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Evaluation of Features on Mobile Investment Application using Kano Model

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Abstract: The use of smartphones has become a primary need in supporting human daily activities. With the presence of a smartphone, various activities can be carried out only through an application. One application that is currently popular with Indonesians is an investment application with products such as stocks, mutual funds, and crypto. The presence of investment applications in the past few years has made the investment process easier to do. However, the age of the application development company which is still quite young makes the application have a lot of room for improvement, such as the features offered in the application. This study aims to evaluate the effect of the features available on one of the investment applications in Indonesia with the Kano model approach. The kano model is used to classify the existing features based on their influence on user satisfaction. 21 features associated with the application are defined. The survey was taken to 104 participants to identify user perspective of each feature on user satisfaction. The result of this study reveals that there are 12 features classified as Indifferent, 6 features are classified as One-dimensional and 3 features are classified as Reverse which means there are rooms for improvement of the features that will improve the user satisfaction.

Keywords: Kano Model, Investment Application, User Satisfaction, Features

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Introduction

Digital innovation has made its way into various aspects of human life. One sector that has experienced notable transformations through digital innovation over the past ten years is the financial sector (Zavolokina et al., n.d.). The process of digital innovation, closely tied to technology implementation, is commonly referred to as fintech (financial technology) within the financial industry. Fintech predominantly encompasses technology-based startup companies operating in finance, utilizing internet-based automated information processing to pioneer new business models within the financial sector. The advent of fintech has introduced a fresh perspective to the financial sector, challenging long-standing traditional perceptions by showcasing the transformative power of

technology implementation. The evolving consumer perception towards a more modernized financial industry has significantly influenced the advancement of the fintech sector. Chinese-based fintech company, Eastmoney, has witnessed a remarkable four-fold increase in active users since 2015 (Chen et al., 2023). This rapid growth is fueled by various factors, such as the convenience of online access for consumers to conduct diverse transactions. The swift progress in the fintech industry is not limited to foreign entities alone, as Indonesia has also seen the rise of numerous homegrown fintech companies in recent years.

Fintech companies operating in Indonesia provide a wide range of distinct business products, including online-based loans, investment transactions, digital wallets, and more. Among these offerings, investment products have gained considerable popularity. The volume of investment transactions has witnessed a notable surge compared to previous years. According to data from the Financial Services Authority *(Otoritas Jasa Keuangan*), there were approximately 319 million stock transactions in 2021, a significant increase from the 169 million transactions recorded in 2020 (OJK, 2021). The accessibility and ease of conducting transactions have played a significant role in driving the growth of investment product transactions.

Prior to the arrival of fintech companies offering investment products like stocks, investors had to engage in face-to-face stock transactions at the Indonesia Stock Exchange (BEI). Additionally, the stock transaction process was carried out using conventional methods involving physical boards and paper as supporting tools. This lack of accessibility hindered the efficient execution of stock transactions, limiting investor participation to only a few segments of society at that time.

However, since the late 2010s, the presence of fintech companies offering investment products has transformed the landscape. This shift has revolutionized the mechanism of investment transactions, making them accessible online and in real-time. According to a mid-year report in 2022 from the Indonesia Central Securities Depository (KSEI), the number of stock investors in Indonesia has reached 4 million during the first half of 2022. This represents a 15.96% increase from the end of 2021 (KSEI, 2022). The report also highlights that the majority of stock investors are now dominated by the millennial generation, more than 50%.

The convenience of accessing stock transactions became a pivotal factor in the rise of millennial investors' dominance in the late 2010s. This shift coincided with the emergence of fintech companies offering investment products. These fintech companies have obtained legitimate licenses from regulatory bodies like the OJK, instilling confidence in investors when engaging in various investment transactions. In Indonesia, there are now fintech companies that facilitate a substantial volume of stock transactions. For instance, a company established in 2018 has garnered over 2 million users since 2022. The company's remarkable achievement of engaging 50% of all stock investors in Indonesia in 2022 has contributed to its promising growth trajectory. However, as a relatively young company, there is still considerable potential for improvement. One aspect that could be enhanced is the feature of the application.

This study aims to review the available features based on user preferences using the approach kano model.

Literature Review

Fintech

Fintech is a term derived from the combination of "finance" and "technology," indicating the integration of technology into the financial sector's business processes (Zavolokina et al., n.d.). The rise of fintech companies has been significant over the past decade, including in Indonesia. Indonesia has witnessed rapid growth in its fintech industry, following the trajectory of China (Davis et al., 2017). This accelerated expansion can be attributed to the convenience fintech offers to the lower-middle-class population, including financing solutions for Micro, Small, and Medium Enterprises (MSMEs) and instant loans for individuals in need. Such market segmentation aligns well with Indonesia's status as a developing nation.

There are several types of fintech products that are quite popular with the public. Several types of fintech products are as follows:

1. Digital payment

This one fintech product is the most popular among the public. With the existence of digital payment products, the use of cash as a transaction tool has begun to be abandoned. Generally, almost everyone has an account with digital payment products such as e-wallets and other digital payment products.

2. Peer-to-peer lending

P2P lending has a business model that is providing access to loans to the public. The presence of P2P lending slowly provides competition to conventional financial institutions so that people do not only have to depend on conventional financial institutions in applying for loans.

3. Online investment

This fintech product allows users to make investment transactions in financial instruments such as stocks, mutual funds, bonds, and crypto. The presence of online investment products has provided easy access to investing.

4. Financial Management

Financial management applications assist individuals in managing personal finances which include activities for making financial budgets, tracking financial flows, and providing personalized financial management advice.

5. Donation platform

Donating can be done anywhere and anytime. The donation platform allows donation activities to be carried out collectively for specific purposes without having to do it directly because it is connected to other fintech products, namely digital payments.

Fintech Growth in Indonesia

Based on data from AFTECH (Fintech Association of Indonesia), the officially recognized Association of Digital Financial Innovation Providers appointed by OJK (Financial Services Authority), there are 352 fintech companies in Indonesia as of 2022. These 352 fintech companies offer diverse business products, such as online

loans, crowdfunding, digital wallets, investments, and more. The ease of transaction is a key factor for fintech users, along with the assurance of regulatory compliance provided by authorized regulators.

The convenience provided by fintech companies in transaction processes has proven to have a significant impact on the majority of the Indonesian population. The geographical nature of Indonesia, with its thousands of islands, creates difficulties in conducting conventional transactions due to uneven financial infrastructure. Fintech companies operating online have emerged as a solution to address the limitations of the financial infrastructure in Indonesia. Their ability to facilitate online and real-time transactions has become a crucial advantage that conventional banks cannot offer (Davis et al., 2017).

Identify Application Features

Mobile apps or applications have become a major spearhead in every type of fintech business product. Because an application is a differentiator between the financial industry that is still traditional and that is based on fintech. The presence of applications in the fintech industry has cut boundaries including distance, time, and access which are problems in the traditional financial industry. Each application consists of features that are based on the purpose of the application. The existence of features in the application needs to be based on various considerations. Because the presence of features in the application besides affecting user satisfaction with the application will also directly affect the performance of the application itself.

The investment application has several features that can support the investment transaction process in the application. The features available are as follows:

1. Investment Information
2. Buying Power
3. Watchlist Stocks & Mutual fund
4. Explore
5. Index
6. Schedule
7. Latest Stocks Analysis
8. Trending
9. Stocks based on Category
10. Stocks Sector
11. IPO Offering
12. ETF
13. Top Performer Mutual fund
14. Type of Mutual fund
15. Investment Manager
16. Instrument
17. Portfolio

18. Order
19. History
20. Chat
21. News

Human Computer Interaction (HCI)

Human-Computer Interaction (HCI) is a multidisciplinary field rooted in psychology that explores the interaction between humans and computer design. It encompasses the creation, evaluation, and implementation of computer systems that effectively engage with humans, considering the key phenomena involved (Preece, 1994). The objective of HCI is to establish a framework that combines human psychology and computer science to design features that are efficient and user-friendly.

The four recurring phases of analysis, design, implementation, and evaluation in HCI have been widely recognized and understood (Butler et al., 1998). These four crucial stages are taken into account when developing a user interface design. The user interface plays a vital role in the field of HCI and can be validated through testing. Hence, it is important to possess good techniques and skills in user interface design to create a functionally effective system for human-computer interaction.

Kano Model

The Kano model was discovered by Professor Kano and his colleagues, who introduced a two-dimensional framework that takes into account the asymmetric and nonlinear relationship between the performance of a product or service and customer satisfaction. Originally, the Kano model was employed by mobile phone companies to develop new products (A. Shahin and M. Zairi, 2019). However, the use of the Kano model has expanded beyond tangible products and can now be applied to a variety of intangible products, including services. Currently, the Kano model is widely utilized to evaluate customer satisfaction by considering the quality attributes of a product or service, and subsequently categorizing them into one of the following five quality categories:

1. Must-be

The following attributes are very important to fulfill because customers will be very dissatisfied if these attributes are not met. The following attributes are the basic criteria for a product or service with a description of a certain minimum level of quality for the product or service that must be achieved by the provider.

2. One dimensional

The following attributes are typically clearly expressed by customers, as they directly impact customer satisfaction based on the extent to which the related attributes are fulfilled or not.

3. Attractive

Fulfillment of the following attributes leads to an increase in satisfaction that is more than it should be because these attributes are difficult to identify because they are latent and initially not expected by the customer.

However, if these attributes are not met, it will not cause dissatisfaction with the customer.

4. Indifferent

The following attributes do not affect the level of satisfaction significantly, whether or not these attributes are present.

5. Reverse

The presence of attributes can cause dissatisfaction, but if these attributes are not present, it can increase satisfaction.

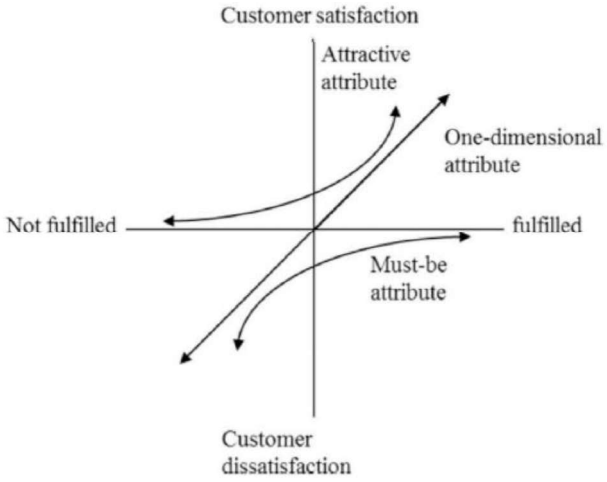

Figure 1. Kano Model Diagram (Lin, et al., 2017)

Methodology

Data Collection

The initial step taken in this research is data collection. This process is carried out to collect the primary data needed during the research, then the primary data is processed in order to obtain results that are in accordance with the initial objectives of this research. Primary data were obtained from respondents who were involved in various data collection series in this study.

In this study, the Kano model method is used to identify the features available in investment applications. From the identification of the available features, further analysis will be carried out. The data collection process for the Kano model was carried out through questionnaires distributed to respondents. The Kano model questionnaire that was distributed consisted of 3 parts, namely persona, functional question, and dysfunctional question in the form of semantic differentials. The questionnaire questions used a Likert scale of 5 to determine the respondent's perception of the features that became an aspect of the analysis. The attribute classification of the available features will be assessed based on the assessment of the functional question and dysfunctional question sections which will be mapped based on the kano model attribute classification matrix as shown in the Figure 2.

Service Attribute		Dysfunctional				
		1. like	2. must-be	3. neutral	4. live with	5. dislike
Functional	1. like	Q	A	A	A	O
	2. must-be	R	I	I	I	M
	3. neutral	R	I	I	I	M
	4. live with	R	I	I	I	M
	5. dislike	R	R	R	R	Q

Kano Categories: A (Attractive), O (One-Dimensional), M (Must-be), I (Indifferent), Q (Questionable) and R (Reverse)

Figure 2. Kano Model Attribute Classification Matrix

To determine the sample size that can represent the population, the formula proposed by Krejcie & Morgan (1970) is used to ensure the validity of the questionnaire and its suitability as a primary data source for the study. The calculation for the minimum sample size is as follows:

$$n = \frac{\frac{x\ p\ (1-p)}{e^2}}{1 + (\frac{x^2\ x\ p(1-0{,}5)}{e^2 N})}$$

$$96 = \frac{\frac{2{,}706^2\ x\ 0{,}5\ (1-0{,}5)}{0{,}1^2}}{1 + (\frac{2{,}706^2\ x\ 0{,}5(1-0{,}5)}{0{,}1^2(2.000.000)})}$$

Figure 3. Krejcie & Morgan Formula

Notes:

N = Total Population

P = Population Proportion

e = Margin of Error

x = Chi-square Score Table

n = Number of Sample

With a population size of 2,000,000 representing the number of application users and an error rate of 10%, based on the calculation above, it can be determined that the minimum sample size is 96 respondents. The Kano model questionnaire that has been distributed obtained a total of 104 respondents. Therefore, the minimum required number of responses for collecting Kano model data has been met.

Data Processing

The collected data is then processed according to the applicable data processing methods. Before the data can be processed, the primary data collected through the questionnaire will undergo validity and reliability testing to ensure its authenticity and credibility, enabling it to be further processed using the relevant methods.

Validity and Reliability Testing

To ensure the reliability and validity of the questionnaire data, two methods are used for testing: Cronbach's Alpha is employed to assess data reliability, while the Kaiser-Meyer Olkin (KMO) measure is utilized for evaluating data validity. The reliability test aims to examine the consistency of the questionnaire's indicators, ensuring that the questionnaire provides dependable measurements of the intended variables and maintains consistency within specific groups. On the other hand, the validity test is conducted to assess how accurately the measurement tool captures the desired concept. By employing both of these tests, it is possible to ensure that the questionnaire used is of high quality and can be relied upon as a reliable means of data collection (Hair et al., 2019). The following is the result of measuring the validity and reliability of the Kano model questionnaire that has been distributed.

Table 1. Keyser Meyer Olkin and Cronbach's Alpha

Indicator	Functional	Dysfunctional
KMO	0.906	0.946
Cronbach's Alpha	0.908	0.949

According to the guidelines provided by Field (2018), Hair et al. (2019), and Tavakol & Dennick (2011), a KMO value greater than 0.6 is considered acceptable for testing validity, and a Cronbach's Alpha value higher than 0.7 is considered acceptable for testing reliability. Based on the measurements conducted on the questionnaire data, it can be concluded that the data used in this study is statistically valid and reliable.

Results and Discussions

Based on the grouping of the results of the Kano model questionnaire, the features available in investment applications that are collected as a result of the functional and dysfunctional questions are classified based on the Kano model attribute classification table in Table 2.

Table 2. Application Features Classification

No	Feature	M	O	A	I	R	Category
1	Investment Information	11	45	10	37	0	O
2	Buying Power	19	35	19	30	1	O
3	Watchlist Stock & Mutual Fund	31	31	9	32	0	I
4	Explore	3	10	2	26	63	R
5	Index	25	30	10	38	0	I
6	Schedule	26	28	15	34	0	I
7	Latest Stock Analysis	28	24	17	34	0	I
8	Trending	23	36	8	35	1	O

9	Stock based on Category	26	27	17	33	0	I
10	Stock Category	27	30	7	38	1	I
11	IPO Offering	24	35	9	35	0	I
12	ETF	2	10	3	24	64	R
13	Top Performer Mutual Fund	25	26	11	41	0	I
14	Type of Mutual Fund	28	29	9	37	0	I
15	Investment Manager	24	30	12	37	0	I
16	Instrument	3	10	2	25	64	R
17	Portfolio	36	19	8	38	2	I
18	Order	21	32	20	30	0	O
19	History	24	34	13	32	0	O
20	Chat	29	21	11	40	3	I
21	News	21	19	15	42	3	I

Based on the results of data processing in table 2, there are 13 features that are classified as indifferent attributes. There are 5 features that are classified as one-dimensional attributes. And there are 3 features that are classified as reverse attributes. The reverse attribute can have a negative impact on user satisfaction. The 3 features that are classified as reverse attributes are Explore, ETFs, and Instruments. This research focuses on eliminating features that can have a negative impact on user satisfaction, so that these three features will not be

Conclusion

There are 3 features that are classified as Reverse: Explore, ETF and Instrument. Reverse has an effect that is inversely proportional to the level of satisfaction. Therefore, it would be better if the attributes classified as Reverse are not involved. By not involving those 3 features, it could increase user satisfaction.

Recommendations

This study is limited to identifying the user satisfaction based on available features without testing it on a backend system. The testing phase in subsequent research can be integrated with the backend system so that the result can be carried out more accurately.

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