Architecture Design of Agriculture Marketing Mobile Apps During Pandemic Era

Yudhistya Ayu Kusumawati, Miranti Nurul Huda, Satrya Dirgantara, Obbyta Adzandy Carvenoriega

Visual Communication Design Department, School of Design, Bina Nusantara University, Jakarta, Indonesia 11480

ykusumawati@binus.edu

Abstract. The increasing positive cases of Covid-19 have quite significant impact on the Indonesia economy especially for Small and Medium Enterprises (SME’s). The Indonesian government is preparing a way to live side by side with the COVID-19 outbreak through less contact activity (LCA). Regarding the thematic efforts for economic recovery after the implementation of the new normal protocol, the adaptation process in people's economic activities known as the Less Contact Economy (LCE) which can be interpreted as economic activity without contact, but by using digital communication equipment. This model of economic activity, which is strongly influenced by current technological trends, will certainly be the future of the world economy, as part of the 4.0 industrial revolution. For example: mobile apps based on e-commerce. Based on design thinking process, this paper proposes a practical interface design for mobile apps design. In this research, the researcher designing Graphical User Interface (GUI) for mobile apps based on e-commerce “Tuku Sayur” to marketing and distribute agriculture products during pandemic. GUI is one of the most important issues in development of mobile apps. The major problem in the interface design mostly caused by unique feature of mobile device. This is quite challenging for designer how to present clear user interface on a limited screen without overload. The Semantic Differential method was used to understand the impression captured by respondents on the GUI design of Tuku Sayur application. This research is very important to help farmers to marketing and distributing agriculture products through mobile apps. Hopefully, this research can be used as a reference to published mobile apps to support less contact economy in order to makes the economy relatively productive during the pandemic.

1. Introduction

Covid-19 which is known as the Novel Corona Virus emerged in Wuhan, China, has spread all over the world within a short period and has become a global disaster. WHO (World Health Organization) declared Covid-19 as a global pandemic. It is affecting 213 countries and territories around the world and 2 international conveyances. In August 2020, the pandemic has reached up to 22,875,061 cases, 797,274 deaths, and 15,527,422 recovered [1]. Indonesia first reported two positive cases on March 2, 2020, and the positive case continued to increase. In Indonesia, the Covid-19 has spread to all the country’s 34 provinces. According to the Health Ministry announced 2,266 new confirmed cases bring the total number of infections nationwide to 147,211. More than 72 people have died, bringing the death toll to 6,418 [2].
The increased case of Covid-19 has affected the world economy including Indonesia. It has changed the world dynamic social, political, and economic relations. Most countries leaders must control their social interaction through lockdown, physical distancing, social distancing, and restricted movement. They also controlled territorial borders which have affected their own domestic and international economic activities. This pandemic affects transportation, tourism, trade, health, and other sectors. The lockdown policy is taken by several countries to prevent further spread of Covid-19 so that economic activities are hindered and put pressure on the world’s economic growth in the future including Indonesia’s economic growth [3].

In Indonesia, pandemic affected so many sectors, especially the economic sector. The limitation of society activity affected business activity. Based on BPS (Badan Pusat Statistik) shows that the economic growth -5.32 percent in quartal II 2020. Before in quartal I, economic growth in Indonesia around 2.97 percent [4]. Covid-19 have bad implication for the world economy and Indonesia along this year, as it occurs along with declining commodity prices and financial market volatility. The government also conducts re-focusing budgeting which is expected to support the real sector. According to the Ministry of Finance Indonesia, the current government’s top priorities support for the healthcare sector, strengthening social safety nets, and salvage business sectors. In Indonesia, Covid-19 already has significant implications for the tourism sector, lowering export performance and economic growth performance.

In Indonesia, the Covid-19 has spread to all the country’s 34 provinces. In East Java Province, Malang Regency is heavily affected by the outbreak of the coronavirus because business in the area is mostly contributed by the trade and tourism sector. Especially in the tourism sector, the business will develop if there are crowds of people, such as hotels. Malang is one of the largest cities in East Java, Indonesia. People know Malang is an education city. Besides, Malang has a huge potential such us in the tourism sector, natural resources which is worth to be developed. In Malang regency, the agriculture and plantation sectors are the mainstays as well as the livelihoods of the majority population. The topography of the Malang Regency in the form of mountains and hills makes it a cool area and is much sought after as a residence and resting place. Since the colonial era until now, Malang is a favorite place to live. On the other hand, these natural factors also make Malang Regency people work in the agricultural sector.

According to the Head of the Department of Labour in Malang Regency, more than 2,359 employees are laid off and 247 employees are fired [5]. Several efforts have been taken by the government to attempt to maintain the conduciveness of industry in the region. The government through the Department of Labour provides direct cash assistance to the community. The agriculture and plantation industry is an important sector that able to contribute to the country's economy. The existence of the agriculture and plantation sector in Malang holds enormous potential. In the middle of a pandemic, the agricultural sector is still being helped because its products are much needed by the community. They cannot resist consuming agricultural products, especially products of staple goods.

The handling the Covid-19 in the region must be simultaneous. Malang City Government emphasizes not only the health aspect but also maintain the economy. So that when the PSBB was implemented, his party invited stakeholders, such as business actors, to provide appropriate inputs regarding the implementation of these provisions [6]. Less Contact Economy (LCE) can be interpreted as economic activity without contact or face-to-face contact, but by using digital communication equipment or what we often refer to as online activities. So, digital communication has minimal direct contact, which will shape the digital economy ecosystem. This is the spirit of the concept of less contact economy, which makes the economy relatively productive during the pandemic. In the future, this model of economic activity, which is strongly influenced by current technological trends, will certainly be the future of the world economy, as part of the 4.0 industrial revolution. For example, online shopping.

Related to efforts to increase agriculture products, it requires a good marketing strategy from superior products. The development of marketing is supported by technological developments such as internet networks that are increasingly easily accessed. One of them is through mobile apps.
Promotion is needed so that people are aware of the potential of agriculture products in this regency. For this reason, a media that is interesting for the public to be more aware of the potential of agriculture products is needed. One of them is through the use of smartphone applications that can be accessed by everyone. There are two main choices of a user interface when developing mobile apps, with a third option which is relevant for most practical cases. There is a web-based user interface (WUI), Graphical User Interface (GUI), and Terminal server-based solution [7].

In this study, researchers tried to design a Graphical User Interface (GUI) for mobile applications that can be used as a reference for the mobile apps developer. Why was the application design for the mobile phone chosen as the main project? The usage of mobile technologies has become a trend and also mandatory for today’s life. Various applications are being developed under different categories such as entertainment, lifestyle, etc. In the digital era as it is today, almost every level of society uses smartphones or smartphones where the use of smartphones is inseparable from internet use. The smartphone is a communication media that almost every level of society has and accesses it [8].

With the development of technology today, mobile applications are no longer a new thing in our society. The UI applied by each application is also different, ranging from very difficult to understand to very easy. This UI has an impact on the user experience. If the interface used is too complicated, the user will get bored easily and no longer use the application. Therefore, an application needs to have a working system or a GUI that is simple and easy to operate. It can be said that a successful application depends on the user interface because this UI acts as a liaison between the system in the application and its users [9]. All applications have absolute ease of understanding the UI, especially if the application is intended for a certain age, for example, toddlers or older. Furthermore, the design of mobile app requires a careful analysis on themethodologies to be adopted and the available tools especially ifthe aim is to build a successful and useful app [10].

The role of this GUI began to have a lot of impact on application owners after this pandemic occurred. Especially for applications to meet daily needs such as online shopping, transportation services, etc. During a pandemic, all people are forced to be able and accustomed to using online applications to meet their daily needs. This is where the GUI plays a very important role in the success of an application. We can take for example the Zoom GUI and Microsoft Teams. Both applications provide the same service, but Zoom is more acceptable to the public because the UI is easier to understand, especially for older people.

This online shopping media or online shopping application drives the creative industry in Indonesia, which has been in a vacuum for a long time. Currently, there is a lot of entrepreneurs who use online shopping application media to sell their wares. Seeing the opportunities and problems faced by agriculture producers a.k.a farmers, the research team took the initiative to create a visual design GUI (Graphical User Interface) mobile apps that are in line with the types of SME’s businesses along with marketing and promotional media in the form of e-commerce applications. The targeted SMEs are farmers who grow and sell their plantation products. The location of the farmers who were targeted by this study were vegetable and fruit farmers in Malang Regency. Malang Regency was chosen because the agriculture products have been widely distributed to remote areas of East Java. For example, rice commodities always have an increase in the amount of production. In 2009 rice production in Malang Regency was 10,758,398 tons, three years later, in 2012 it rose to 11,499,199 tons, and in 2014 it became 11,695,268 tons. Malang Regency also has a strategic demographic location [11].

The existence of the potential for agriculture and plantations in the district. This research will aim to get the concept of the visual concept of buying and selling fresh vegetables that can be applied to agricultural products. Throughout the search, there is still little research that addresses the SME sector of farmers and agricultural products. The novelty of this research is the re-actualization of marketing information on agriculture products in Malang Regency is in the form of visual design based on e-commerce applications as an effort to assist local farmers in distributing local products and also developing agro-tourism potential. The technology breakthrough is creating mobile apps “Tuku
Sayur” visual design that provides information about agriculture products supplier so that they can be accessed by the wider community. The visual design results of this application can be used as a reference for designing mobile applications. This research has a final product in the form of a prototype design GUI application "Tuku Sayur" the mobile application providing information about agriculture products in different areas, information about the benefit of consumption of agriculture products. Moreover, it can be utilized as an e-commerce of agriculture trading platforms. The success of the mobile application depends on how well it is being used by the user this paper deals with the study of graphical user interface design elements (logo, colour, typography, etc) [12]. Thus, the goal of the developer is to keep an open mind and embrace innovative procedures that can avail amend the life cycle (gathering requirements, design, development, testing, and maintenance) of an app while enhancing user satisfaction [13]. Based on the explanation before, this research needs to be done because of the current economic changes which are increasingly sophisticated and there are still few studies that focus on designing a UI application design with the research target being the farmers in Malang. The hope is that with this research, farmers in Malang can use technological advances to sell their agricultural products.

2. Methods

This research used a design method called "Design Thinking". The purpose of using this method is to create a design process that can solve problems accurately. All the processes contained in this method are used starting from the phenomenon analysis process to the playtesting process. The Design Thinking Method is described in a book written by Tim Brown and Barry Katz (2009) entitled Change by Design: How Design Thinking Transforms Organizations and Inspires Innovations; and the Harvard Business Review journal entitled Design Thinking, also written by Tim Brown (2008). Brown's team began by illustrating that comprehensive, human-centered thinking towards sustainable innovation is what is needed now. He said that this way of thinking is called design thinking. A Design Thinker must have empathy, integrative thinking, optimism (as value), experimentalism (in the heart), and (love) collaboration [14].

Brown then mapped three basic spaces so that innovation can work or occur, namely: inspiration, ideation, and implementation, design of production schemes to be used by the wider community. Brown provides three limits that can be used when someone is in the three spaces of innovation, namely consideration of desirability (factors that make something desirable), viability (lifecycle of something), and feasibility (possibility or rationality of something). The three design thinking processes proposed by Brown are now evolving and redefined into 5 design thinking processes, the following are the processes.

2.1 Empathize

Empathy is the main point of the human-centered design process. The main purpose of this process is to understand humans, in their context with the design goals. In this process, we are invited to understand how humans do things and why they do them, what are the physical and emotional needs of society, how they think about the world, and what it means to them.

In the context of this study, researchers conducted intensive interviews with several farmers in Malang Raya. The farmers we interviewed were a vegetable, fruit, and spices farmers. From the interview, we get data that farmers are currently experiencing a decline in sales of their crops due to limited access and selling activities in the market during the pandemic and PSBB. Some of their farm produce is even forced to be sold cheaply because the quality has decreased due to the distance between harvesting and selling that is too far.

When conducting interviews, several farmers revealed that they have actually tried to sell through an online shopping application, but the current application is not specific (specifically selling agricultural products from Malang Raya) or the delivery range is too wide which makes farmers worry
about product quality them during delivery. This is the problem for farmers, which makes them not yet trying to sell their fields on the online market. Some farmers who are over 40 years old complain that the User Interface of the application is too complicated and difficult to understand. They want the appearance of the application that is easier and simpler to operate.

2.2 Define
After observing the empathy process, we have obtained some important information needed to carry out the design process. At this stage, the designer is invited to think and interpret what is happen. The ultimate goals are for the designer to get insight from these phenomena. The main purpose of this process is that the designer has a perspective on the problem.

Based on data obtained from interviews with farmers, we conclude that some of the obstacles experienced by farmers in selling their produce through online media are: farmers experienced a decline in sales during the current pandemic, some of their garden products had to be sold cheaply at the time of the PSBB because their quality decreased due to the long gap between harvesting and the products being sold, there is no specific application (buying and selling of vegetable, fruit, and spices in Malang Raya area) and the existing application user interface is not easy to operate.

2.3. Ideate
Ideate is a design process where designers focus on developing various kinds of ideas. This process becomes very important because at this stage various kinds of possible solutions to solve the problem will arise, designers must think "wild" and not limited to obtain varied ideas to solve a problem. After looking at the data we found and the constraints faced by the farmers, we decided to form a solution to the problem. The idea is to create an e-commerce application that will become a forum for farmers to help market their agriculture products. The name chosen for this application is "Tuku Sayur". The name "Tuku Sayur" itself is taken from the Javanese language which means "to buy vegetables".

In this application, additional information will also be given regarding these agriculture products. For example, such as the content of vitamins and their benefits for the body. Users of this application (buyers) can choose vegetable products from the closest location / farmer to where they live. So that the quality of goods sent can be maintained, facilitate the distribution process, and reduce shipping costs.

2.4. Prototype
Prototype is a process in which ideas that have been obtained are built into a smaller scale design. The purpose of this process is so that users can imagine directly of the design solutions they will receive, because it will be easier for designers to explain their ideas with prototype rather than words. According to the Design Thinking methodology, the prototypes do not usually need to be detailed or working prototypes in the early stages of the process. However, when designing real-time applications, it is helpful to use an evolutionary approach to start developing the simulator so that it becomes the prototype itself (Brown,2008).

There are two trends of GUI styles that we used as prototype. Flat design and Skeumorphoism design. Flat design concept is a clean, minimal with few colors and effects. This style makes GUI to be easier to understand user have indicate intents and calls to action. Skeuomorphism design concept is resembling or hint at a familiar object and often it is an analog counterpart. The prototype designed in this study is divided into 2 (two), namely:

1. Flat design prototype

In this Flat Design Prototype, the design used for UI displays uses a minimalistic graphic approach that emphasizes usability, with a clean design without bevels, shadows, textures, focuses on typography, bright colors, and two-dimensional illustrations [9]. It can be said that this Flat design prototype refers to an interface design style that eliminates stylistic choices that give 3-dimensional
illusions (such as drop shadows, gradients, textures, and depths) and focuses more on using minimalist elements, such as typography and flat colors (flat colors).

2. Scheumorphoism design

The second option for this application prototype interface is to use the Scheumorphoism design style. The Scheumorphoism style of this design mimics real-world objects. So, the illustration or icon used is the real form of the object. Unlike the case with Flat Design, this Scheumorphoism will make the UI look more involved than using the Flat Design Style.

![Figure 1. Difference between Skeumorphism dan Flat Design](image)

The advantage of this Scheumorphism Design is that it easily reminds the interface to the real world and makes it more familiar to users so that users will respond more quickly to the interface presented.

2.5. Test

In this process, the designer tries out the design and gets feedback from both the user and others who use it. The way to do this process is by inviting the user to use the design process and use it in everyday life. In this test, we take respondents from both farmers and application users (buyers). This sampling is intended so that the data we get can represent both parties who will use the application.

In prototype testing, each respondent is tested for its response to the GUI of Tuku Sayur. Respondents are given a questionnaire which consists of 14 kinds of questions. The questionnaire uses semantic differential measurement with a value measured using a Likert scale. This semantic differential is used to read the user's visual assessment of the Tuku Sayur application interface. Of the 12 questions in the questionnaire This will assess 2 aspects of the assessment, namely the visualization or design of the application display design and the perception of user trust in the appearance of the Tuku Sayur application. Demographically, this questioner is distributed to all potential users aged 17-60 years who live in Java.

3. Result & Discussion

3.1. Less Contact Economy

Covid-19 is predicted to not quickly pass from the world. The Indonesian government is now preparing a way to live side by side with the COVID-19 outbreak. Now the government is preparing the method by preparing the concept of reducing physical interaction limited movement by optimizing digital technology and implementing the COVID-19 protocol. The key to adaptation lies in Less Contact Activity (LCA) or minimizing direct contact activities. Regarding the thematic efforts for economic recovery after the implementation of the new normal protocol, the adaptation process in people's economic activities known as the Less Contact Economy (LCE) or the low-contact economy,
seems to be the most adaptive solution that must be a serious concern of the Economic Task Force team.

In simple terms, Less Contact Economy (LCE) can be interpreted as economic activity without contact or face-to-face contact, but by using digital communication equipment or what we often refer to as online activities. So, digital communication has minimal direct contact, which will shape the digital economy ecosystem. This is the spirit of the concept of less contact economy, which makes the economy relatively productive during the pandemic. In the future, this model of economic activity, which is strongly influenced by current technological trends, will certainly be the future of the world economy, as part of the 4.0 industrial revolution. For example, online shopping, digital payments, teleworking, telemedicine or remote medical services, tele-education or distance education, online entertainment, supply chain, 3D printing or three-dimensional printing, robotic and drones, and 5G technology. Not only is it an important instrument for becoming the future of the world economy, as part of the industrial revolution 4.0., The digital economy ecosystem is also very possible to give birth to various types of new jobs so that it can help reduce unemployment plus poverty.

The relevance, now we need a variety of innovations in the form of digital applications. The more applications there are, the less direct contact is because more and more people are switching to using it, so the implementation of the ten technology trends above will be easier to materialize.

3.2. Visual Concept
Color plays a vitally important role in Graphical User Interface design. Color helps the users see and interpret the content of the mobile app, interact with the correct elements, and understand actions [15]. Every mobile app's design has a color scheme. The monochromatic scheme is very easy on eyes, especially blue and green colors. Using the right color is not only good for aesthetic purposes but also it can help users navigate and use mobile apps more easily [16]. The choosing of color combinations that complement each other will make mobile apps more appealing to the user and it will be easier to use. The application of color in these mobile apps (Figure 2) is dominated by green color with code #3b8059 R: 59 G: 128, B:89, and contrasting with white color. Green symbolizes balance, refreshment, environmental awareness, and peace. The color contrast can also draw the user's attention towards specific elements on the screen. Generally, high contrast is the best choice for important content. Users are much likely to click the call-to-action button that strongly contrasts with its background.

Typeface. Mobile design requires high details and elaboration. Although images and videos are dynamic and colorful, the users still need to gain information throughout the text. It means the application of typography. The font is one of the most important elements of user interface design. Different type of content requires different font because font can express feelings and emotions [17]. Mobile is the dominant screen today so the user interface should ideally design with responsive typography in mind. It means the typography has a geometric and scalable outline. Another important aspect to improve the readability is the spacing between the fonts. Before thinking about the best fonts for apps design, it’s important to make the distinction between two different styles, the styles are serif and sans serif. Serif fonts from Deutch word “schreef” meaning line or dash. A serif is a small line attached to the end of a stroke in a letter. For example, Times New Roman or Clarendon. Conversely, a sans serif is a font without serif, hence “sans”. These fonts include well-known font such as Helvetica, Proxima Nova, etc. Mostly, many modern fonts for mobile apps are sans serif because they increase readability and can scale so much more easily. For this mobile app's design, we choose Montserrat font. Montserrat creates by Julieta Ulanovsky takes its name from a historical neighborhood in Buenos Aires. Julieta took inspiration in clear urban typography that she saw in her native Argentinian town [18].
Figure 2. GUI design for Mobile Apps

Graphical User Interface (GUI). The splash screen shows the logo of the mobile apps “Tuku Sayur” with initial TS. In the Java language, it means “buy some vegetables”. The shape of this logo looks like a shopping cart with two wheels. This shape is related to e-commerce mobile apps. The color combination is green and white as a brand identity to show that this product is fresh from the farmers. The next page is a login page. In this login page, the user should fill the blank with their username and password. The user also can sign in by using their Facebook account or Google account. But if the user is not already registered, they can do some registration first. Sign up page is also known as the...
registration page. The function is to generate sign up for service. It is just short from featuring a few form fields and a call-to-action. When the user forgets a password, they can click “Forget password” then they will receive an email and be able to set their username and password. When the user already login into this page there is a home screen page. The home screen provides the user with journeys and functionality to complete their priority tasks and provide content that meets their need and expectations. The user can choose the categories of products. There are fruits, veggies, grains, and spices. Each category provides information about what kind of fruits, veggies, grains, and spices available to purchase in these mobile apps.

This mobile apps also gives the user product additional information, such as the benefit of consuming fruits for our body, tips, and trickshot to keep fruit and veggies, cooking recipes for diet, etc. Besides, it also gives product descriptions. For example, the wight of watermelon, or where the product comes from, etc. In this area, the users can make changes, add products to the chart, check for orders, and anything else related to e-commerce. Once the user logged in, they will see a list of administrative items. To purchase the item, the user should add to the chart and the system will calculate all the orders and delivery fees automatically. The user can choose the payment methods by clicking the button “pilih pembayaran”. When the user is done with the payment, they will get some notification that the payment is successful and the order ready to deliver. In these apps, the user also can interact with the seller personally by using the chat column.

3.3 Semantic Analysis

Every day our five senses absorb the information that is in every object around us. It is through the five senses that information we can turn into affection, impression, desire, or emotion. One of the human responses to objects or artifacts is a semantic response. In this study, the Semantic Differential method was used to understand the impression captured by respondents on the GUI design of Tuku Sayur application.

The Semantic Differential assessment measures the user's impression by focusing on frequency values over a scale of 1-7. Semantic Differential is used to explain the impression of an ad-hoc object (at that time) when the questioner is given the adjective selected in the Semantic Differential assessment is classified into 2 types of adjectives that will measure the visual value (GUI) of the application and the value of consumer confidence that is selected from Tuku Sayur GUI design. The seven adjectives used to assess visual values are Interesting, Cheerful, Easy, Simple, Neat, Unique, and Modern. Meanwhile, the seven adjectives that will assess respondents' confidence in Tuku Sayur GUI display are Comfortable, Readable, Informative, Effective, Productive, Practical, and Relevant. All these adjectives in the presentation are randomized so that respondents do not dispel their answers.

| Table 1. Tuku Sayur GUI Visual Assessment Results |
|-----------------------------------------------|
| (V) Interesting | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| (K) Comfortable | Boring |
| (V) Cheerful | Uncomfortable |
| (K) Readable | Sad |
| (K) Informative | Not Readable |
| (V) Easy | Uninformative |
| (K) Effective | Difficult |
| (K) Productive | Ineffective |
| (K) Practical | Unproductive |
| (V) Simple | Impractical |
| (V) Neat | Complex |
| (V) Unique | Messy |
| (V) Modern | Common |
| (K) Relevant | Traditional |
| | | | | | | | |
| Note: (V) Visual Assessment | (K) Trust Assessment |
From the data in Table 1, it can be concluded that the Tuku Sayur interface design has a positive visual value. This can be seen from most respondents having the words Interesting, Cheerful, Easy, Simple, Neat, Unique, and Modern. For the aspect of assessing user confidence in the application interface display also received a positive rating, namely, most respondents chose the words Comfortable, Readable, Informative, Effective, Productive, Practical, and Relevant. Thus, it can be concluded that the Tuku Sayur application interface design is acceptable and by the needs of users, both farmers and buyers of agriculture products.

4. Conclusion
In essence, the present research proposes a practical interface design for mobile apps design by using design thinking process. In this research, the researcher designing Graphical User Interface (GUI) for mobile apps based on e-commerce “Tuku Sayur” to marketing and distribute agriculture products during pandemic. This is quite challenging for designer how to present clear user interface on a limited screen without overload. Designer must considering what elements can be implemented. Such as the using of typography, color pallete, layout, illustration, etc. Thereby, this apps should focus on the most important feature that user need in order to produce service. In this manner, the advantages of the technology should be exploited, emphasizing that apps can be used to increase the service delivery process. The Semantic Differential method was used to understand the impression captured by respondents on the GUI design of Tuku Sayur application.

The result shows that the Tuku Sayur application interface design is acceptable and by the needs of users, both farmers and buyers of agriculture products. Perception about this apps service quality and innovativeness as well as the subjective knowledge can be increase by encouraging the to use of the apps. However like any empirirical research this study has limitations. Firstly, the results have only been tested in one community. There is no empirical proof that identified dimensions are also valid for other service industry. Secondly, data was only collected in Malang region. Studies in region with higher or lower smartphone penetration may lead different result. Moreover the effect of apps usage on perceived innovativeness need to be tested, as other generations might experienees apps usage more innovative leading to new opportunities to create the service process more efficiently. Hopefully, this research can be used for further study as a reference to published mobile apps to support less contact economy in order to makes the economy relatively productive during the pandemic.

Acknowledgments
This work is supported by Research and Technology Transfer Office, Bina Nusantara University as a part of PenelitianTerapanBinus entitled Perancangan Graphical User Interface (GUI) AplikasiPemasaranSayur dan Buahberbasis E-commerce with contract number: No.025/VR.RTT/IV/2020 and contract date: 6 April 2020.

5. References
[1] Worlometer. Covid-19 Coronavirus Pandemic. (https://www.worldometers.info/coronavirus/).
[2] The Jakarta Post. (2020). Indonesia’s Latest Official COVID-19 Figures. https://www.thejakartapost.com/news/2020/03/23/indonesias-latest-covid-19-figures.html
[3] Susilawati, et.al. (2020). Impact of Covid-19’s Pandemic on the Economy of Indonesia. Budapest International Research and Critics Institute-Journal. Pp.1147-1156
[4] Kompas. (2020). Pandemi Covid-19, ApaSaja Dampak pada Sektor Ketanagakerjaan Indonesia? https://www.kompas.com/tren/read/2020/08/11/102500165/pandemi-covid-19-apa-saja-dampak-pada-sektor-ketanagakerjaan-indonesia?page=all

[5] Antaranews. (2020). Dampak COVID-19, Ribuan Pekerja di Kabupaten Malang dirumahkan. https://www.antaranews.com/berita/1427369/dampak-covid-19-ribuan-pekerja-di-kabupaten-malang-dirumahkan

[6] Bisnis Indonesia. (2020). Ekonomi Kota Malang di Era Covid-19, Begini Kondisinya. https://surabaya.bisnis.com/read/20200512/532/1239634/ekonomi-kota-malang-di-era-covid-19-begini-kondisinya

[7] Nilsson, Erik (2008). Design Guidelines for Mobile Applications. Sintef ICT

[8] Spiteri, Christine (2013). Cultural Identity Construction Through Smartphone Use. Thesis for: MA Media Culture, Advisor: Dr Karin Wenz, Maastricht University, DOI: 10.13140/2.1.1902.9286

[9] Ocampo, Ariana. (2018). How Color Psychology can be Applied to Mobile Apps. https://thisisglance.com/how-colour-psychology-can-be-applied-to-mobile-apps/

[10] Pastore, S. (2012). Developing Mobile Education Apps: Development Strategies, Tools and Business Models. ACSIJ Advances in Computer Science: an International Journal, Vol. 3, Issue 1, No. 7, January 2014ISSN : 2322-5157

[11] Firdaus, Lazuardi (2017). Jadikan Sentra Hortikultura Nasional, Dina Pertanian Kabupaten Malang Genjot Bantuan Pendampingan. Accessed 1 March 2020. https://malangtimes.com/baca/22110/20171029/172304/jadikan-sentra-hortikultura-nasional-dinas-pertanian-kabupaten-malang-genjot-bantuan-dan-pendampingan

[12] Lee, Gunwoong & Santanam Raghu. (2014). Determinants of Mobile App’s Success: Evidence from the App Store Market. Journal of Management Information Systems 31(2):133-170

[13] Inukollu, V, et.al. (2014). Factor Influencing Quality of Mobile Apps : Role of Mobile App Development Life Cycle. International Journal of Software Engineering & Applications (IJSEA), Vol.5, No.5, September 2014

[14] Brown, Tim. (2008). Design Thinking. www.unusualleading.com: Harvard Business Review, page 1-9

[15] Brown, Tim. Katz, Barry. (2009). Change by Design: How Design Thinking Transforms Organizations and Inspires Innovations. New York: HarperCollins Publishers.

[16] Babich, Nick. (2017). The Underestimated Power of Color in Mobile App Design. https://www.smashingmagazine.com/2017/01/underestimated-power-color-mobile-app-design/

[17] Bernazanni, Sophia. (2017). Fonts & Feeling: Does Typography Connote Emotions?. https://blog.hubspot.com/marketing/typography-emotions

[18] Ulanovsky, Julieta. (2014). The Montserrat Typeface. https://www.kickstarter.com/projects/julietaulanovsky/the-montserrat-typeface