



Spatial distribution of startup (Gojek and Grab) users in Palembang city, Indonesia

Wahyu Saputra · Sri Rum Giyarsih 

Accepted: 24 October 2022 / Published online: 31 October 2022
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Abstract The emergence of startups in Indonesia contributes to increasing the number of those working as startup users. Startup users define those who make use of startup services and enterprises to perform their business. This research was designed to explain the spatial distribution of startup (Gojek and Grab) users in Palembang City, Indonesia. It employed spatial analysis with inverse distance weighting and kernel density. The results indicated that startup (Gojek and Grab) users who established their business before 2020 were in densely-populated parts of the city. However, based on the interpolation of their business locations, they were variably distributed in lowly to densely-populated areas whose economic activities were dominated by trade and services. Furthermore, the nearest neighbor analysis revealed that startup (Gojek and Grab) users were close to permanent markets (including semi-permanent ones, supermarkets, restaurants, and grocery shops) and had better access to online transportation and communication with good cell phone receptions.

Keywords Spatial distribution · Startup (Gojek and Grab) users

Introduction

The development of interregional connections is currently skyrocketing (Santoso & Wahyuni, 2018). The internet enables people to connect without direct face-to-face interaction, especially in the rise of digital meeting applications during the COVID-19 pandemic, e.g., Zoom and Google Meet. Nowadays, there are myriads of social media platforms developed by startups aiming to connect numerous social groups or communities (Van Alstyne et al., 2016). Startups are newly established businesses that are currently becoming a trend among youth. They have penetrated various sectors in Indonesia, e.g., e-commerce, game, and fintech, by developing platforms to ease business transactions. These platforms connect sellers with buyers and vice versa (Hagiu & Wright, 2015). So far, trade transactions between sellers and buyers are performed in conventional ways; however, as of the emergence of these platforms, such transactions have started shifting to online ones. Gojek is one of those platforms (Wahyuningtyas, 2019) that, as an application company, facilitates service providers or sellers to connect online with their customers. In addition, Grab is another platform offering similar services.

The online network enables micro-enterprises to grow sporadically (Eisenmann, 2006). As evidence, there is an increasing number of micro-enterprises because the internet has facilitated their online product sales through mobile applications or platforms. In the social era, appropriate business models are

W. Saputra
Universitas PGRI Palembang, Palembang, Indonesia
e-mail: wahyusaputra@univpgri-palembang.ac.id

S. R. Giyarsih (✉)
Universitas Gadjah Mada, Yogyakarta, Indonesia
e-mail: srirum@ugm.ac.id

necessary for the community (Oestreicher-Singer & Zalmanson, 2013), including online business run from home that has been steadily growing since the COVID-19 pandemic. Newcomers rising due to such online businesses are disrupting existing or established markets (Christensen, 1997; Schmidt & Druehl, 2008). Businesspersons who have been esteemed in conventional trades are prone to newcomers accustomed to innovation and technology. If not immediately anticipated, their established position will soon be replaced by these newcomers.

Disruptive innovation is closely related to digital ridesharing (Yuana et al., 2020). In Indonesia, it has occurred since the emergence of Gojek, Grab, and other similar applications. In the future, the digital economy is expected to continue to grow. This is supported by the high number of startups established in the country (Hertina et al., 2021), especially after the wake of the COVID-19 pandemic, wherein most online businesses are developing rapidly (Hertina et al., 2021). These opportunities are grasped by those having establishments in the informal sector to expand their business capacities by utilizing Gojek and Grab applications, creating a digital market. As a result, digital market players have disrupted traditional or non-digital markets (Bharadwaj et al., 2013; Ghezzi & Cavallo, 2020; Kollmann et al., 2021) and turned buyers to digital markets through lower and more compelling prices.

Nowadays, various e-commerce applications can be used for online selling, including Gojek and Grab. Many informal sector entrepreneurs have demonstrated a good command of using the Gojek platform (Santoso & Wahyuni, 2018). It further emphasizes that startups are inseparable from these entrepreneurs as their users. There has been a high number of informal sector entrepreneurs using startups like Gojek and Grab as their online selling platforms. The informal sector is highly associated with the poor in urban areas (Fathurrahman, 2020); however, it is not necessarily true in the current disruptive innovation era, for many informal sector workers can make use of innovation, the internet, and technology from those startups. Therefore, the novelty of this research lies in the inclusion of technology in occupations in the informal sector, allowing it to develop businesses both offline and online. In addition, previous studies have solely focused on startups, whereas this research is centered on startup users as the object of the analysis.

The data presented in Table 1 show that Palembang has the highest number of informal sector workers among the cities in South Sumatra (268,766 workers or 66.05 percent). It can be assumed that all these workers are startup users in the field of services or trade. However, their temporal and spatial characteristics remain unknown. Thus, the main problems discussed in the research are related to their year of establishment, place of business, and neighboring startup users. Accordingly, the research aimed to analyze the year of establishment spatially, study the interpolation of the business location, and determine the spatial distribution of startup users in the city using the nearest neighbor analysis.

Literature review

Entrepreneurs are required to possess knowledge related to entrepreneurship to stand out and survive in a competitive market (Gralha et al., 2018; Tripathi et al., 2019a, b; Tripathi et al., 2019b), including digital business know-how (Autio et al., 2018; Nambisan, 2017) and strategies to distinguish and seize business opportunities (Ireland et al., 2003; Shane & Venkataraman, 2000). Many new types of businesses are created with the help of the internet (Frizzo-Barker et al., 2020). In establishing one, entrepreneurs are demanded to find a permanent business model that the target society needs (Oestreicher-Singer & Zalmanson, 2013).

A startup is a cyclically measured business model (Blank, 2010). Startups have penetrated various fields, one of which is the global electronic business controlled by most well-known startups whose innovations often disrupt other areas (Chenoweth, 2008). Newcomers in startup businesses frequently

Table 1 Urban informal sector workers in South Sumatra in 2020. *Source:* Workforce in South Sumatra Province, August 2020 (BPS, 2019)

No	City	Number of informal sector workers	Percentage
1	Palembang	268,766	66.05
2	Prabumulih	44,002	10.82
3	Pagar Alam	49,128	12.07
4	Lubuk Linggau	44,958	11.06
		406,854	100.00

develop unique marketing strategies to compete with other established competitors (Escalante & Turvey, 2006). Established companies certainly have distinctive features compared to startups (Nurcahyo et al., 2018). Characteristics of startups can be categorized based on innovation, ownership, finance, organization (Lester et al., 2008; Miller & Friesen, 1984; Quinn & Cameron, 1983), rapid growth potential, and high risk (Mustapha & Tlaty, 2018). In addition, the established startups are inevitably related to startup users who, for the most part, rely on their quality for being able to provide works that are flexible (McRobbie, 2002) and modern (Marwick, 2013) and create novel ways for business ventures in urban regions (Florida, 2005).

In the 21st century, communication has undergone a digital transformation (Luo, 2021) and, globally, digitalization has infiltrated to almost every aspect of people's lives (Coviello et al., 2017; Luo, 2021). The rapid development of technology (Supardianto et al., 2019), particularly the revolutionary one called the internet of things (Zhang et al., 2015), has made it easier for people in different regions to interact (Santoso & Wahyuni, 2018). Besides, technological innovations reduce the time and distance in communication and information dissemination in various sectors (Lusch & Nambisan, 2015). For example, online purchase and sale have characterized today's financial and marketing revolutions (Tapscott & Kaplan, 2019), indicating a shift in transaction (Jesemann et al., 2020) where, nowadays, sellers and buyers do not need to be physically present in the same place (Hertina et al., 2021).

As complex phenomena continue to occur in the society (Berger, 2016), digital technology enables more innovations to be created and introduced to the service sector (Briel et al., 2018; Kannan et al., 2017; Teece & Linden, 2017; Thérin, 2007; Zott et al., 2011), such as digital platforms (Milat et al., 2013) (Clarysse et al., 2014; Eaton et al., 2015). The platforms created by startup companies allow people to order food and clothing from their smartphones (Giardino et al., 2016; Gutbrod et al., 2017; Melegati et al., 2019; Unterkalmsteiner et al., 2016) over the internet (Hagiu & Wright, 2015; Van Alstyne et al., 2016). The created platforms have attracted users of various demographics (Zielske & Held, 2021).

Unicorn startup companies influence Indonesia's current economy (Suwarni et al., 2020). Through

them, users are able to meet the needs in the service and trade sectors. Startup users define those who make use of startup applications in their trading or service activities (Eichhorn & Tukel, 2018) and daily life (Tzafilkou & Protogeris, 2017). They primarily work in the creative economy (Syauqi, 2016). Mobile applications developed by startups contribute to increasing the number of startup users (Faizal, 2021), which eventually affects the growth of startups (Perdani et al., 2018; Semrau & Werner, 2014). It means that the more startup users utilize the provided services, the faster those startups grow and vice versa. The startup users in this research are those of Gojek and Grab.

The number of startup users population increases as more people become familiar with startups (Saad et al., 2021) and “new users” and “old users” (Sayyed-alikhani et al., 2021) interact with each other (Goldenberg et al., 2009; Rand & Rust, 2011) using social media to purchase or adopt products (Goldenberg et al., 2007). In addition, they use various applications (Rand et al., 2018; Serrano & Iglesias, 2016). The experience of startup users can affect the sales value of their wares (Klotins et al., 2021). Therefore, it is essential for them to improve their capacities to survive and grow (Baldwin & von Hippel, 2011); one of which is by providing maximum services to customers (Iansiti & Levien, 2004).

Study area

Palembang is the capital of South Sumatra, Indonesia. It covers 2.65 percent (40,061 ha/km²) of the total land area of South Sumatra with a total population of 1,668,848 people in 2020 (BPS, 2021s). Geographically, it borders Muara Enim and Ogan Ilir in the south and Banyuasin Regency in the north, east, and west. Palembang consists of 18 districts, namely Seberang Ulu 1, Ilir Timur 1, Jakabaring, Plaju, Seberang Ulu 2, Ilir Barat 1, Sako, Ilir Barat 2, Kemuning, Bukit Kecil, Sematang Borang, Ilir Timur 2, Alang-Alang Lebar, Gandus, Ilir Timur 3, Kertapati, Kalidoni, and Sukarami. As a city heading toward a metropolis, in 2020 Palembang has the population growth rate of 1.38 because of high migration and demographic factors (BPS, 2021s). As for its local economic conditions, there are 42 permanent markets, two semi-permanent markets, 663

supermarkets, 718 restaurants, and 8,354 grocery shops (BPS, 2021s). The map of the research area is presented in Fig. 1.

Methods

This research employed an analytical survey method. Survey research uses questionnaires as the main data collection instrument distributed to samples of a population (Singarimbun & Efendi, 2006). The questionnaires used were designed to measure two variables, i.e., characteristics and spatial distribution of startup (Gojek and Grab) users. The former was assessed with structured interviews, while the latter was retrieved through field observations using GPS (coordinate readings). Objects of this quantitative research were startup (Gojek and Grab) users in Palembang City, which were validated by identifying their location coordinates, business

name, address (place of business), the field of business, year of establishment, and the applications used.

This research was conducted for three months. Samples were selected by an accidental sampling technique from the city's informal sector workers (research population) under the assumption that they used startup (Gojek and Grab) applications to carry out their business. The data used can be seen in Table 2.

Spatial analysis is the method used to further analyze the data mentioned above so as to describe the spatial distribution of startup users (Gojek and Grab) in Palembang. Palembang was selected as the research area for it had the highest number of urban informal workers in South Sumatra (BPS, 2019). The spatial analyses used inverse distance weighting and kernel density. The formula for inverse distance weighting (Azpurua & dos Ramos, 2010) is as follows:

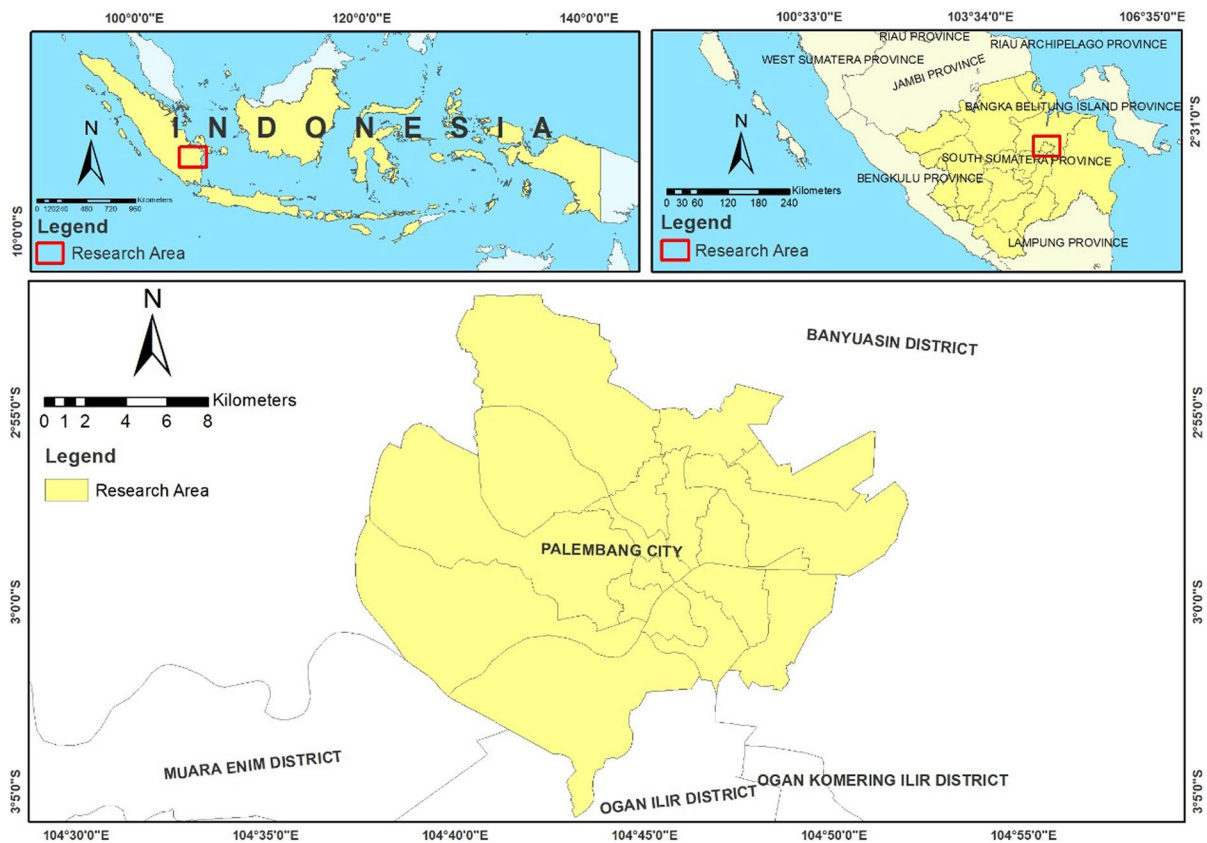


Fig. 1 Map of the research area showing 18 administrative districts of Palembang city

Table 2 Research methods. *Source:* own study

Variable	Instrument	Data collection technique	Data type	Source
Business name, business address, field of business, applications used, year of establishment of startup users	Questionnaire	Interview	Primary	Respondents
Distribution of startup users	GPS	Coordinate	Primary	Field survey

$$Z^* = \sum_{i=1}^n w_i Z_i$$

where Z_i ($i = 1, 2, 3, \dots, N$) is the number (N) of points for which the value of data height is tolerated and w_i is formulated as follows:

$$w_i = \frac{h_i^{-p}}{\sum_{j=0}^n h_j^{-p}}$$

p is a power parameter with an adjustable positive value and h_i is the distance of point-to-point interpolation distribution, which is formulated as follows:

$$h_i = \sqrt{(x - x_i)^2 + (y - y_i)^2}$$

x, y are the coordinates of interpolation points and x_i, y_i are the coordinates of the points distribution. Furthermore, the kernel density is a non-parametric statistic applicable in geographic information system to analyze the density distribution patterns in an area (Nanda et al., 2019) and estimate the intensity distribution of a point within a certain radius (Silverman, 2018).

Findings and discussion

Spatial Distribution Analysis of Startup (Gojek and Grab) Users in Palembang City per Year of Establishment

The establishment year of startup (Gojek and Grab) users in Palembang can be categorized into three, namely before 2020, in 2020, and after 2020. Based on the results of the field observation, startup (Gojek and Grab) users establishing their business before 2020 were in Sukarami, Alang-Alang Lebar, Sematang Borang, Kalidoni, Plaju, Ilir Timur II, Jakabaring, Kertapati, Seberang Ulu I Sub-district, Ilir

Barat 2, and Bukit Kecil Districts. Businesses started in 2020 were in Ilir Barat I, Gandus, Ilir Timur I, Seberang Ulu II, Ilir Timur III, and Sako Districts. Those set up after 2020 were in Kemuning District.

Based on the data, startup (Gojek and Grab) users were dominated by those establishing the business before 2020 (distributed in 11 districts), followed by those set up in 2020 (distributed in six districts) and after 2020 (one district). Startup (Gojek and Grab) users who launched their business before 2020 were found in areas with a high population (BPS, 2021s), e.g., Sukarami (183,667 people), Kalidoni (122,474 people), and Alang-Alang Lebar District (105,201 people). The map used in the spatial distribution analysis is presented in Fig. 2.

Based on the year of establishment, the results showed two categories of startup (Gojek and Grab) users: new and old users (Sayyed-alikhani et al., 2021). Over time, startup users are increasing sporadically (Saad et al., 2021) because digital communication eases interpersonal interaction. Digital communication is one of the dominant characteristics of the 21st century (Luo, 2021); hence, it seems inevitable not to use online digital platforms or applications in this era. In addition, many workers were interested in working as startup (Gojek and Grab) users because they could easily interact online despite high competition. To establish a business in a highly competitive market, entrepreneurs must have the ability and knowledge of entrepreneurship (Gralha et al., 2018; Tripathi et al., 2019a, b), for such knowledge enables them to manage or govern the business more sustainably in the long term.

Based on the data derived in the field, startup users had different characteristics and used various applications, i.e., Gojek, Grab, or both. This finding indicates variations in the application that users rely on to perform their business, either in the trade or service sector (Rand et al., 2018; Serrano & Iglesias, 2016). In addition, startup users interact with not only startup

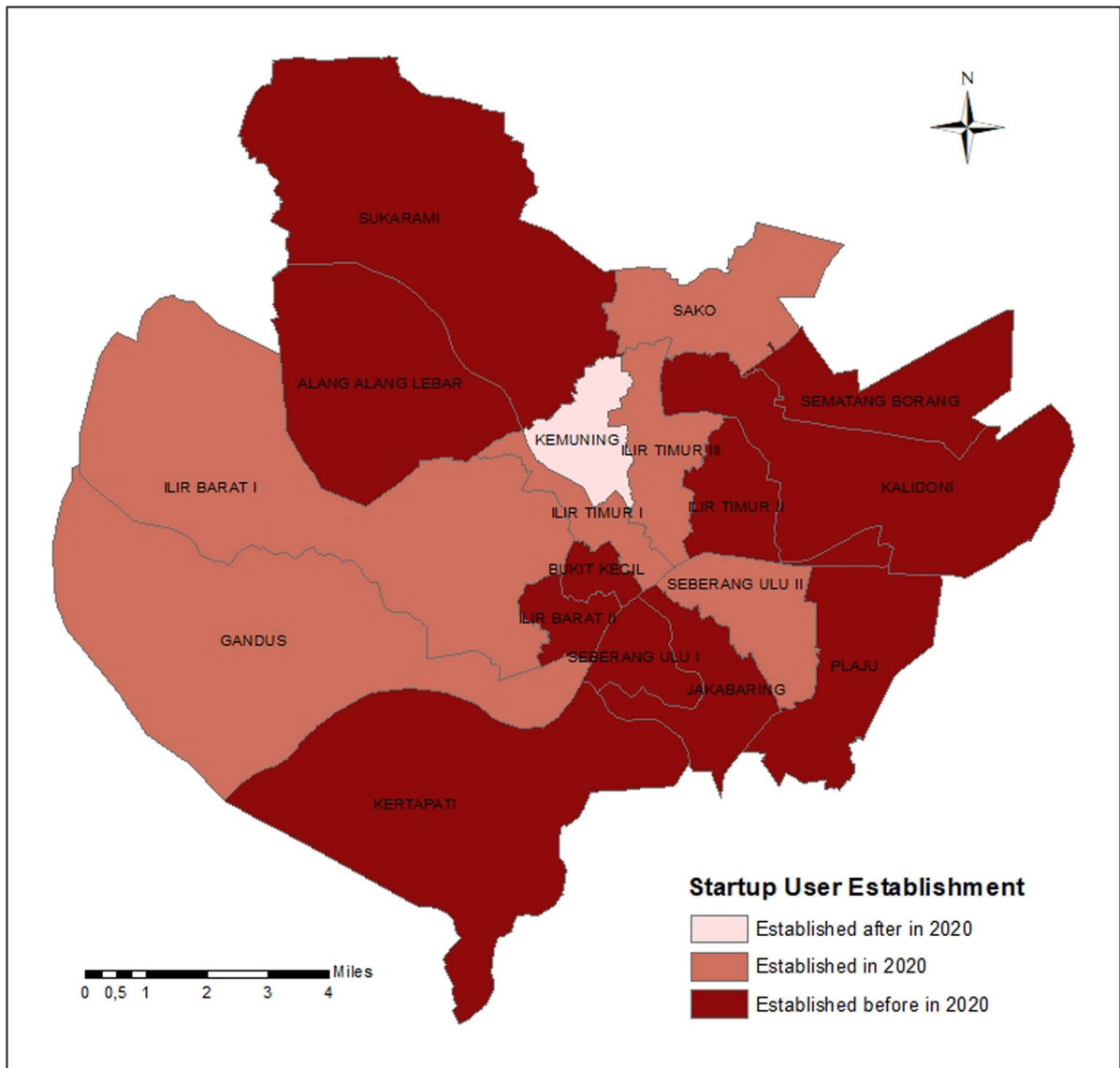


Fig. 2 Spatial distribution of the startup (Gojek and Grab) users in Palembang city based on their year of establishment

customers but also other users by, for instance, sharing product marketing tips. Interaction between users is essential to improve the skills of startup users in product marketing to a broader market both directly and indirectly (Goldenberg et al., 2009; Rand & Rust, 2011) and to improve the products they sell (Tzafilkou & Protogeros, 2017).

Both user-user and user-customer interactions are possible because of the internet and startup applications. Furthermore, connections between

regions have been developing rapidly (Santoso & Wahyuni, 2018), indicating ease in interacting with different parties regardless of distance. The interactions have resulted in the development of online businesses in Palembang City, including micro-enterprises, due to the network effect (Eisenmann, 2006). From this finding, it can be inferred that the city's micro-enterprises will grow rapidly because of the convenience of online networking.

Interpolation of business places for startup (Gojek and Grab) users in Palembang city

Interpolation of business places for startup (Gojek and Grab) users can be seen from population density and economic activities. Trade and services were the dominant economic activities in each district of Palembang city (BPS, 2021s), and startup (Gojek and Grab) users grasped this situation as a potential to open or establish a business. In addition, population density also affects business places. The distribution of population density from the highest to the lowest is elaborated as follows: Alang-Alang Lebar (30,505 people/km²) (BPS, 2021a), Seberang Ulu I (11,010 people/km²) (BPS, 2021p), Ilir Barat II (10,870 people/km²) (BPS, 2021d), Ilir Timur I (10,353 people/km²) (BPS, 2021g), Jakabaring (9,871 people/km²) (BPS, 2021i), Seberang Ulu II (9367 people/km²) (BPS, 2021o), Kemuning (8965 people/km²) (BPS, 2021k), Ilir Timur II (7898 people/km²) (BPS, 2021f), Ilir Barat I (7129 people/km²) (BPS, 2021e), Sako (6568 people/km²) (BPS, 2021n), Plaju (5981 people/km²) (BPS, 2021m), Ilir Timur III (4946 people/km²) (BPS, 2021h), Kalidoni (4387 people/km²) (BPS, 2021j), Bukit Kecil (3890 people/km²) (BPS, 2021b), Sukarami (3570 people/km²) (BPS, 2021r), Kertapati (1709 people/km²) (BPS, 2021i), Sema-tang Borang (1470 people/km²) (BPS, 2021q), and Gandus District (1087 people/km²) (BPS, 2021c). Figure 3 is the interpolation map of startup users' business places in Palembang City. It shows that the higher population density an area has, the more businesses startup (Gojek and Grab) users establish, and vice versa.

Based on the results, trade and services were the two dominant economic activities in each district. It has been well-known that technology disrupts many aspects of life, especially interaction. Technology significantly alters how individuals communicate (Supardianto et al., 2019). One of the prominent examples is interaction in online product marketing. In addition, the internet of things appears to be a revolutionary technology (Zhang et al., 2015), affecting delivery services, e.g., online transactions and product marketing (Akins et al., 2015). Online trade is a revolution in finance (Tapscott & Kaplan, 2019). Nowadays, people effortlessly order or buy foods or goods through their smartphones (Melegati et al., 2019). Such increasing digital consumption habits

are due to the multiplying number of platforms or applications developed by startups (Giardino et al., 2016; Gutbrod et al., 2017; Unterkalmsteiner et al., 2016), which also implies shifts from offline to online markets (Jesemann et al., 2020). As a consequence, startup users correspondingly begin promoting their products online.

Similarly, startup (Gojek and Grab) users in Palembang utilized social media for communicating in an effort to improve their traded products. In many cases, social media aid in exchanging information leading to new product lines (Goldenberg et al., 2007). It is imperative to sustain this practice because the future digital market will only be increasingly competitive, which makes product quality enhancement challenging without communication between startup users. Furthermore, experience is indispensable in conducting business online. From the customers' perspective, products sold with a maximum value result from the excellent experience of startup users (Klotins et al., 2021), meaning that the longer startup users run their business online, the more they gain experience in trade and services.

Currently, sellers interact with buyers through digital platforms (Hagiu & Wright, 2015). As a result, face-to-face interactions are no longer necessary; instead, online transactions are considered an adequate substitute (Hertina et al., 2021). In this world, digital platforms have connected enormous amounts of social groups online, allowing startup (Gojek and Grab) users in Palembang City to reach and interact with customers (Van Alstyne et al., 2016). This way, digital platforms significantly help startup users sell their products or services.

Spatial distribution of startup (Gojek and Grab) users in Palembang city based on the nearest neighbor analysis

The nearest neighbor analysis used in this research encompassed whether or not the location of startup (Gojek and Grab) users was close to permanent markets (including semi-permanent ones, supermarkets, restaurants, and grocery shops) and whether or not they had better access to online transportation and communication with good cell phone receptions. Table 3 describes the distribution of permanent markets, semi-permanent markets, supermarkets,

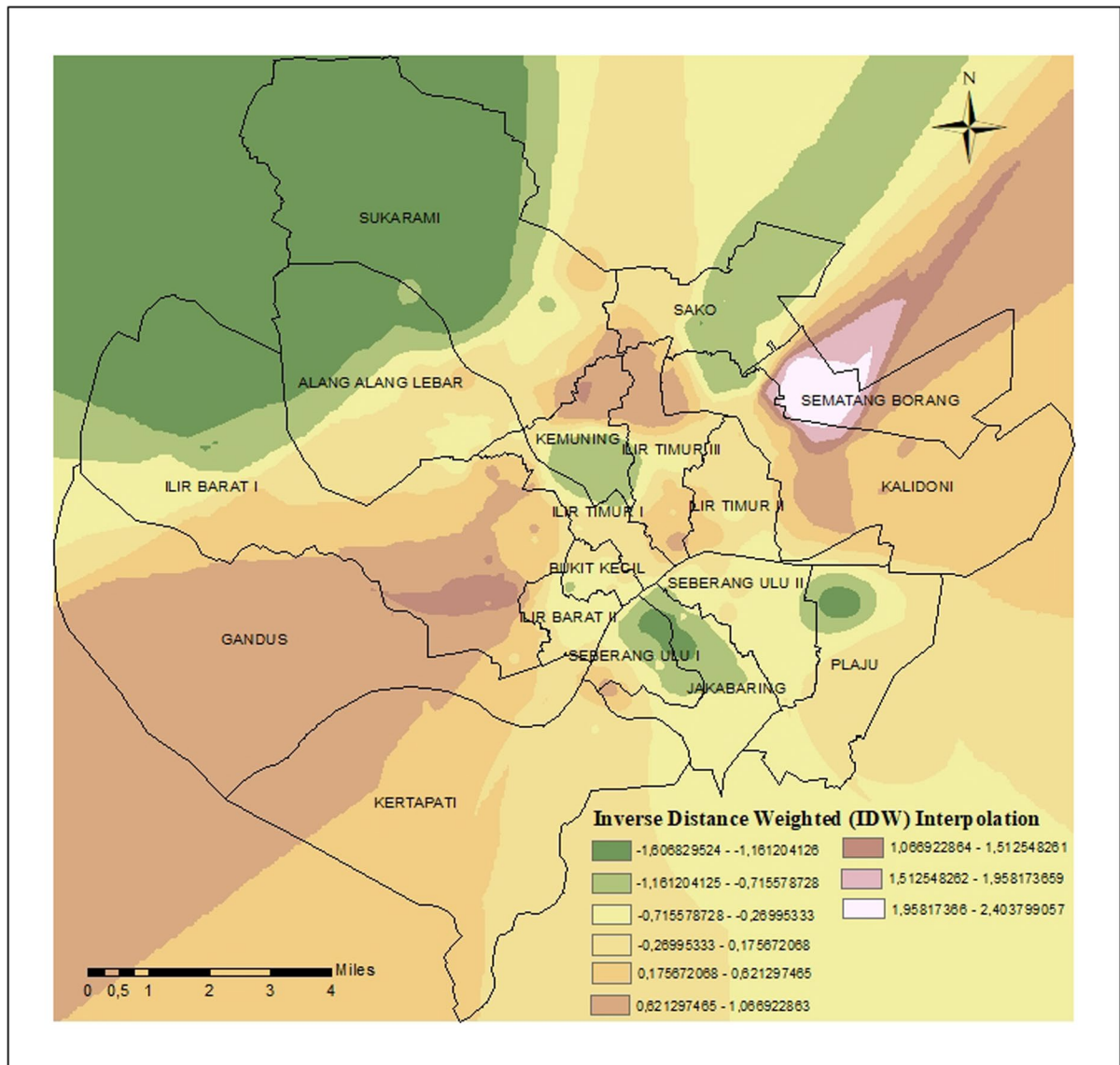


Fig. 3 Interpolation of business places for startup users in Palembang city

restaurants, and grocery shops in districts of Palembang City.

Based on Table 3, most of the permanent markets were in Jakabaring (five units), followed by semi-permanent markets in two other districts, Ilir Timur I and Kemuning (two units). Supermarkets were mostly built in Sako (89 units), while restaurants were concentrated particularly in two other districts, Ilir Timur I and Kemuning (89 units per district). Shops/grocery shops were largely found in Ilir Timur II (1,443 units). Furthermore, reliable internet network and

online transportation services had covered most of the areas in all districts (BPS, 2021s); this is believed to have boosted startup (Gojek and Grab) users to optimize their business management using online applications. The map in Fig. 4 shows the spatial distribution of startup (Gojek and Grab) users in Palembang City based on the nearest neighbor analysis results. It suggests that the more permanent markets (including semi-permanent ones, supermarkets, restaurants, and grocery shops) an area has, the more startup (Gojek and Grab) users reside, and vice versa.

Table 3 Permanent markets, semi-permanent markets, supermarkets, restaurants, and grocery shops in Palembang City. *Source:* BPS-Statistics per district in Palembang City, 2021 (BPS, 2021s)

District	Permanent market	Semi-permanent market	Supermarket	Restaurant	Grocery shop
Seberang Ulu 1	3	–	17	21	134
Iilir Timur 1	3	1	35	89	127
Jakabaring	5	–	32	54	86
Plaju	2	–	25	16	590
Seberang Ulu 2	1	–	40	16	159
Iilir Barat 1	3	–	67	75	719
Sako	2	–	89	31	572
Iilir Barat 2	1	–	19	18	455
Kemuning	3	1	35	89	127
Bukit Kecil	3	–	15	43	98
Sematang Borang	1	–	14	17	157
Iilir Timur 2	1	–	8	11	1,443
Alang-Alang Lebar	3	–	73	67	134
Gandus	2	–	14	19	388
Iilir Timur 3	3	–	35	68	103
Kertapati	1	–	8	11	1,442
Kalidoni	1	–	53	3	390
Sukarami	4	–	84	70	1,230

This research also identified if the startup (Gojek and Grab) users were located close to permanent markets (including semi-permanent ones, supermarkets, restaurants, and shops/grocery shops) and had better access to online transportation and communication with good cell phone reception so as to create business opportunities. Startup users are usually able to take advantage of existing opportunities, thus accounting for the largest share of the creative economy members (Syauqi, 2016). In recent years, the chance to open a business venture has been exceptionally good (Calás et al., 2009; Fachin & Langley, 2017; Garud et al., 2014; Tedmanson et al., 2012) because of all the digital platforms and applications. These days, combining business opportunities with technological innovation has become inevitable. Innovation of services is often the product of complex social phenomena in the community (Berger, 2016) and the emergence of digital technology (Briel et al., 2018; Kannan et al., 2017; Teece & Linden, 2017; Thérin, 2007; Zott et al., 2011). Both facilitate startup users to provide better services for their customers.

Entrepreneurs must thereby seize these business opportunities (Ireland et al., 2003; Shane & Venkataraman, 2000), particularly in the current digital era (Autio et al., 2018; Nambisan, 2017). It seems

logical to infer that there will be myriads of business opportunities resulting from the increasing number of smartphone users (i.e., customers) transacting digitally, changing the existence of traditional markets. Digital markets create disruptions to the traditional ones (Bharadwaj et al., 2013; Ghezzi & Cavallo, 2020; Kollmann et al., 2021), for they can quickly attract customers in broader regions and improve the sale of products and services through various online shopping applications on their smartphones.

In today's world, digitalization has penetrated almost every aspect of people's lives (Coviello et al., 2017; Luo, 2021), including the population of Palembang City that has started to transform from face-to-face trades and services to online transactions. Also, with digitalization, many parties are showing significant interest in the platforms that startup users created (Zielske & Held, 2021), for instance, the users of two startup companies in Palembang City, i.e., Gojek and Grab, which also utilize other e-commerce applications, e.g., Shopee and Tokopedia, and social media applications, e.g., Instagram, Facebook, and YouTube, to market their products.

With the increasing number of startup (Gojek and Grab) users in Palembang City, having the ability to continuously develop and survive is of vital

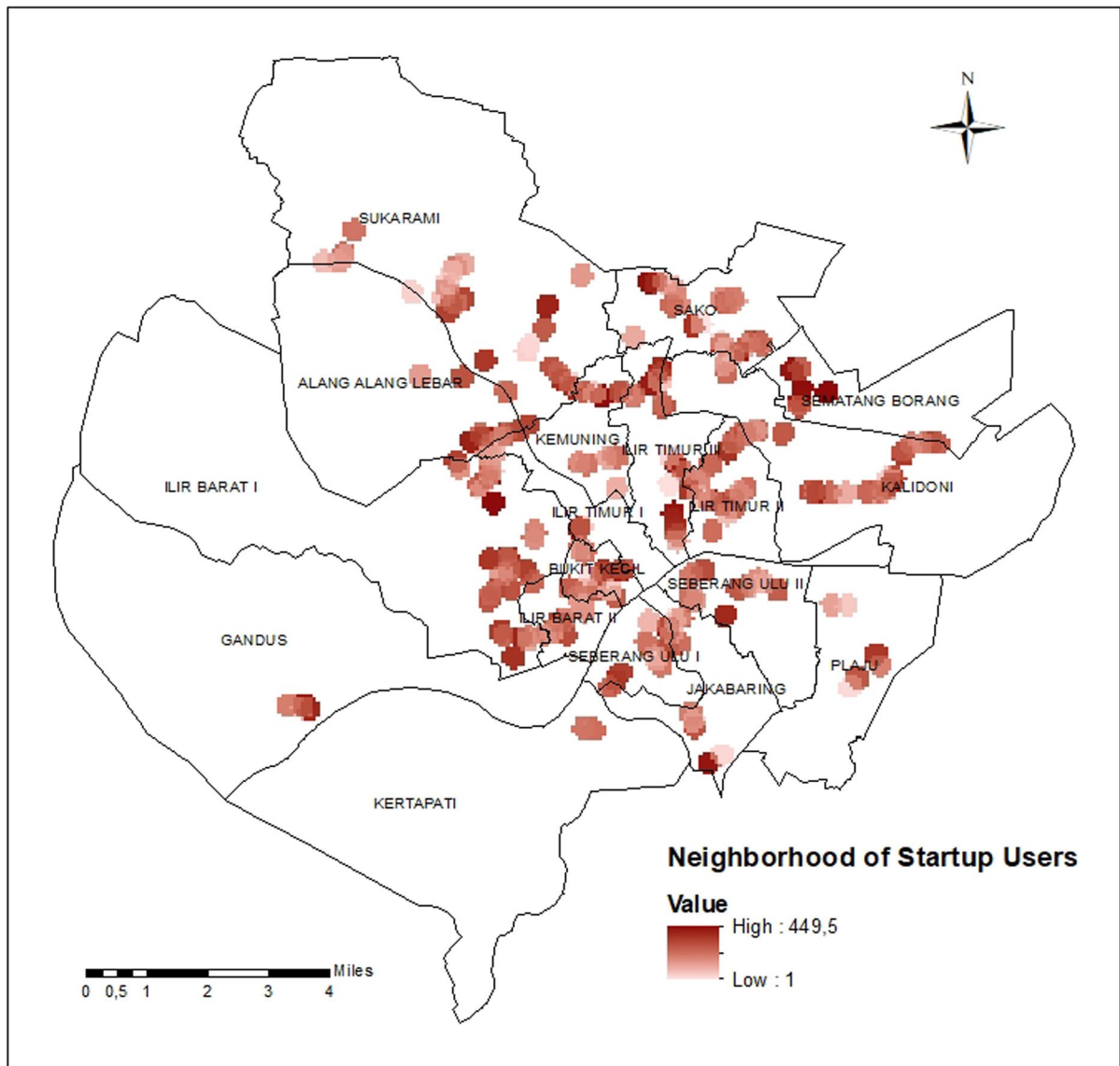


Fig. 4 Spatial distribution of startup (Gojek and Grab) users in Palembang city based on the nearest neighbor analysis

importance. For this purpose, these startup users should increase their resilience (Baldwin & von Hippel, 2011) by improving product quality to prevent customers from switching to other products, brands, or merchants. In addition, excellent customer services are nonnegotiable (Iansiti & Levien, 2004), which can otherwise lead to loss of customers and, eventually, income.

The internet has helped entrepreneurs create new types of businesses (Frizzo-Barker et al., 2020) that run digitally or online. Technological innovations

have been making old types of business compete with the new ones (Adomavicius et al., 2008; Ali et al., 2020), mainly because nowadays people can easily order products and services from the comfort of their homes through smartphone applications without having to meet the sellers directly. In other words, technological innovations are responsible for the emergence of current digital platforms (Clarysse et al., 2014; Eaton et al., 2015), and this relationship can be attributed to their success in facilitating distance and accommodating information (Lusch & Nambisan,

2015). Therefore, distance is no longer an obstacle in ordering products and services, and information can circulate rapidly and vastly with the development of the internet.

Currently, people require more varying types of platforms and innovations (Milat et al., 2013), especially urban populations like the one in Palembang City—the center of the economy of Sumatra Selatan Province. This is because they have to meet a variety of daily needs quickly, easily, and affordably, all of which are the qualities and conveniences that digital platforms and technological innovations offer. Furthermore, business owners and managers should consider that nowadays people require the suitable business model to develop their enterprises (Oestricher-Singer & Zalmanson, 2013). For instance, those who use Gojek dan Grab in Palembang City benefit from the online or digital business model that the two startup companies accommodate so as to market their product quickly and widely.

Conclusion

The spatial distribution of the startup users observed in Palembang City can be categorized into three, namely, based on the year of establishment, place of business, and nearest neighbor analysis results. Based on the year, there are startup users established before, in, and after 2020. Those starting before 2020 have long been familiar with online-based businesses, while those starting later are new to this type of business model. In addition to Gojek and Grab, they also use social media applications such as Instagram and Facebook and other e-commerce applications like Shopee and Tokopedia to market their products. Based on the place of business, startup (Gojek and Grab) users are primarily concentrated in parts of the city that have high population densities, resulting in vast opportunities for startup (Gojek and Grab) users to open a business. Besides, the trade and services sector that accounts for most economic activities in the city practically stimulates the emergence of these opportunities. Lastly, based on the nearest neighbor analysis results, the number of startup (Gojek and Grab) users somewhat increases with proximity to permanent markets, meaning that more startup (Gojek and Grab) users can be found closer to these markets, and vice versa, fewer are established farther.

In addition, good cell phone receptions and reliable interregional transportation networks that are mostly online widen online business opportunities for the city's population.

Acknowledgments The researchers expressed their gratitude to Universitas Gadjah Mada for funding the publication of the research results through the 2021 post-doctoral scheme

Authors' contribution All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by WS and SRG. The first draft of the manuscript was written by WS and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Funding This research was funded by Direktorat Penelitian UGM dan Tim Peningkatan Reputasi UGM menuju World Class Universitas-Kantor Jaminan Mutu UGM, grant number 6144/UN1.P.III/DIT-LIT/PT/2021.

Declarations

Conflicts of interest The authors have no competing interests to declare that are relevant to the content of this article.

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