consolidated, and digitized loyalty program information, intending to drastically reduce the burden and hassle associated with traditional redemption processes. Our findings show that such an innovation is not only desirable but also necessary in the Cambodian context. While NID resonates with worldwide digital transformation trends, it also provides a solution that is both revolutionary and highly tailored to the unique difficulties and subtleties of the Cambodian market.

However, some limits must be recognized. While NID simplifies the redemption process, it cannot solve obstacles like limited internet access, the sophisticated interfaces of brand-specific mobile applications, or the technical errors that these apps are prone to. While NID can dramatically improve the redemption experience, it is up to individual businesses to address these issues. This constraint emphasizes the need for companies to understand the complexities and proactively strive to enrich the consumer experience based on these challenges.

The expanding popularity of loyalty programs has altered the way businesses interact with their customers. Set against the backdrop of the Cambodian market, our study digs into the intricacies of loyalty programs, redemption complications, and potential solutions. The findings hold significant implications for businesses, policymakers, and consumers alike. As we unpack these implications, the study offers insights into strategic decision-making, technological innovations, and consumer behavior nuances. Herein, we elucidate the key implications derived from our study:

Business Strategy and Decision-Making: The popularity of loyalty programs in Cambodia underscores an opportunity for businesses. Marketers may utilize the study's results regarding Cambodian customers' active participation in loyalty programs to modify their promotional methods, ensuring they cater to the preferences and behaviors of the local market. Those who have yet to implement such initiatives should think about including them, given their potential to increase customer engagement. Furthermore, as indicated in the findings we obtained, the problems associated with redemption procedures provide organizations with a roadmap to develop their loyalty efforts, ensuring they resonate with customer preferences and exude efficiency.

Evolving Business Models: The emergence and development of advanced loyalty program solutions such as NID may result in the establishment of new business models or the evolution of current ones. Businesses may explore shifting away from the traditional model by placing a higher emphasis on establishing long-term client connections.

Economic Impacts: The widespread adoption of advanced loyalty redemption methods can have broader economic implications. For instance, increased customer loyalty can lead to more stable revenue streams for businesses, potentially impacting market dynamics and pricing strategies and even influencing macroeconomic factors in the long run.

Technological Advancements: The debut of NID, with its blockchain and NFT technologies, indicates a trend toward more technologically advanced loyalty program redemption alternatives. This could prompt businesses globally to explore similar technologies, leading to a potential technological revolution in loyalty program redemption management.

Regulatory Implications: As more firms implement innovative solutions like NID, the way loyalty programs are governed may change. This might result in the formation of new industry standards or optimal procedures, ensuring the protection of both enterprises and consumers.

Consumer Education and Awareness: The adoption of technologically modern techniques such as NID needs a corresponding effort in consumer education. Brands should engage in marketing and activities to educate their consumers about the new redemption processes, blockchain benefits, and the value proposition of NFTs in loyalty programs' redemption processes.

Collaboration and Partnerships: The success of solutions such as NID may rely on collaborations between technology suppliers, companies, and even competitors. Joint ventures or partnerships can result in uniform redemption processes, improving the entire user experience and ensuring widespread adoption.

Challenges and Limitations: While NID appears to be a potential option, the difficulties connected with unreliable internet access, complex brand-specific app interfaces, and technical issues demonstrate the need for further development and adaptation. This means that, while technology solutions might improve the user experience greatly, ongoing feedback, testing, and iteration are required for long-term success.

Ultimately, the implications of this study highlight the multidimensional influence of loyalty programs, their redemption process, technical breakthroughs like NID, and the evolving structure of the Cambodian market. As businesses, policymakers, and researchers navigate the

ever-evolving landscape of customer loyalty and technological integration. The insights presented here serve as a foundation, but the road to understanding and enhancing loyalty programs in the digital era is constant. Collaborative efforts across sectors, continuous research, and a commitment to understanding and serving consumer needs will be paramount in harnessing the full potential of these insights.

CHAPTER 7: CONCLUSION AND RECOMMENDATION

Loyalty programs have evolved as a critical corporate strategy in the quickly changing environment of customer behavior and technological improvements, particularly in places such as Cambodia. Our research delves deeply into the relevancy of loyalty programs and the complexities of loyalty program redemption procedures, emphasizing both consumer issues and potential solutions to these challenges. The debut of NID, with its novel use of blockchain and NFT technology, exemplifies the direction that loyalty program redemption administration is heading. While global literature has discussed many elements of loyalty programs, our research provides a more localized viewpoint, stressing the unique characteristics of the Cambodian market.

The findings underscore the enthusiasm of Cambodian consumers for loyalty programs while also shedding light on the complications they experience during the redemption process. These difficulties, while reflecting global sentiments, are amplified in the Cambodian context due to unique market dynamics and consumer behavior. The research not only corroborates global findings but also provides a deeper understanding of the specific challenges faced by Cambodian consumers.

In addition to its valuable contribution and significance, it should also be noted that the study comes with its own set of limitations. For instance, while the study mentioned Cambodia as the main geographical area for the study, due to the survey implication, the results gathered were mainly from Phnom Penh, which is the capital city of Cambodia. Hence, the interpretation of the survey findings should be interpreted with caution in mind.

Recommendation

Recommendations are important parts of research because they provide practical insights and ideas based on the results. They give stakeholders a plan to solve difficulties and capitalize on possibilities discovered throughout the study. The following recommendations are made in light of our research on loyalty programs and the NID solution in Cambodia.

Modern Technology Integration: Businesses should take a dual strategy, aligning with Cambodia's perceived enthusiasm for loyalty programs and emphasize them as a key component of their market engagement strategy. The study highlights the problems associated with redemption procedures, which could guide strategic roadmaps for development.

Businesses ought to tackle these issues head-on, ensuring that their strategies reflect customer needs and provide seamless experiences.

Collaborative Efforts: Businesses must forge strategic alliances with technology providers and even potential competitors. Such collaborations can pave the way for a standardized redemption procedure, ensuring a consistent and enhanced customer experience.

Continuous Feedback and Iteration: Businesses should put in place tools to collect feedback from customers regularly. This input should be used to inspire incremental improvements, ensuring that redemption procedures stay relevant to ever-shifting customer preferences and expectations.

Regulatory Framework: As innovative solutions like NID emerge in the loyalty program landscape, regulatory bodies must adapt. To address the complicated nature of digital solutions, a thorough examination of existing loyalty program regulations is required. The emphasis should be on improving data privacy and security, ensuring businesses retain openness in their operations, and pushing interoperability standards for a smooth customer experience. Additionally, regulations should mandate clear communication about loyalty program terms and conditions. To keep up with rapid technological changes, continual monitoring with feedback systems, including both enterprises and customers, is critical. This proactive approach guarantees that the regulatory framework remains up-to-date and responsive to the expanding ecology of the loyalty program.

Future Research: This research connects the theoretical knowledge of loyalty programs with the real issues that consumer's experience, providing a comprehensive picture of the present situation. It establishes a precedent for future study, particularly in areas such as user adaption to new technologies, blockchain's position in consumer markets, and the long-term viability of solutions such as NID. The research also highlights the need for further studies on the potential challenges and limitations of NID, ensuring a holistic understanding of its impact on the loyalty program. Future research should focus on the long-term impact and sustainability of solutions like NID. Researchers should also look at the hurdles companies encounter while implementing such unique solutions, particularly in different market environments such as Cambodia. As digital preferences become more pronounced, it would also be advantageous to analyze new trends and patterns in the digital customer experience, particularly concerning loyalty programs and their redemption process.

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