

## Digital Payment Application as a Cashless Utilization and its Benefit for the Community in Denpasar City

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**Abstract**—The rapid development of technology, especially in the payment sector in Financial Technology (FinTech), has made transactions easier. Bank Indonesia and the government now support transactions with non-cash payments through the National Non-Cash Movement (Gerakan Nasional Non-Tunai/GNNT). GoPay as a digital e-Wallet payment has contributed to increasing the number of GoPay users in Indonesia. On the other hand, despite having obtained the highest Indonesia Smart City Index in the big city category, public internet access related to financial facilities in Denpasar, Bali Island, Indonesia, remains low. To fully develop itself as a Smart City, Denpasar needs to be supported by an effective and efficient payment system and financial transactions. This study aims to identify the use of GoPay by the people of Denpasar City and their socio-economic characteristics. The research methodology is a survey of 400 respondents in all sub-districts. The samples were determined using the Slovin formula with a confidence level of 90% in each sub-district. The criteria for respondents in this study were millennials aged from 20 to 40-year-olds born around the year 1980-2000. The results showed that GoPay was more widely used among students. Meanwhile, the use of GoPay in Denpasar has not shown a large number of users, as there were only 205 respondents who used GoPay out of the 400 respondents. Nevertheless, this condition shows that the use of GoPay has become an alternative payment.

**Keywords**—Digital payment; cashless; Gopay; application; smart city.

Manuscript received 25 Jul. 2020; revised 25 Dec. 2020; accepted 16 Feb. 2021. Date of publication 31 Aug. 2022.  
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### I. INTRODUCTION

Denpasar City is one of the embodied cities of Smart City in Indonesia. Denpasar Smart City was developed in 2017 along with the establishment of the Damamaya Denpasar Cyber Monitor building [1]. The implementation of Smart City in Denpasar has focused on several supporting elements, such as economy, tourism, and culture. Denpasar City became a large city with the highest achievement in the Indonesian Smart Cities Index (Indeks Kota Cerdas Indonesia/IKCI) in 2018, with a value of 61.70 [2]. On top of that, Denpasar was also named the Best City Smart Economy in the Big City category in 2019. This achievement was obtained due to the role of Information and Communication Technology (ICT) in supporting the implementation of smart cities. In addition, it was supported by the potential of its human resources, natural resources, and good urban planning when several cases in other cities still experienced a weak human resource component [3].

Technology has become a human need that cannot be ruled out [4]. The existence of technology always adapts to human needs, making it easier to achieve. Smartphones are no exception. The development of smartphones has increased in many features, both in software and hardware used. The functions of smartphones today are not only to support communication, such as sending messages, making voice calls, searching the web, or interacting through social media, but also to facilitate payment transactions [5].

Payment transactions at this time come not only in the form of physical money; they have evolved even further [6]. The non-cash payment transactions no longer require a face-to-face interaction between the seller and the buyer. Digital payment impacts our daily lives and starts offering interesting and profitable new services [7]. In making payment transactions via smartphones connected to e-Wallet, people would no longer have to carry a large amount of cash. Digital payments are considered more convenient, safe, and practical [8]. It prevents people from losing money and getting affected by the spread of bacteria and viruses through cash. It could also strongly encourage the

implementation of Smart City in several major cities in Indonesia [9].

Even so, the application of non-cash transactions needs to be backed by the availability of adequate technology, complete infrastructure, and ease of internet network [10]. The mentioned infrastructure could be of good use for creating an integrated city with interconnected sectors such as energy, economy, and demographics [11]. On the other hand, the implementation of ICT in components of the city will provide the ability to perform a faster reaction to changes and overcome problems [12]. Therefore, Bank Indonesia and Government have supported the application of non-cash in occupying the National Non-Cash Movement (Gerakan Nasional Non-Tunai/GNNT). The GNNT was officially announced on August 14, 2014, to encourage using non-cash payment instruments to create a less-cash society [13].

One of the Financial Technology (FinTech) products that are widely used in payment transactions is the e-Wallet. The presence of e-Wallet products in the community is considered advantageous in practical terms [14]. Many e-Wallet applications are offered to facilitate the daily needs of smartphone users. One e-Wallet product with the most users in Indonesia is GoPay [15]. For this reason, the use of GoPay by the people of Denpasar City based on the socio-economic characteristics of its users needs to be identified.

## II. MATERIAL AND METHOD

### A. Information and Communication Technology

Information technology refers to all technology used to create, store, change and use information. It is a science in the computer-based information field, and its development tends to be very rapid [16]. The existence of information technology is now close to the lives of many people [17]. For instance, almost all jobs today require information technology to facilitate the job. Conditions in society begin to glance at the presence of technology and information that has an opportunity for the future. This new development further raises a new adaptation process for each individual or organization to prevail.

### B. Financial Technology

Financial Technology, or FinTech, is a hybrid of technology in financial services that transforms cash to non-cash on a technology basis [18]. FinTech in Indonesia is experiencing developments yearly, which tends to increase. It has many benefits in certain aspects and dimensions for a country's economy. The role of FinTech in Indonesia is as follows [19]:

- Encouraging the equal distribution of the level of welfare,
- Improving the national financial inclusion,
- Encouraging the level of MSME export capability,
- Helps in meeting the needs of domestic financing,
- Encouraging the distribution of national financing.

### C. Cashless

The National Non-Cash Movement (GNNT) is a nationwide project that Bank Indonesia had planned for a long while. As the initiator, BI encourages the community to

use non-cash payment instruments in transactions (Less-Cash Society / LCS). The socialization and campaign for using electronic payment based on card technology have been a policy of Bank Indonesia since 2006. This policy was initially made to support the socialization of the redenomination of the IDR. Still, it was later developed into the GNNT mentioned above, officially launched on August 14, 2014 [13]. This movement aims to encourage the Indonesian people to use digital-based payment transactions and minimize using banknotes and coins. The increasing trend in using non-cash instruments is also a driving factor behind the Less-Cash Society movement. The optimal use of non-cash payment instruments requires the involvement of the community, entrepreneurs/traders, banks, and market players [20].

### D. GoPay

GoPay is one of the leading FinTech brands in Indonesia, an e-Wallet service available on the Gojek platform [21]. Gojek itself is a company that provides online-based transportation services. To make the transactions more convenient, the company introduced a non-cash payment system based on GoPay, which is a concept of mobile payment or what is also referred to as e-Wallet. An e-Wallet is a tool that can be used in online transactions using a technology called Electronic Commerce Modeling Language (ECML).

Gojek provides its users with the ability to continue topping up balances, and this convenience can be done by filling GoPay balances through outlets, malls, Alfamart, or Gojek drivers. The top-up system in GoPay balance has also been supplemented by several major banks in Indonesia, such as Bank BCA, Mandiri, BRI, BNI, Bank Permata, and CIMB Niaga, and charging balances be done by transferring through ATM Bersama via Prima.

Additionally, the payment system for non-cash transactions continues to be developed by Gojek by providing payment via GoPay for various transactions in small and medium-sized enterprises (SMEs), coffee shops, tourist attractions, shopping venues, and traditional markets. In certain places, QR codes are also provided by sellers who regulate with Gojek so that consumers can easily scan them to make a payment. In addition to efficiency in their use, the benefits obtained by payment through GoPay are very profitable, namely price discounts or cashback.

### E. Site Selection

The City of Denpasar consists of four sub-districts: North Denpasar, East Denpasar, South Denpasar, and West Denpasar. All sub-districts were selected as the research locations.

### F. Data Collection

The method used for this research is a survey, executed through an observation involving a symptom. The researchers conducted research through documentation, interviews, and distribution questionnaires for the data collection. Samples were selected in the sub-districts that had been determined and were later taken to help answer the research objectives. The data needed for this study include the General Conditions of the Community (Age, Gender,

Education Status, Type of Work, Total Income) and Community Utilization (Time of Use, Cash / Non-Cash Priority, Use Interest, Interest of Choice).

The sampling in this research was done using the purposive sampling technique. The subjects were a total of 400 respondents born in the millennial generation and were selected from all sub-districts in Denpasar City. The millennial generation was chosen due to their vast opportunity to create innovation in the digital ecosystem [22]. There was a demographic bonus where millennials are in the age range of 20 to 40-year-olds in 2020 [23]. However, the characteristics of respondents were not limited by the level of family economic background.

### III. RESULTS AND DISCUSSION

#### A. Characteristics of Respondent

The socio-economic characteristics of a community measure how much it plays a role in the development process of a certain region. Socio-economic characteristics are generally different, meaning that the said characteristics of the people in each region are different or heterogeneous. These conditions can be used as a benchmark in seeing the community's distribution in the development process. Identifying Denpasar's socio-economic characteristics allows us to determine which group of individuals is more likely to utilize the non-cash payment application called GoPay based on their background.

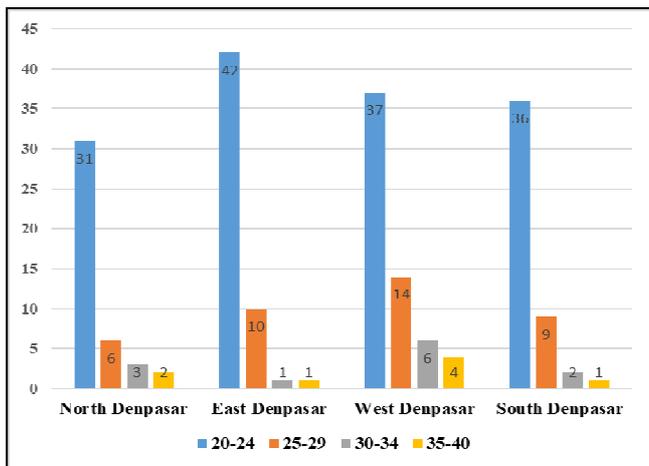


Fig. 1 GoPay users by age

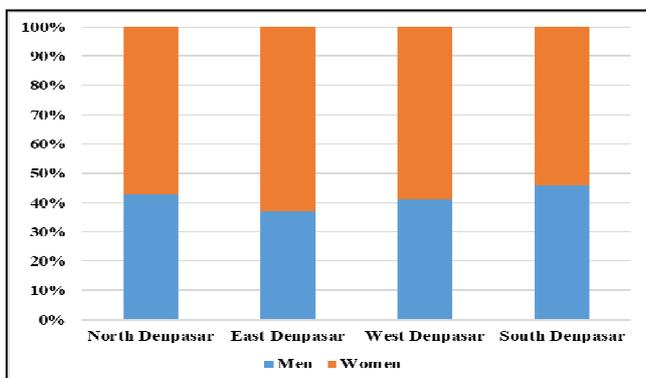


Fig. 2 Percentage of GoPay users based on gender

Based on the data that has been collected in the field involving 400 respondents in 4 sub-districts, 205 respondents turn out to be GoPay users, while 195 others are not. According to the gender-based data, it is shown that women dominate the number of GoPay users in Denpasar. This means that the penetration rate in women is more dominant in GoPay, which may be due to their many needs contradicted by the lower mobilization compared to men. It could also mean that men are less interested in shopping than women [24]. The age-based data shows that GoPay users in Denpasar City are dominated by people aged between 20 and 24. This result also indicates that the higher the age, the fewer people will use GoPay in payment transactions. Based on their education level, most of the GoPay users in Denpasar City have S1/S2/S3 and high school/equivalent educational backgrounds. Meanwhile, in the North Denpasar, East Denpasar, and South Denpasar sub-district, it is shown that GoPay users are still dominated by the high school/equivalent level of education.

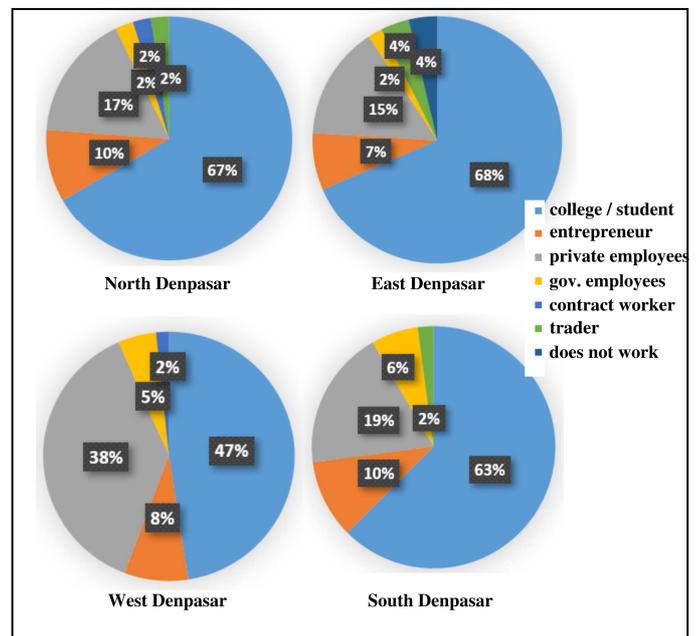


Fig. 3 Percentage of GoPay users based on work

Based on their occupation, high school and college students dominate the majority of GoPay users in four sub-districts with a very significant percentage compared to other jobs, followed by private employees and entrepreneurs. This result is possible because many students use GoPay as alternative money storage if it needs to be used at any time, such as to pay for food and transportation taxis to save money. After all, there are discounts and promos issued.

As students become the dominating users of GoPay, this significantly affects the data diagram that displays the income per month. 38% of the respondents in North Denpasar have a personal income that is less than 1,000,000 rupiahs, while 29% of them have an income with a range between 1,000,000 to 3,000,000 IDR. Meanwhile, in East Denpasar, the most significant contribution was 37%, with an income between 1,000,000 to 3,000,000 IDR, as 31% possess less than 1,000,000 IDR. In West Denpasar, 36% have the income ratio of 1,000,000 to 3,000,000 IDR with a

percentage of 36% and 31% for the income of 3,000,000 to 5,000,000 IDR. South Denpasar, the ones with an income below 1,000,000 IDR, holds a percentage of 40%, and the ones having 1,000,000 to 3,000,000 per month are at 29%. All these data infer that the income in each sub-district is mostly less than 3,000,000 IDR because the respondent's backgrounds are still students.

In terms of the average monthly expenditure, people with expenditures within the range of 1 to 3 million rupiahs dominate with a percentage of 41% in the sub-district of North Denpasar, 59% in the sub-district of East Denpasar, 56% in the sub-district of West Denpasar, and 50% in the sub-district of South Denpasar. These numbers are comparable since high school and college students' expenses are not too large and limited only to personal expenses instead of family expenses.

### B. Utilization of GoPay Application

Based on the result of field research, it can be deduced that 400 respondents in the city of Denpasar do use smartphones and have access to the internet. It shows that millennials fancy the use of smartphones, and Millennials depend on using technology on smartphones to facilitate communication between people [25]. The data on smartphone ownership has not been able to be considered to determine the number of GoPay users because a device's function is different for each person and is adjusted to their needs. However, out of the total number of smartphone owners, the percentage of respondents who are unaware of the existence of an e-Wallet or digital wallet is 8% in West Denpasar and North Denpasar, and 17% in East Denpasar and South Denpasar. Therefore, with a percentage of 85.25%, it can be concluded that a significant number of respondents are already familiar with e-Wallets in Denpasar City.

situations and conditions. However, despite not being as frequently used as they do with cash, e-Wallet is considered the most efficient payment method by the community in Denpasar.

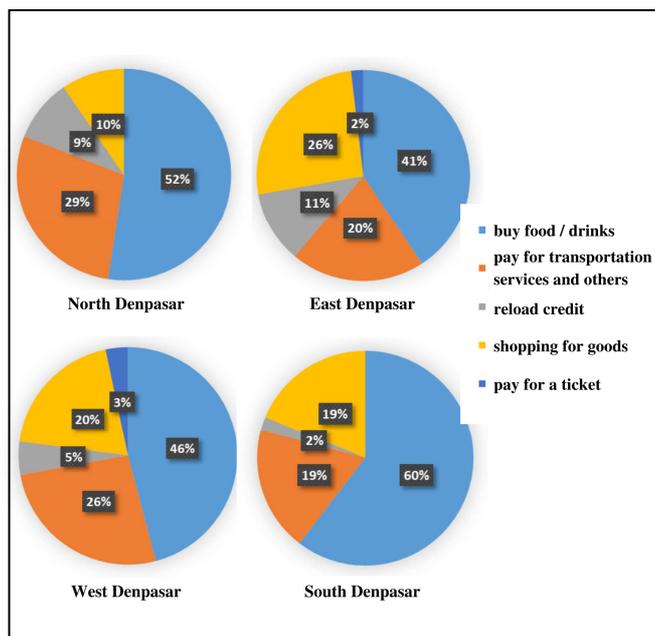


Fig. 5 Purchases made with GoPay

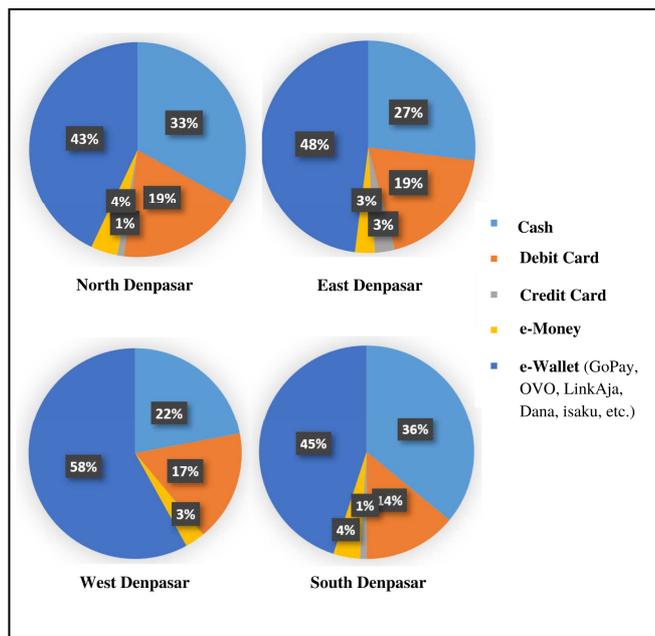


Fig. 6 The most efficient payment method according to the community in Denpasar City

The people of Denpasar, in general, still use cash as a means of payment. However, the payment method that is perceived to be the most efficient by the people of Denpasar City is e-Wallet. The percentages are 43%, 48%, 58%, and 45%, respectively, for the sub-district of North Denpasar, East Denpasar, West Denpasar, and South Denpasar. This result shows that some people have already been aware of the presence of e-Wallet as an efficient non-cash payment method compared to others.

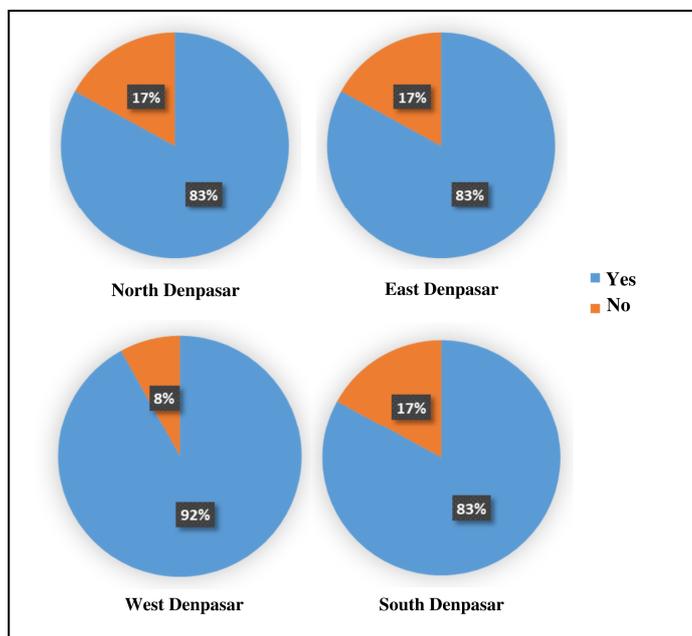


Fig. 4 Percentage who know about e-wallet

Cash is still proven to be the payment method that is most frequently used for transaction activities in Denpasar. The use of cash in transaction payment is still the preferred choice of the public as it can be applied anywhere in all

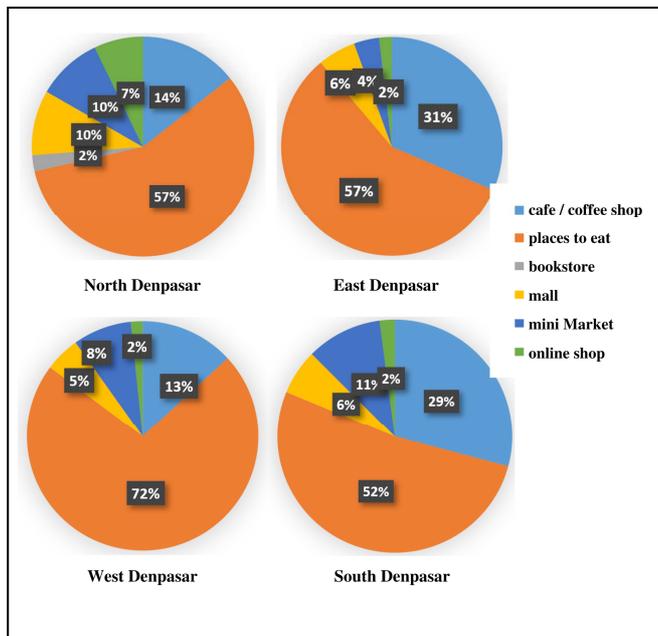


Fig. 7 Location selection interest for using GoPay

The basic reason for using GoPay in Denpasar is based on the statement that using GoPay is more practical and not complicated. Another reason chosen is that GoPay has many discounts and offers in its utilization. Comviva states that to create an e-Wallet product that is attractive to consumers and merchants, developers must offer value-added services such as gifts, coupons, and targeted advertisements [26]. The most significant use of GoPay in each sub-district is for the purchases of food or drinks. People are satisfied and familiar with buying food online [27]. The high percentage of people who use GoPay to purchase food/drinks is also in line with the community's interest in choosing locations using GoPay. The percentage is dominated by the interest in using GoPay in areas that offer many culinary spots. Simultaneously, the location selection with a high percentage also occurs in cafes/coffee shop areas.

The use of GoPay in Denpasar City is dominated by users who have been using the payment method for more than 12 months. This result shows that the community needs GoPay's existence as an efficient means of non-cash payment that can retain its consumers. Furthermore, the intensity of the people of Denpasar City in using GoPay is dominated by less than 15 minutes a week, meaning the GoPay payments have not been fully utilized for each payment transaction. GoPay utilization reaches its highest percentage during the day around 12 to 6 pm, 57% in North Denpasar District, 63% in East Denpasar District, while West Denpasar District and South Denpasar District come with a percentage of 65% each. This result may be influenced by people's Gofood purchases at lunchtime and online transportation orders to return home.

Concerning the nominal number of GoPay top-up balances in one transaction, the most significant tendency is the amount ranging from 50,000 to 99,000 rupiahs. The people of Denpasar prefer to make payments with a relatively small nominal of less than 50 thousand rupiahs when they use GoPay.

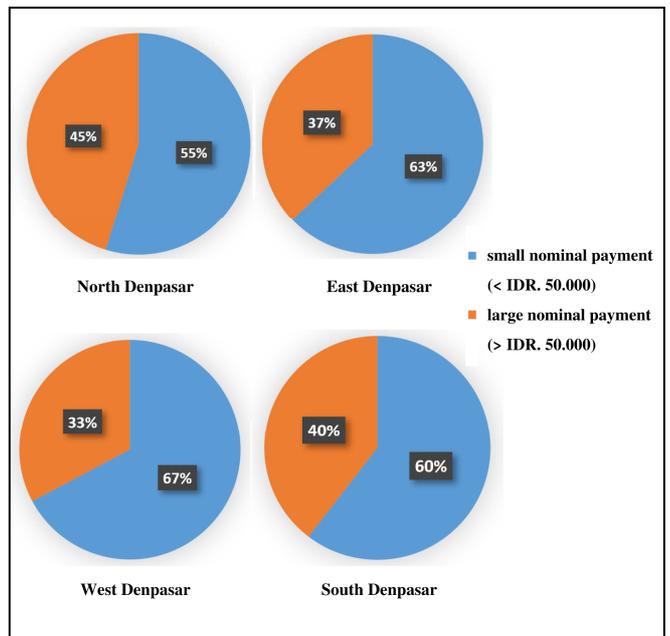


Fig. 8 Interest-related nominal payments

The small payment amount is in line with the nominal amount of the top-up, with the top-up intensity being under five times at most. The average GoPay expenditure in the past month in Denpasar City is dominated by the expenditure of 100,000 to 499,000 rupiahs. Furthermore, the frequency of purchases of the people in Denpasar City using GoPay in the last three months is mostly within the range of 3 to 10 purchases.

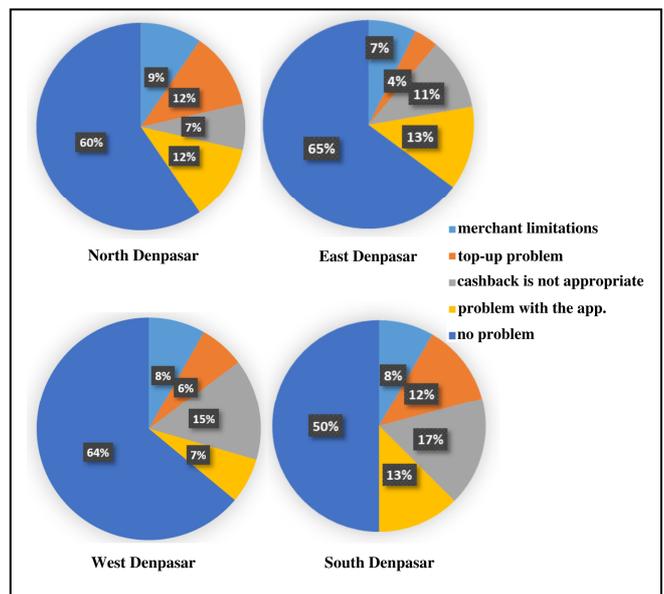


Fig. 9 Constraints in the utilization of GoPay

Constraints about using GoPay are felt by some respondents in Denpasar City, while others agree that GoPay has no problems. Another constraint is that the cashback does not correspond with the customers' wants. They find the application problematic, and problems arise from top-up and the merchants' limitations. The availability of merchants who have allowed transactions via GoPay around the respondent's residence in the city of Denpasar is considered

sufficient. The availability of merchants in the vicinity of the respondent's residence is dominated by more than five merchants, with a percentage of 39%.

Non-cash payments can positively impact, especially during the COVID-19 outbreak. The benefits of using the cashless payment method are: more effective and efficient; shortening distance and time; many rewards are given to avoid long queues; easy to control incoming and outgoing money; avoiding counterfeit money; and opportunities in transactions in the marketplace/e-commerce are wider.

The role of non-cash payments can have an enormous impact on the region, especially considering the current conditions when the world is supposed to stand together against COVID-19. The effect caused by COVID-19 makes the economy in a country experience instability. As for the appeal to switch to cashless during the COVID-19 pandemic, there is an up to 30% increase in GoPay transactions in the GoJek application [28]. The increased use of GoPay balance among users during the pandemic has increased four times, GoPay transactions on investment platforms two times, game voucher purchases three times, transactions on health platforms Halodoc 2 times, and the donations channeled using GoPay 2 times, with a total number of 45 billion rupiahs [29].

The GoPay utilization is predicted to have growth prospects and opportunities. Due to the pandemic, using cash in payment transactions is now considered risky since cash has a physical surface that can spread the virus from one person to another. The use of debit cards, credit cards, and e-money, as well as ATMs, also hold the potential to spread the virus contained in the buttons. Thus, the use of e-Wallet should be prioritized when making payment transactions.

#### IV. CONCLUSION

Using smart city applications could increase the effectiveness of government service provision for the community and help increase comfort and safety [30]. On the other hand, the role of the private sector in providing applications, or in this case the non-cash payments via GoPay, is also important.

As one of the most popular e-Wallets in Indonesia, GoPay has many of its enthusiasts that use the application as a non-cash means of payment. Data shows that the Denpasar City community already knows what e-Wallet is and how to use it. GoPay is more widely used among students and college students within the age range of 20-24. The users of GoPay in Denpasar are dominated by people with a monthly expenditure of 1,000,000 to 3,000,000 rupiahs. GoPay is determined to give more benefits than cash payments since it is more practical, safe, fast, and convenient.

The use of cash among the people of Denpasar City in daily transactions still endures. However, most people have considered using an e-Wallet the most efficient payment method. The significant use of GoPay in each sub-district is more for purchases of food or drinks. The use of GoPay in Denpasar City is dominated by users with more than 12 months of usage. The intensity of the people of Denpasar City using GoPay is less than 15 minutes a week. As for payments with a nominal value of fewer than 50,000 rupiahs, the people of Denpasar prefer to use GoPay.

GoPay, as one of the e-Wallet products, has good prospects for future payments. The use of GoPay is reckoned to have many advantages in terms of time efficiency, power efficiency, and distance efficiency. The user is not required to have a face-to-face transaction with the sellers; it can be done only through a smartphone. GoPay supports offline transactions and online transactions such as marketplaces and e-commerce. Thus, the presence of GoPay can be utilized to encourage SMEs through an added variety of payment methods that will increase the number of consumers.

GoPay during the COVID-19 pandemic is also considered safer in transactions as the risk of spreading viruses and bacteria in cash can be minimized. The use of cash in payment transactions is considered unsafe because cash has a surface that can spread the virus from one person to another. In addition, the use of cash during the COVID-19 pandemic is no longer supported in some stores in hopes of maintaining safety and shared comfort. The use of GoPay as an e-Wallet in transactions is a wise decision to make during the COVID-19 pandemic.

#### ACKNOWLEDGMENT

This research was funded by the RTA (Rekognisi Tugas Akhir) 2020 Grant, Universitas Gadjah Mada, to which we are very grateful.

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