Disruptive innovation for online informal sector in Palembang City

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Abstract. The Internet has aided the informal sector to make an innovation in a business transaction. There is a shift from a conventional or face-to-face meeting with the consumers to online transactions. The present study aims to describe the disruptive innovation for the online informal sector in Palembang City. The method employed was quantitative with a descriptive approach, while the data were collected through a survey of 382 respondents. The data were then analyzed using the descriptive statistic method. The research resulted in several findings. The online informal sector is dominated by e-commerce through social media, such as Facebook, Instagram, YouTube, and others. The average income of the founders reached Rp250,000 – Rp500,000 per day. Meanwhile, the number of workers in the online informal sector is 1-4 people with an average income ranging from Rp1,000,000 to Rp2,000,000 per month. The workers mostly graduated from Senior high schools (SMA), Vocational high school (SMK), or Madrasah Aliyah (Islamic Senior high school). The main issue faced by the founders of online informal sectors includes strategic locations (near school, campus, markets, and others).

1. Introduction
Disruptive innovation has become a trending topic in informal sectors. The development and renewal of disruptive innovation are said to be the most influential business inspiration at the beginning of the 21st century [1]. During the pandemic, the workers of informal sectors are required to be more creative in taking opportunities. The informal sector is considered an “escape hatch” for middle and low-income people [2]. Indeed, informal sectors are highly flexible for everyone. People must develop and create new ideas in running their business in the informal sector. The advances of technology have forced people to develop themselves. One of the disruptive innovations is an online business, especially in the informal sector.

Basically, disruption is common in the business sector. The business sector is non-static and constantly changes. With the current situation, the disruption process is escalating and more varied. In particular, the modernization era has encouraged the people of Palembang City to adapt to the situation. Moreover, the city of Palembang is a big city in the province of South Sumatra [17, 19] and has a fast development [20, 21, 22]. Most of them started to run online informal businesses using technology. According to Rejeb et al. [3], the traditional method is insufficient in a business competition. A business actor should also focus on managing time efficiently to make progress. The online sector knows no time limit. Hence, high working hours are inevitable, and people need to ensure quality products because they influence their income.

With the high number of competitors, business actors of the informal sector in Palembang City created an innovation using technology. Besides increasing their income, the innovation is more relevant
in the context of the digital entrepreneurship ecosystem, where people distribute the goods to the users and gain their income [4]. The digital startup encounters an environmental dynamic, forcing the business actors to adjust to the new business model. In addition, the digital startup sector offers the business actors opportunities to innovate their business model in order to stimulate a more dynamic and creative phenomenon in business development [5]. As a form of appreciation for the informal sector business actors, the central government implements policies to protect informal workers. The government needs to be more concerned with the situation because the informal sector has become the main support for the economic condition of the people. Therefore, it is necessary to conduct research to observe and explore the disruptive innovation of the informal sector that has been conducted online, especially in Palembang City.

Based on the data of the fields, online informal sectors in Palembang City included e-commerce, Fintech, game, and the like. Internet is among the disruptive innovation of the informal sectors utilizing digital technology and impacting people’s life. The World [6] mentioned three mechanisms of why the Internet is significant in national development. 1) Internet allows automatization and coordination, resulting in global efficiency. 2) The Internet allows smooth communication and collaboration, support the delivery process, encourages collective actions, and accelerates innovation for a global economic scale. 3) The Internet expands trade, creates job vacancies, and increases access to affordable public services. Hence, it encourages inclusive services [7]. Besides, the business actors have recognized investment in the digital sector as a great supporter of productivity and economic development.[8]. The research answers the following question: does disruptive innovation influence the informal sectors in Palembang City? Researches about informal sectors have been conducted, but none of them focus on the disruptive innovation of the online informal sector. Therefore, the research aims to describe the disruptive innovation for the online informal sector in Palembang City. Theoretically, the research is expected to contribute to the demographic information, especially the informal sector in Palembang City. Meanwhile, practically, it is expected to provide references for other researchers interested in the online informal sector during the disruptive innovation era.

2. Research Method

The research employed a quantitative method with a descriptive approach. The quantitative method applied IBM SPSS 23 to analyze the percentage and cross-tabulation for 382 samples gained in Palembang City. The population was informal sector workforces, as many as 204,860 persons. The samples (382) were selected using Krejcie and Morgan formula. The samples were determined using the proportional random sampling technique. They were a group of business actors in disruptive innovation of the online informal sector in Palembang City spread in 18 sub-districts. The proportional random sampling technique allows the samples to represent each area in Palembang City. The data were analyzed in two ways: cross-tabulation and descriptive. The cross-tabulation helps to explain the characteristics of the online informal sector workforces. Meanwhile, the descriptive analysis explains the online informal sector (marketing, income, number of workers, income, education, main issues, and reasons for starting up an online informal sector business.

3. Result and Discussion

3.1. The Characteristics of Online Informal Sector Workforce in Palembang City

The characteristics of the online informal sector workforces are observed through their age, sex, educational level, and marital status. The cross-tabulation analysis between age and sex is presented below.

| No | Age          | Sex  | Total |
|----|--------------|------|-------|
|    |              | Male | Female |   |
| 1  | 10-19 years old | 4.1% | 16.5% | 20.6% |
| 2  | 20-29 years old | 17.9% | 28.7% | 46.6% |
| 3  | 30-39 years old | 12.2% | 10.0% | 22.2% |
| 4  | 40-49 years old | 2.2%  | 3.3%  | 5.4%  |
| 5  | 50-59 years old | 2.2%  | 1.4%  | 3.5%  |
Based on the table, it is found that those who work in the online informal sector are mostly aged 20-29 years old, while 17.9% of them are male. Meanwhile, the least number is presented by age 60-69 (0.8%). Female workers of the online informal sector aged 20-29 years old reach 28.7%, while 0.8% of them are 60-69 years old. It indicates that the respondents aged 20-29, both male and female, are informal sector workers. Based on sex, female workers reached a higher percentage (57.2%), while the male 42.8%. The results meant that more females work in the informal sector than males. The finding is different from the one resulted by [23], stating that male dominated online informal sector. The online informal sector workforce characteristics are presented in the following table.

Table 2. Online informal sector based on sex and educational level

| No | Educational level | Male | Female | Total |
|----|------------------|------|--------|-------|
| 1  | SD               | 1.6% | 1.1%   | 2.7%  |
| 2  | SMP              | 3.8% | 3.3%   | 7.0%  |
| 3  | SMA/SMK/MA       | 23.8%| 44.2%  | 68.0% |
| 4  | D1/D2/D3         | 1.6% | 4.1%   | 5.7%  |
| 5  | S1/S2/S3         | 8.4% | 8.1%   | 16.5% |
| Total |                | 39.3%| 60.7%  | 100.0%|

Source: field data, 2021

The data shows that the highest percentage for male workers is in the category of SMA/SMK/MA, reaching 23.8%, while the lowest is SD and D1/D2/D3, each 1.6%. Similarly, the highest percentage for female workers is SMA/MA/SMK, reaching 44.2%, while the lowest is an elementary school with 1.1%. It proves that the graduates from SMA/MA/SMK, both male and female, dominate the workforces’ educational level of the informal sectors. The finding contradicts the one conducted by [24], revealing that those who work in the online informal sector mostly graduated from a low level of education. Meanwhile, the characteristics based on age and marital status are shown in the following table.

Table 3. Online informal sector based on age and marital status

| No | Age       | Married | Not married | Total |
|----|-----------|---------|-------------|-------|
| 1  | 10-19 years old | 0.5%    | 20.1%       | 20.6% |
| 2  | 20-29 years old | 13.0%   | 33.6%       | 46.6% |
| 3  | 30-39 years old | 19.0%   | 3.3%        | 22.2% |
| 4  | 40-49 years old | 5.4%    | 0%          | 5.4%  |
| 5  | 50-59 years old | 3.3%    | 0.3%        | 3.5%  |
| 6  | 60-69 years old | 1.6%    | 0%          | 1.6%  |
| Total |            | 42.8%   | 57.2%       | 100.0%|

Source: field data, 2021

The table shows that those married are mostly aged 30-39 years old, reaching 19%, while the least category was 10-19 years old (0.5%). Those who are not yet married are at the age of 20-29 years old, reaching 33.6%, while none is married for the category of 40-49 and 60-69 years old. All in all, those who work in online informal sectors are not yet married, reaching 57.2%, while the rest, 42.8%, are married. Interestingly, the findings are different from the one found by [25], claiming that the workforces of the online informal sector are married.
3.2. Disruptive innovation of the Online informal sector in Palembang City

E-Commerce is the abbreviation of electronic commerce, a set of technology, application, and business that connect a company or an individual as a consumer to perform an electronic transaction, trade, and information exchanges through the Internet, television, websites, or other kinds of computer networks. The percentage on the online informal sector (figure 1) illustrates that the activities of distributing, selling, buying, marketing of the products (goods and services) have utilized telecommunication networks, such as Internet, television, or other computer networks, reaching 93%. The rest (7%) used others. It means that all forms of online trade for goods and services use the Internet to improve sales, especially during the Covid-19 pandemic. The findings are in line with the research conducted by [9], mentioning that the spread of Covid-19 has increased the use of E-commerce in the online informal sector. For more details, the data can be seen in the image below:

![Online Informal Sector](image)

**Figure 1.** Online Informal Sector Workers in the Palembang City, Source: Field data (2021)

Marketing is one strategy to promote a product using various media or online platforms. Online marketing is an effort to promote a brand using digital media to reach consumers timely and personally. Digital marketing has been expanded to support the company’s services and consumers’ involvement. The present study supported the research by [11], finding that online marketing has indirectly influenced the consumers’ buying power of a product. Figure 2 illustrates that product marketing strategies were 46% through online media, such as Instagram, Facebook, and YouTube, while 44% through offline mode. The rest, 10%, used both modes.

Meanwhile, offline marketing refers to the buying and selling transaction of goods and services directly. It is where producers and consumers meet in one place. Online and offline businesses are different in terms of their activities. The above data showed that the online mode dominated the marketing strategies.
Sales revenue is the income gained by a company exclusively from selling goods or services. Figure 3 presents the income of online informal sector founders, ranging between >Rp 250,000.00-Rp 500,000.00 per day (52%), >Rp 100,000.00-Rp 250,000.00 (28%), more than Rp 1,000,000.00 per day (10%), >Rp 750,000.00-Rp 1,000,000.00 (6%), and >Rp 500,000.00-Rp 750,000.00 (4%). Thus, it can be concluded that most of the founders gained between Rp100,000 to Rp250,000 per day. In other words, the average income ranged between Rp250,000 to Rp500,000 per day. The results support the research by [11]. He revealed that the online informal sector in Palembang City has indirectly helped the economic condition of South Sumatra Province, especially during the Covid-19 pandemic. A successful business can be observed from the sales figures. The higher the sales figure, the higher the profits. Further, it increases the capital of the online informal sector founders. The business actors can use the increasing capital to expand their business. Therefore, the income determinant of the online informal sector founder in Palembang City is categorized as good [12]. The figure below shows the income of online founders in Palembang.

**Online informal sector founders’ income**

- Rp.100.000 - Rp.250.000 per day
- > Rp.250.000 - Rp.500.000 per day
- > Rp.500.000 - Rp.750.000 per day
- > Rp.750.000 - Rp.1,000,000 per day
- > Rp.1,000,000 per day

**Figure 2. Marketing Of Online or Offline, Source: Field data (2021)**

**Figure 3. Online informal Sector Founders’income workers in Palembang City, Source: Field data (2021)**
However, digitalization has impacted the number of workers. Figure 4 illustrates that 93% companies have 1-4 people, 6% 5-19 people, and 1% 20-99 people. It means that the average number of workers in an informal sector is 1-4 people. Based on the Industry Central Agency, companies are categorized into 4: big industry (more than 100 workers), medium industry (20-99 workers), small industry (5-19 workers), and home industry (1-4 workers). The online informal sector is categorized as a home industry since it has 1-4 workers. The present study agrees with the research by [10]. He mentioned that the online informal sector is categorized as a home industry with irregular and flexible jobs. The Number Of Online Informal sector workers can be seen in the following figure.

Figure 4. Number of Online Informal sector workers in Palembang City. Source: Field data (2021)

Figure 5 illustrates that the 382 respondents in Palembang City gained Rp1,000,000 to Rp2,000,000 income per month. Meanwhile, other data showed that 25% of the workers gained >Rp500,000-1,000,000 per month, while 7% and 1% gained more than Rp2,000,000 and less than Rp500,000, respectively. Hence, the average income of workers each month is between Rp1,000,000 to Rp2,000,000. Government Regulation Number 78 of 2015 mentioned that the Palembang City government had stipulated the City Minimum Wage (UMK) for 2021 as much as RP3.270.092 per month [26], meaning that there is a gap of Rp1.270.000.093 of the workers’ income. Hence, the average income is still below the average minimum wage (UMR). It is due to the type of business run by the people. They run a small-medium enterprise with 1-4 workers. Based on the data gained from the fields, the business is in the development stage, such as small stores and copy centers. The Figure below shows the income of Online informal sector workers in Palembang.
The former Minister of State-Owned Enterprise (BUMN), Dahlan Iskan, motivated the youth to be an entrepreneur. Further, he claimed that students should start their business while studying, “Do not wait till you graduate to be an entrepreneur. Indonesia is one country with the increasing number of unemployment, while the market figure is decreasing”.[13]. Besides, figure 6 shows that the average workers of the online informal sector graduated from Senior high school levels (SMA/MA/SMK), with 96%. Meanwhile, 3% from junior high school (SMP) and 1% from D1/D2/D3. It supports the research by [14], She found that the informal sector workers’ awareness of formal education is good. In managing the business, the workers must continue their studies to a higher level. It is suggested that they take primary education of entrepreneurship that can help them develop their willingness, motivation, and behavior in entrepreneurship. Education can be the source of attitude and willingness to be a successful entrepreneur in the future. Besides, they can manage their business much better. The education data of online workers can be seen in the picture below:

The online informal sector cannot be separated from the reasons and motivation of the founders. Meanwhile, the external problems commonly faced by the actors of the online sector include the low
capital structure, poor organizational structure, management, limited commodities, lack of cooperation between informal business actors, human resources with low education. Meanwhile, each online informal sector business actor has other common issues, as presented in Figure 8. For example, marketing problems (72%), pandemic (6%), capital (5%), weather (2), location (3%), and others (7%). Meanwhile, 5% of the business actors encountered no problem in their activities. In short, the dominating problem faced by the founders of the informal online sector is related to marketing (72%). It is similar to [14] research, mentioning that social marketing is necessary for promoting a product, both online and offline.

The main issues of online informal sector founders can be seen in the following figure:

![The main issues of online informal sector founders](image)

**Figure 7.** The main issues of online informal sector founders, Source: Field data (2021)

Figure 8 illustrates the reasons why people establish the online informal sector. Among others, 64% is motivated by strategic locations (near campus, school, markets), 15% near the residence, 8% on the edge of the road, 6% business opportunities, 3% the non-existence of competitors, 1% personal asset, 3% other reasons. None of them (0%) mentioned income as their reason. The purpose of developing the online informal sector is mostly to increase sales and expand the market. It can become an effective marketing strategy in the digital trade. The online informal sector allows the founders to afford cheaper capital, easy promotion, broader market, trending products, limitless location access. In addition, they do not rely on the weather. The findings supported the research by [15], in that a smart businessman has the ability to build a business following the digitalization demands. People no longer come to a store to buy a product; they sit and shop online from their home.
4. Conclusion

Disruptive innovation can create a new market and replace the old ones with fresh and innovative business ideas, allowing business actors to fulfill the consumers’ demands. Indeed, radical innovation can disrupt and damage the existing markets. Frequently, the innovation disrupts the conventional industry since it tends to propose unthinkable products or services for new consumers. In the end, the innovation has caused the conventional market to fall. Disruptive innovation has reached all aspects of an industry, such as the technology, platforms, and business models. The innovation has haunted the conventional business actors. The conventional industry is threatened by the innovation that may disrupt the markets they have developed. Those failing in competition should be ready to experience a company’s bankruptcy. Basically, disruption is common in the business sector, where everything is certain yet non-static and always changing. The advance of technology has escalated the disruption process. Hence, disruptive innovation facilitates online business services for the consumers [16, 18].

Palembang City is one area affected by disruptive innovation. It can be concluded that the online informal sector in Palembang City is dominated by e-commerce. It conducts the business through social media, such as Facebook, Instagram, YouTube, and others. The average income of the founders of the online informal sector ranged between Rp250,000-Rp500,000 per day. Meanwhile, the number of workers owned by one business ranged from 1-4 people, with the average income reaching Rp1,000,000 to Rp2,000,000 per month. The main issue faced by the founders of the online informal sector is product marketing. Hence, they develop the business in strategic locations near schools, campuses, markets, and others.

The researchers offered theoretical and practical suggestions. Theoretically, it is suggested that further researchers add other variables, such as the positive and negative impacts of online selling, types of E-commerce used in online business, and online reputation management. Practically, the present researchers recommended four ideas. First, informal online sales should have clear regulations about the
prohibition of online business monopolies. Second, online sales should regulate the protection of online business owners. Third, online sales should protect the trademark of the online business. Fourth, the online business sector should protect the consumers’ business activities.

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