Abstract: Digitally oriented companies with the primary business process of making digital products are greatly influenced by customer satisfaction. Customer satisfaction can be used as an indicator of the success of a product or service. If customer expectations are met, the satisfaction level will also be high. However, if their expectations are not met, this can have a fatal impact on the company. There are usually two different types of customers: internal and external. This study aims to measure inner customer satisfaction to ensure that the digital products being marketed have received support internally before hoping to get an excellent external response. As for digital product objects in this study, they are divided into several categories, namely wholesale, agriculture, fishery, and poultry, education, healthcare, productivity, utilities, e-commerce, and finance.

Keywords: Internal satisfaction, net promoter score, product digital.

1. INTRODUCTION

Digital companies have high capital requirements, high degrees of uncertainty, and short lead times for production. Agile product development, also known as iterative, incremental, and quick product development is necessary for them [31]. User feedback is essential to develop a digital product. Even in the sphere of business, it is well known that client feedback is crucial for offering information to develop goods and services, which, in turn, enables a firm to grow sales and market share [18]. Thus, agile product development works. Implementing customer feedback has a beneficial impact on how well a product performs. Digital products are intangible goods that exist in digital form. Understanding the comments also necessitates learning about client preferences in order to give tailored items and greater service to existing customers. This will result in increased sales and an enhancement of the brand’s reputation in order to attract new customers. Customer feedback aids in the constant improvement of performance. Specifically, it can motivate employees to exert greater effort [23].

The underlying idea that increased levels of customer satisfaction should have a beneficial influence on existing client retention is supported by a growing body of empirical research. It has been asserted that increasing client retention results in an increase in future revenues and a reduction in the cost of future customer contacts, such as those involving communications, sales, and service. As a direct result of this, net cash flows should improve. In addition, a higher customer retention rate indicates a more reliable client base, which in turn offers a relatively predictable source of future revenue as consumers return to make additional purchases. This type of revenue source is also less vulnerable to the effects of competition and environmental shocks [10].
The Net Promoter Score (NPS) is a metric that is produced from word-of-mouth probability ratings by subtracting the proportion of customers with low scores (0-6) from the proportion of customers with high scores (9-10). This metric is one of the most widely used loyalty measurement tools across the world [24]. NPS has been implemented by a significant number of businesses all around the world. A key reason for the widespread commercial adoption is that the NPS calculation is straightforward [13], and this makes the NPS very easy for managers and shareholders to understand and interpret. As a result of the widespread adoption of the net promoter metric by businesses of all sizes and in a variety of fields, it has developed into an industry-wide benchmarking instrument. Another reason we use NPS is that it focuses not on quality, satisfaction, or value but on how customer word of mouth — both positive and negative — can progress growth. This is a significant difference from traditional measures of customer satisfaction and quality [17].

It is common knowledge that there are always two types of clients in a company: internal customers, who are found in the processes that are farther along within the organization, and external customers, who are found in the marketplaces. The contentment of more recent clients is of more significance [19]. So far, within the company, NPS has always been measured only for external customers and has never been done for internal customers. It is also necessary to measure NPS to internal customers as the first users before digital products are marketed. As a digital company, they need to ensure that the digital products being marketed have received support internally before hoping to get a good response from externally.

It is commonly believed that one of the necessary and sufficient prerequisites for successfully pleasing ultimate external customers on the market is the fulfillment of the requirements of the organization’s internal customers [19]. Cooper [6] explains that the significance of user involvement in the product development process is highlighted by the roles that users play in the process. According to Chen and Wang [4], there are a lot of underlying reasons for this statement, such as how important it is to acknowledge both the needs of users and the needs of solution providers, whether that means taking into account both parties during the process of ideation or presenting feedback after the product has been launched. The enhancement of products is done in the hopes of achieving a better value in the market and a more substantial expansion of business [16].

The main objective of this internal customer satisfaction is for companies to quantitatively measure their satisfaction index using NPS so that there is a reference number for making improvements. Thus, this study aims to investigate internal customer satisfaction regarding the company’s digital products to understand internal customer satisfaction. The digital products measured in this research are divided into several categories based on their functions: Wholesale, Agriculture, Fishery and Poultry, Education, Healthcare, Productivity, Utilities, e-Commerce, and Finance. The result of this survey can be a benchmark for other industries to measure internal satisfaction.

2. LITERATURE REVIEW

A. Digital Product and Services

The term "digital product innovation" refers to significantly new (from the perspective of a particular community or market) products or services that are either embodied in information technology (IT) or enabled by IT. In other words, digital product innovations are enabled by or embodied in information technology [11]. Traditionally, product and service innovation refers to the effective development of new products and services and encompasses their conception, adoption, and execution [30]. There are two distinct meanings of digital product. In the context of digital product innovation, innovation implies that digital resources might play two different functions. On the one hand, they have the potential to function as operand resources that assist enterprises in the process of carrying out innovation-related activities [25]. The utilization of digital resources paves the way for dispersed invention and makes open innovation approaches easier to implement [11]. The use of digital tools enables geographically distributed digital product innovation teams to collaborate effectively [22] and integrate customers into the new product development process. A number of other studies have contributed to the empirical establishment that the utilization of an adequate set of information technology tools and applications can improve the efficacy of product development operations [25]. The use of digital resources enables businesses to shorten the time it takes to complete innovation cycles and provides new routes for bringing products and services to consumers [11]. On the other hand, digital resources can be included into products and services in the capacity of operational resources, resulting in the creation of products and services that are either totally or partially digital and feature either improved or new features [20].
B. Digital Product Development Process

When an entrepreneur starts a business, its ultimate goal is to carry it through to infinity with profits. The only way to achieve this is by continuous improvement and the conviction that “change is constant”. Customers have grown increasingly insatiable in their want for new, inventive, and better products as a result of technological advancement and growing competition; hence, the New Product Development process is crucial to firm survival or employee job retention. These are the requirements for the development of new products: (1) in order to maintain a competitive advantage in the face of constant new product launches by rival companies that offer items that are comparable to those offered by the company in question, (2) this will give continuous growth to the business, (3) necessity to be technologically current, (4) to maintain compatibility with the shifting demographics, (5) sometimes in order to better manage costs through the implementation of process adjustments or improvements [9].

Deepa and Geeta [9] said there are two routes that a company can take to acquire a product. One option is to acquire a license to purchase the product from another company, while another is to buy the entire company that possesses the product. Two, another alternative would be to create a brand-new product. There are a number of steps that need to be completed before a new product may be released onto the market. Several types were made, but the most popular and well-known one is the Booz, Allen, and Hamilton [15], shown below in Fig. 1.

![New Product Development Model](image)

**Figure 1** New Product Development Model

Deepa and Geeta [9] explains each stage: (1) new product strategy: the development process for new products should be in line with the goals and intended course of the business, (2) idea generation: should come up with ideas while considering numerous elements, like resource availability, cost, experience, and competitiveness, (3) screening and evaluation: includes a preliminary analysis to identify the concepts that are relevant and deserve more in-depth research, (4) business analysis: it is important to do an analysis of profits by looking at cost inputs and return on investment. The cost should be analyzed at every stage, beginning with the raw materials and continuing all the way through distribution., (5) design and development: at this stage, a product should be created and developed. (6) testing: numerous testing methods include sample-based surveys, for-profit experiments, and feedback gathering. The purpose of this research is to support this testing phase by conducting a satisfaction survey on internal customers, (7) commercialization: if testing is successful and has a positive outcome, then the product will be launched.

C. Customer Satisfaction

Oliver [26] stated that the response of fulfillment for the customer is called satisfaction. It is a judgment that a characteristic of a product or service, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment. This judgment can include levels of under- or over-fulfilling of the desired experience. If something is pleasurable, it means that achieving it results in either pleasure or a reduction in pain. In addition, satisfaction does not exclusively depend on having one’s wants satiated in order to be achieved. Under-fulfillment can be rewarding if it gives higher pleasure than one predicts in a given setting, and over-fulfillment can be satisfying,
if it provides additional unexpected pleasure. Both of these scenarios can be satisfying if they bring additional unexpected pleasure. Satisfying one's customers is often considered to be one of the most important strategic goals, which demands additional focus from each and every company [8]. This is due to the fact that practically all studies have found a strong correlation between satisfied customers and their likelihood to make future purchases [33], word-of-mouth praise and endorsements, commercial repute, as well as devoted customer base [7] resulting in an increase in profits and a decrease in expenses [5].

Customers complain when they are unhappy with a product or service they have purchased or received. This indicates that the absolute quantity and/or proportion of complaints can be indicative of dissatisfied customers. Companies must do everything possible to eradicate this discontent. The ultimate goal of a business is to eliminate all client complaints. If we were able to reduce customer complaints to zero, it would indicate that customer discontent had been removed. However, it is crucial to note that reducing unhappiness is not always synonymous with gaining satisfaction [19].

D. Measuring Customer Satisfaction

Since the 1960s, the company has viewed customer satisfaction as a metric that can be used to push the business in the direction of the consumer. First armed with a clipboard, then with phone banks, and last with email, researchers queried passionate consumers about items and services (Owen, 2018).

Measuring customer satisfaction transcends the nature of satisfied customers. Customer satisfaction surveys are essential for getting a competitive advantage and generating revenue. Firms need to keep an eye on customer satisfaction signals for products, services, and relationships if they want to succeed in the market over the long run [3].

E. Net Promoter Score

In 2003, Frederick F. Reichheld [27] stated that a single survey item concerning a customer's readiness to promote a product or service was a powerful predictor of sales and revenue growth [27]. The net promoter score is a word-of-mouth (WOM) metric determined by asking customers, "How probable is it that you would refer [company/product/service X] to a friend or colleague?" Frequently, this question was followed by the open-ended inquiry, "Why did you receive this score?" [18]. On an 11-point scale ranging from 0 to 10, customers indicate the likelihood of a referral. A score of 10 indicates a high likelihood to recommend, while a score of 0 suggests a low likelihood, and a score of 5 implies neutrality. Those with an index score of 9-10 are categorized as promoters, those with a score of 7-8 as passively satisfied, and those with a score of 0-6 as detractors. The NPS is determined by subtracting the proportion of promoters from the proportion of critics [24] NPS scores range from -100 (everyone is a detractor) to +100 (everyone is a promoter) [15]. An NPS above 0 is considered "good", above 50 is "excellent", and above 70 is considered "best in class". A negative score is generally associated with poor customer service and a lack of loyalty [29]. Customers that are truly enthusiastic about your brand and are willing to put their own reputations on the line in support of it do make a difference in the rate at which your business expands (Owen, 2018).

Reichheld [27] claimed one of the most significant benefits of using the net promoter score is that businesses only need to ask their consumers one question in order to manage customer loyalty and anticipate future growth. This question asks the customer how likely they are to refer the business to a friend or colleague. This results in a reduction in the amount of respondent fatigue as well as the resources spent on research [17]. The Net Promoter Score can be used as an external as well as an internal benchmark to measure social success [14]. As an external standard, NPS scores can be compared to those of comparable firms to determine market competitiveness. Internally, NPS metrics can be used to compare divisions within a company, and changes in ratings might indicate loyalty gains or losses over time [2].

3. METHODS

A. Methods

This survey uses a quantitative method as an ad hoc survey. In this case, an ad hoc survey is carried out to determine the level of satisfaction with a particular organization [28]. Surveys can provide a broad overview of a social phenomenon.
B. Sample

We need to ensure that we collect a sufficient number of responses to our questions in order to establish an NPS score that appropriately reflects the level of satisfaction felt by our internal customers. NPS measurements in this study will be carried out in a unit within an organization that has to market the company's “digital products”. This survey was conducted from 19 to 30 May 2022 and was distributed using the company’s survey platform. To gather the primary data, the population of this survey is all the employees as the internal customer that we have mentioned before, to use the digital product or the employees who sell the product. In this study, digital products are defined as the company's technological products. Since the user's perspective is the focal point, the intended audience is the digital product user. In this study, nonprobability sampling is employed as the sample method. Non-probability samples are those for which the likelihood of subject selection is uncertain, resulting in selection bias in the study [1].

The Slovin formula was used to compute the sample, and the margin of error was set at 5%, and the degree of confidence was set at 95%. The calculation yielded the result that the minimum number of respondents for this survey was 394. Nonetheless, the data was collected from 2,173 employees who participated in the survey.

C. Data Analysis

NPS is used globally to calculate the satisfaction and loyalty of customers. Following the NPS method, this survey uses only one ultimate question: "Would you recommend digital product x to colleagues or other units?". After we had collected all of the data, we then determined the NPS score by taking the percentage of promoters and subtracting the percentage of critics from that number. The formula mentioned before by Mecredy et al. [24] can be seen in Fig. 2.

\[
NPS(\%) = \frac{Promoters - Detractors}{Total\ number\ of\ ers}
\]

**Figure 2 NPS Formula**

After the result is calculated, it can be categorized into the categories that Shawn [29] mentioned in his paper before. There are three descriptions based on the score:

<table>
<thead>
<tr>
<th>NPS Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;0</td>
<td>Good</td>
</tr>
<tr>
<td>&gt;50</td>
<td>Excellent</td>
</tr>
<tr>
<td>&gt;70</td>
<td>Best in Class</td>
</tr>
</tbody>
</table>

The table above only shows the category of NPS values above 0 because if the NPS value is below 0, it means that something is wrong and must be corrected by the company immediately.

4. RESULTS

Online surveys were used to collect the data, which was then calculated using the NPS formula for each product category. The following results from calculating the company’s NPS of digital product categories can be seen in Table II. We sort the calculated digital product’s NPS value from the highest to the lowest. From the result in Table II, it can be concluded that the wholesale has the highest score for NPS, and the finance category has the lowest score of all the categories.
Table II NPS Score

<table>
<thead>
<tr>
<th>No.</th>
<th>Category</th>
<th>Detractor</th>
<th>Passive</th>
<th>Promoter</th>
<th>NPS Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wholesale</td>
<td>3.70%</td>
<td>11.11%</td>
<td>85.19%</td>
<td>81.48%</td>
<td>Best in class</td>
</tr>
<tr>
<td>2</td>
<td>Agriculture, Fishery, and Poultry</td>
<td>5.00%</td>
<td>25.00%</td>
<td>70.00%</td>
<td>65.00%</td>
<td>Excellent</td>
</tr>
<tr>
<td>3</td>
<td>Education</td>
<td>5.22%</td>
<td>31.30%</td>
<td>63.48%</td>
<td>58.26%</td>
<td>Excellent</td>
</tr>
<tr>
<td>4</td>
<td>Healthcare</td>
<td>7.98%</td>
<td>30.31%</td>
<td>60.36%</td>
<td>51.02%</td>
<td>Excellent</td>
</tr>
<tr>
<td>5</td>
<td>Productivity</td>
<td>9.34%</td>
<td>30.31%</td>
<td>60.36%</td>
<td>51.02%</td>
<td>Excellent</td>
</tr>
<tr>
<td>6</td>
<td>Utilities</td>
<td>11.91%</td>
<td>28.97%</td>
<td>59.13%</td>
<td>47.22%</td>
<td>Good</td>
</tr>
<tr>
<td>7</td>
<td>e-Commerce</td>
<td>11.76%</td>
<td>30.15%</td>
<td>58.09%</td>
<td>46.32%</td>
<td>Good</td>
</tr>
<tr>
<td>8</td>
<td>Finance</td>
<td>14.54%</td>
<td>29.20%</td>
<td>56.26%</td>
<td>41.71%</td>
<td>Good</td>
</tr>
</tbody>
</table>

5. DISCUSSION

As it is well known that the purpose of this research is to provide a case study material for comparison of digital companies that produce digital products, in the following, we provide an explanation of each digital category whose values have been displayed in the previous section.

1. Wholesale: the digital product category with the highest NPS value, 81.48%. The category is the best in class, based on Shawn [29]. This application is a service for wholesale and prospective customers. It delivers an excellent digital experience in exploring solutions, creating new service requests, creating trouble tickets, and monitoring your services with quicker responses and continuous updates. It is utilized by the organization's wholesale service division, which administers wholesale segment business portfolio activities, including wholesale customers and digital business. Data and internet, network service, cloud and data center, manage service, signaling, and voice are among their products and services.

2. Agriculture, Fishery, and Poultry: the second-highest NPS score, 65%. This application utilizes technology to increase productivity and efficiency for implementers of agriculture, fisheries, and poultry in Indonesia.

3. Education: information technology influences every element of human activity, including education, therefore its influence on education and training is unavoidable. Using information technology, students can select about their studies, time, place, and resources. Students can share their ideas and experiences and seek assistance from other students and professors in a digital setting. The digital classroom includes all sorts of electronic learning and teaching aids. Web-based learning, computer-based learning, virtual classroom opportunities, and digital collaboration are examples of digital classroom applications and procedures. Internet, intranet/extranet, audio or video tape, satellite television, and CD-ROM are all used to distribute content. Includes text, image, animation, streaming video, and audio media; can be self-paced or directed by an instructor. CBT (Computer-Based Training), IBT (Internet-Based Training), and WBT (Web-Based Training) are three distinct types of the digital classroom [21]. These applications even include employee certification. Based on its function, it gained the 3rd place highest of the NPS score category, 58.26%.

4. Healthcare: digital health has become a real buzzword in recent discussions about transforming the healthcare system. It was designed in order to aid relevant government entities in tracking and preventing the spread of the Coronavirus Disease (COVID-19). This program is dependent on the engagement of the community to give location data when traveling in order to carry out contact history tracing with COVID-19 sufferers. The users of this program will also receive notifications if they are in a crowd or a red zone, which are defined as regions or sub-districts where it has been reported that there are people infected with COVID-19 positive or where there are patients under monitoring. Their application has helped the government in the health sector a lot. The NPS survey score results of 57.06% were interpreted as excellent.

5. Productivity: industries continue to face pressures to improve productivity. The creation of flexibility and working-at-home policies in companies creates new problems in monitoring employee productivity. Going
digital is a solution that can measure productivity improvement. This application was designed to record every task the employees did in a day so that the superior could monitor them. Their customer satisfaction resulted in an excellent stage with a score is 51.02%.

6. Utility: apps that help their users in their daily life. The fields can vary, and the degrees of assistance are also different. Each application they make has its characteristics. Its NPS score achieved 47.22% and was labeled a good digital product.

7. E-Commerce: This digital product has a 46.32% as its score and is considered as good.

8. Finance: the term “financial technology” or “FinTech” refers to the revolutionary changes that have been brought about throughout the whole financial industry as a result of disruptive developments brought about by financial technologies. [12]. FinTech encompasses a wide range of applications, including cryptocurrencies, mobile payment systems, marketplace finance, robot advisers, smart contracts, and even decentralized autonomous organizations. FinTech is driven by start-ups and companies that specialize in technology [32], as well as these products. Even though it got to the last place, this digital product still got into a good stage based on its 71.71% NPS score.

6. CONCLUSION

NPS has quickly become a tool that we use across multiple layers of our organization as an excellent indicator to determine the position of satisfaction from an organization's performance. The calculation shows that the overall NPS score on digital products is 57.52%, categorized as excellent. From all the categories, we can also know that their best digital product is wholesale, and their customer’s least favorite is finance apps. It is known that wholesale has many enthusiasts because it is an application that supports the company’s main business process, and so internal customers find the app very useful. Meanwhile, based on observations for financial products, it is known that there are already many fintech applications in the market, so the competition is more intense, which may lead to higher customer expectations for this type of application. This measurement will be carried out continuously to motivate the organization to improve its digital products continuously and can be the benchmark for other industries to measure internal satisfaction.

7. LIMITATION

The following is a description of the restrictions imposed on this study so that it might offer suggestions for what research topics should be prioritized for the foreseeable future.

1. The limitation of this research is that the measurement is only carried out in one company. Because the measurement of customer loyalty in this study was carried out internally, in the future, it is possible that this measurement could be carried out externally to add insight to the units concerned regarding their digital products.

2. In this research, we make use of an ad hoc survey, which is a survey that is carried out for a one-off purpose. In this particular instance, we are interested in determining the amount of satisfaction that internal customers of the business have regarding digital products. However, soon, it might become a longitudinal study, a survey repeated on the same population at different points to show the different results as progress [28]. This satisfaction measurement will continue to be repeated until the value from the calculation follows the company’s target before the product is launched.

8. REFERENCES


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