



## BACKGROUND PAPER

# Digital Entrepreneurship in Food Delivery Industry in Indonesia

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# **Digital Entrepreneurship in Food Delivery Industry in Indonesia**

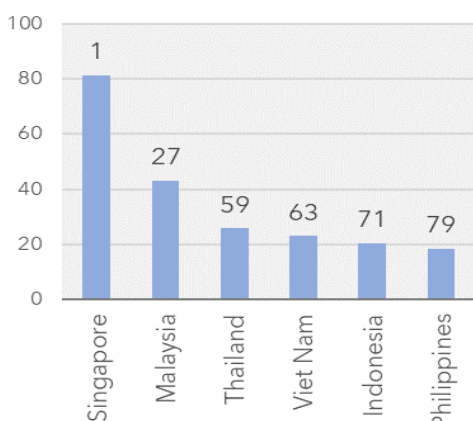
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## **I. INTRODUCTION**

The growth of digital economy is associated with the increasing number of internet users. About 10.92% of population used internet in 2010, which increased to 43.53% in 2019 (Indonesia Statistic). But disparities in internet access between lower- and higher-income population are still high. In 2011, 29% of higher-income population used internet, but only 3.2% of lower-income population. In 2019, 69.1% of higher-income and 28.3% of the higher-income and lower-income population used internet. Lower-income population of internet users grew faster than in higher-income population . The high increase of internet users generated from huge number of generations Y and Z. The high growth of internet users, supported by infrastructure development, as 13.6% of rural area have no internet signal in 2008, decreased to 8.57% in 2018. 99.64% of urban area have good internet signal.

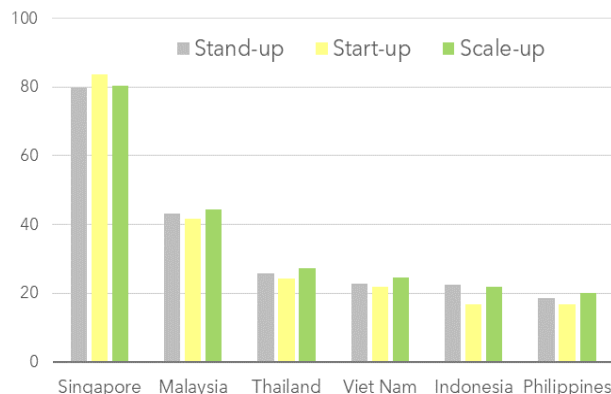
Entrepreneurship change in Indonesia is marked by the emergence of many young entrepreneurs with the main characteristics of adopting digital technology. By the end of 2019, there were five start-ups that became giant digital-based companies as unicorn and decacorn, such a Gojek, Tokopedia, OVO, Bukalapak, and Traveloka. However, in 2021, Indonesia Digital Entrepreneurship Index (DEI) (20.4) is still in the category of “laggard” and in 71st rank of 113 Asian countries (AIDES.2021). The DEI of Southeast Asian countries was led by Singapore, which left behind other countries in “catcher-up” and “laggard” categories.

**Figure 1: Indonesia Digital Entrepreneurship Index Rank, 2021**



Source: AIDES (2021)

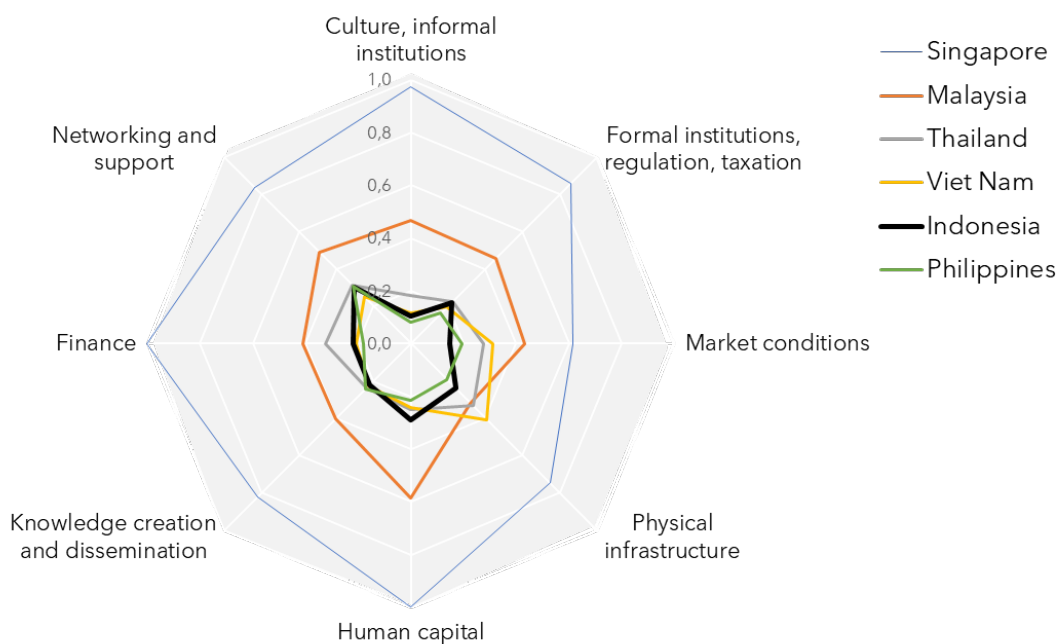
**Figure 2: Digital Entrepreneurship, 2021**



Source: AIDES (2021)

Referring to the eight pillars of DEI of Indonesia, the Systemic Framework Conditions is more prominent than the General Framework Conditions, which consists of highest in networking and support (0.3) and human capital (0.29), but very low sub-index in culture and informal institutions (0.1) and marketing (0.15). Marketing and knowledge creation sub-index is the lowest among six countries in Southeast Asia.

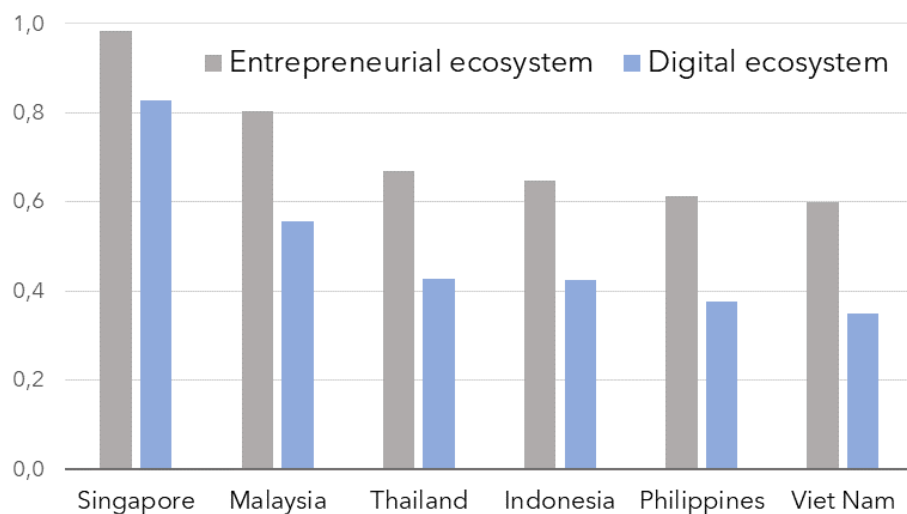
**Figure 3: Indonesia Digital Entrepreneurship Pillars in Southeast Asia**



Source: AIDES (2021)

The development of digital entrepreneurship in Indonesia was brought about by the ecosystem, which the entrepreneurial ecosystem scores (0.65) relatively higher than the digital ecosystem (0.42). The difference in the entrepreneurial ecosystem between the six countries is relatively narrow, compared to the difference of digital ecosystem. Based on the income levels of those countries, it seems that the speed of adoption of digital technology is potentially correlated with their income levels.

**Figure 4: Indonesia Ecosystem in Southeast Asia**



Source: AIDES (2021)

Important moments of digital entrepreneurship growth in Indonesia were initiated in Helar Festival (Helarfest) in 2008 by the Bandung Creative City Forum, with the chairperson Ridwan Kamil who is often invited by The British Council to share experiences in organizing creative communities in various countries. This festival provided rooms for creative communities in Bandung and, subsequently, the emergence of start-ups in Bandung City, which then spread in Indonesia. In 2015, the City of Bandung was included as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Creative Cities Network in Design. Based on the importance of digital economy and to cope with unemployment, the Government of Indonesia put more attention on digital ecosystem with Presidential Decree Number 74 of 2017 concerning Roadmap of e-Commerce in 2017–2019, which was followed by sectoral ministries programs. By 2020, Indonesia's economic was in contraction because of the negative impact of the coronavirus disease (COVID-19) pandemic. The government tried to cope with the situation with Government

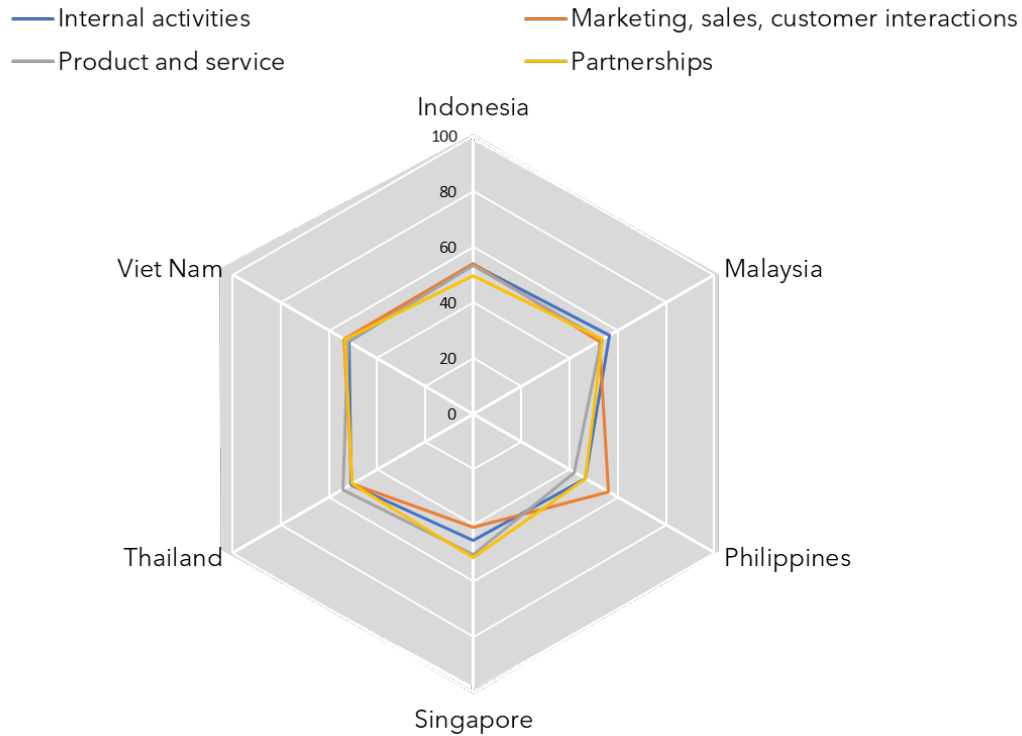
Regulation Number 7 of 2021 concerning ease, protection, and empowerment of cooperatives and micro, small, and medium-sized enterprises. The central and local governments provided grants and/or assistance for innovative micro and small enterprises (start-ups) that have market potential, commercial value, or are technology-based, for business development and/or incubation. The Ministry of Industry developed ecosystem through e-Smart (2019), Making Indonesia 4.0, to empower small and medium-sized enterprises (SMEs) in digital technology adoption. The Ministry of Finance launched T-Corn Program (2020) for financing start-ups during the COVID-19 pandemic. The Ministry of Information and Communication Technology launched Digital Connectivity Program (2021); National Digital Literacy (2021), and Digital Entrepreneurship Academy (2021) with 1,000 start-ups programs. During the pandemic, household spending for communication indicated a shift in preference towards online activities. Online sales increased 4.8 times in April 2020, compared to January of the same year. The highest increase was in food and beverage (F&B) transactions online, which increased 10.7 times (Statistics Indonesia). Start-ups were negatively affected by the pandemic, but new start-ups were established to respond to the new normal, especially in the food delivery industry.

## **II. DIGITAL ENTREPRENEURSHIP IN INDONESIA**

Based on a survey of six Southeast Asian countries (Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam), various aspects of digital entrepreneurship were measured on the level of digital adoption in business, changes in business models, product changes, and performance and support for the Sustainable Development Goals (SDG) agenda.

The adoption of digital technology is measured by its applications in internal activities, marketing, sales, customer interactions activities, products and services, and for partnerships. In general, digital technology application of entrepreneurs in Indonesia is almost the same as the other five Southeast Asian countries, which is still at the medium level. Applications are mostly used for the management of internal activities, market access, and on products.

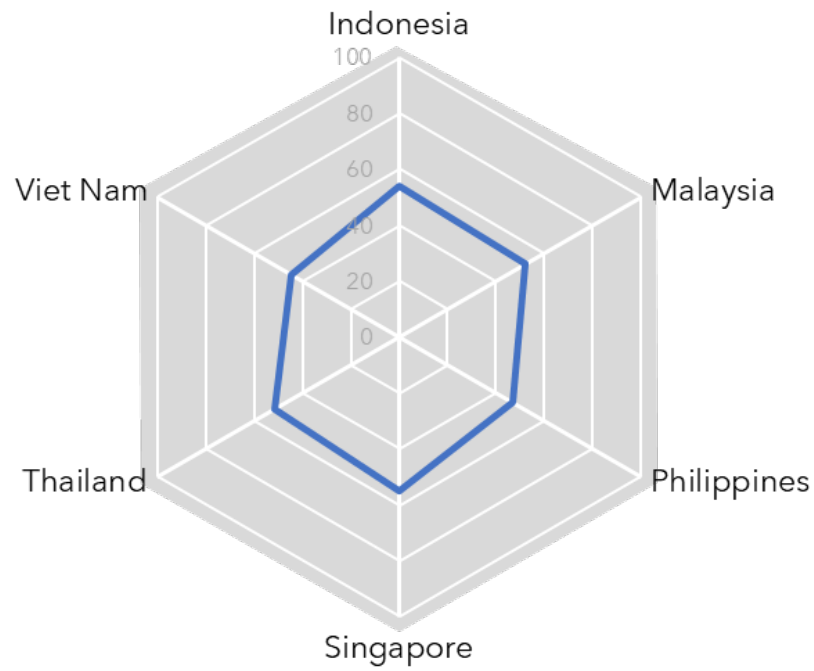
**Figure 5: Digital Entrepreneurship Application**



Source: Survey and interviews.

In the adaptation process, the level of changes made by digital entrepreneurs in Indonesia and the other five Southeast Asian countries is also the same, but digital entrepreneurs in Indonesia made many changes in business models, as well as in Singapore. Changes on products and services are made to existing products or by creating new products. On the Indonesia digital entrepreneurs, the changes on the existing products and services are higher than the other five Southeast Asian countries. However, changes of new products and services are minor. These changes hopefully will have significant impact on better performance.

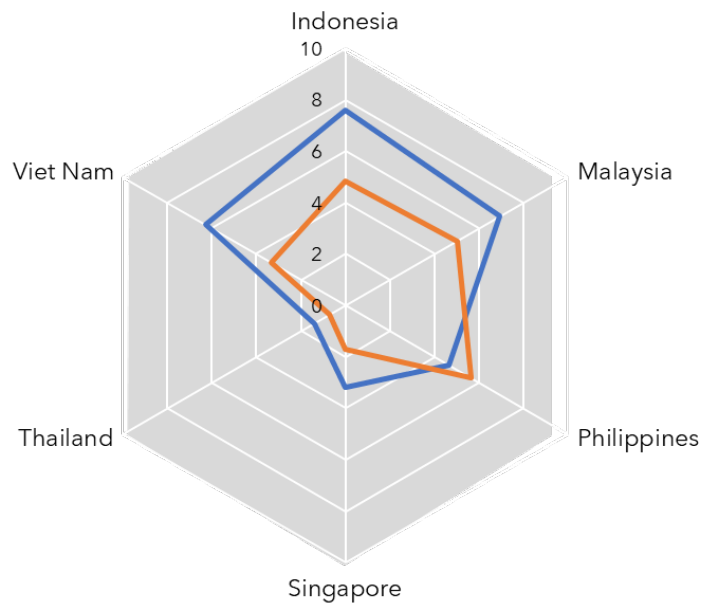
**Figure 6: Business Model Changes**



Source: Survey and interviews.

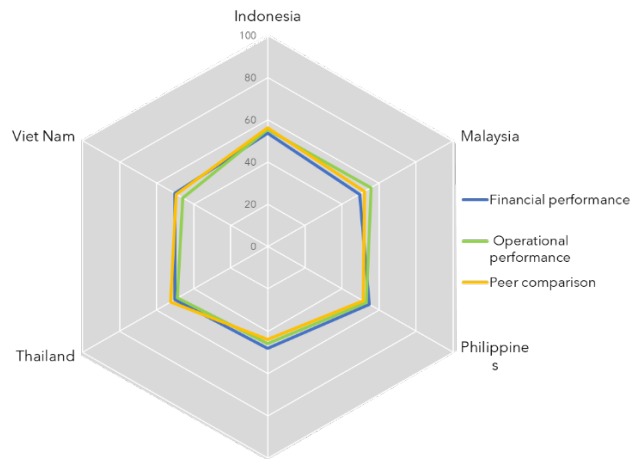
**Figure 7: Number of Products and Services Changes**

— Changes to existing products and services — Completely new products and services



Source: Survey and interviews.

**Figure 8: Performance**

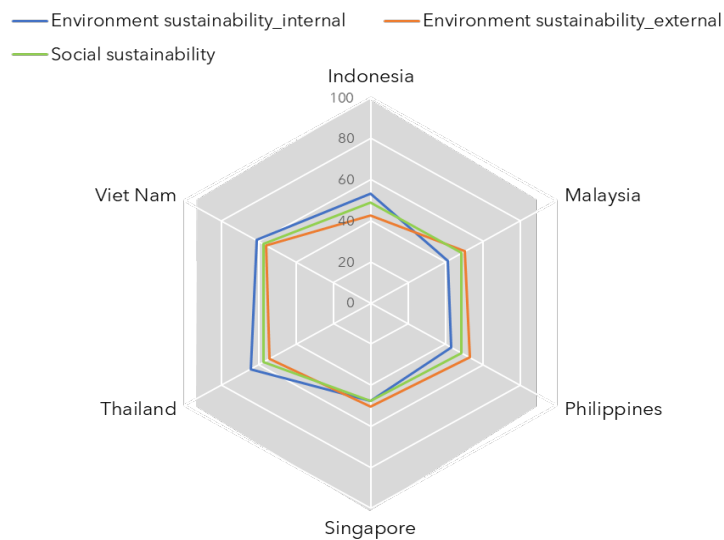


Source: Survey and interviews.

In general, the performance of digital entrepreneurs in Indonesia is still at the medium level, although it is higher than the other five Southeast Asian countries in terms of financial performance, operational performance, and peer comparison.

Concerning SDGs on internal and external aspects of environmental sustainability, social and stakeholder welfare, the Indonesia digital entrepreneurs are also similar with the other Southeast Asian countries, which is at the medium level. The higher concern is on internal environmental sustainability and the lowest concern is on external environmental sustainability. This situation indicates that the digital entrepreneurs still have a narrow focus on the environment.

**Figure 9: Sustainability**



Source: Survey and interviews.



### III. FOOD DELIVERY INDUSTRY IN INDONESIA

According to the International Standard of Industries Classification, food delivery activity is part of the F&B services industry. The dynamic of this sector usually correlated to food consumptions level, population size, as well as the growth of income levels. With its 274 million population, Indonesia became the country that spends hugely on food consumption. The growing food delivery industry in Indonesia was brought about by the huge food consumption demand, better internet access, and the large number of motorcycle vehicles. This growth was accelerated by the three giants among digital platform companies: Gofood, Grabfood, and Shopee. The average percentage of food consumption to gross domestic product was 28% in 2016–2021, and the value was about US\$297.5 billion a year. The average growth rate of food consumption was 3.65%, which was higher than the average economic growth of 3.55%. Regarding the food consumption, the F&B services sector as provider of food consumption grew by 3.65% on average. Although the growth rate sharply declined at the beginning of COVID-19 pandemic, it bounced back in 2021. Beside better internet access, the number of motorcycles in 2016 was 94.5 million (1.43 units per household) which grew to 115 million (1.65 units per household) in 2020.

**Table 1: Food Market and Delivery Infrastructure in Indonesia, 2016–2021**

	2016	2017	2018	2019	2020	2021
Food and beverage consumption of gross domestic product (%)	27.9	27.5	27.5	28.0	29.3	27.8
Food and beverage consumption value (US\$ billion)	257	276	282	319	321	330
Food and beverage consumption growth (%)	5.36	5.27	5.31	5.33	-1.26	1.90
Economic growth (%)	5.03	5.07	5.17	5.01	-2.07	3.10
Food and beverage service growth (%)	5.03	5.48	6.03	6.89	-6.86	5.35
Number of motorcycles (million unit)	94.5	100.2	106.7	112.8	115.0	
Ratio of motorcycles per household (unit)	1.43	1.49	1.57	1.64	1.65	

Source: Statistics Indonesia (2020) (2021).

During the pandemic, household spending for communication indicated a shift in preference towards online activities. Online sales increased 4.8 times in April 2020 compared with January of the same year. The highest increase was in F&B online transactions which was by 10.7 times (Statistics Indonesia). Growth of the F&B services sector is more dynamic than the economic growth. As Indonesia income level grows, a lower middle-income country, the potential demand for food service will grow higher, although it is also sensitive to price change.

The food services sector is generally carried out by micro and small enterprises rather than medium- and large-sized enterprises. The micro and small enterprises in food services are 3.99 million, while the medium- and large-sized enterprises are only 12,602. Among the medium- and large-sized companies, 65.9% are restaurants and the rest are the other business models. About 65.9% of all food services enterprises are in Java as the most populous island. About 70.9% of medium- and large-sized enterprises are also in Java Island. Among the cities in Java Island, 34.4% are located in the City of Jakarta. The food service industry is also a hugely absorbing sector of workers. Micro and small businesses absorb 3 workers and medium- and large-sized businesses absorb 21 workers on average, with total employees of about 12.25 million. In practice, 79.68% of food service companies sell online, through social media 50.12%, websites 18.24%, and 45.14% by third parties. The proportion of on-site food sales is about 55.54% and the rests are taken away. According to Indonesia Statistics survey, about 33.31% of online deliveries are through GoFood (Go-To Group) and 39.82% through GrabFood, while the remaining 26.86% are by other food delivery companies. Another food delivery company operating in 2021 is ShopeeFood. In their competition, Grab and Go-Jek are investing heavily in building rewards and loyalty programs to increase customer engagement and retention, while, at the same time, dishing out discounts and promos to ramp up food orders (Natakusumah 2019). Indonesia had the largest food delivery service market in Southeast Asia in 2020 in terms of gross merchandise value (GMV), according to a report by venture capital firm Momentum Works. The GMV of the country's food delivery services was about 31% of the total food delivery value of Thailand, Singapore, Malaysia, the Philippines, Viet Nam, and Indonesia itself. The total GMV for the region was \$11.9 billion in 2020 (Fathur Rahman 2021). The food-delivery market has the potential for robust growth. The rise of digital technology is reshaping the market. McKinsey research shows that just 26% of traditional delivery orders (in 26 countries) are made online today, but this share is expected to increase rapidly. The addressable market for new delivery will reach more than €20 billion by 2025 (Hirschberg et al. 2016).

Referring to Momentum Works in 2021, there are three types of food delivery platforms in the food delivery industry: (i) Pure advertising – two-sided marketplace connecting consumers with food services operators, who handle delivery on their own. The platform collects advertising fees and commissions from food service operators. (ii) Concierge – two-sided marketplace connecting consumers with logistics operators, who would buy the food at restaurants. The platform charges consumers a service fee and pays logistics operators. (iii). Integrated – three-sided marketplace connecting all three parties: consumers, food services operators, and logistics operators. The platform levies commission from food service operators, delivery fee from

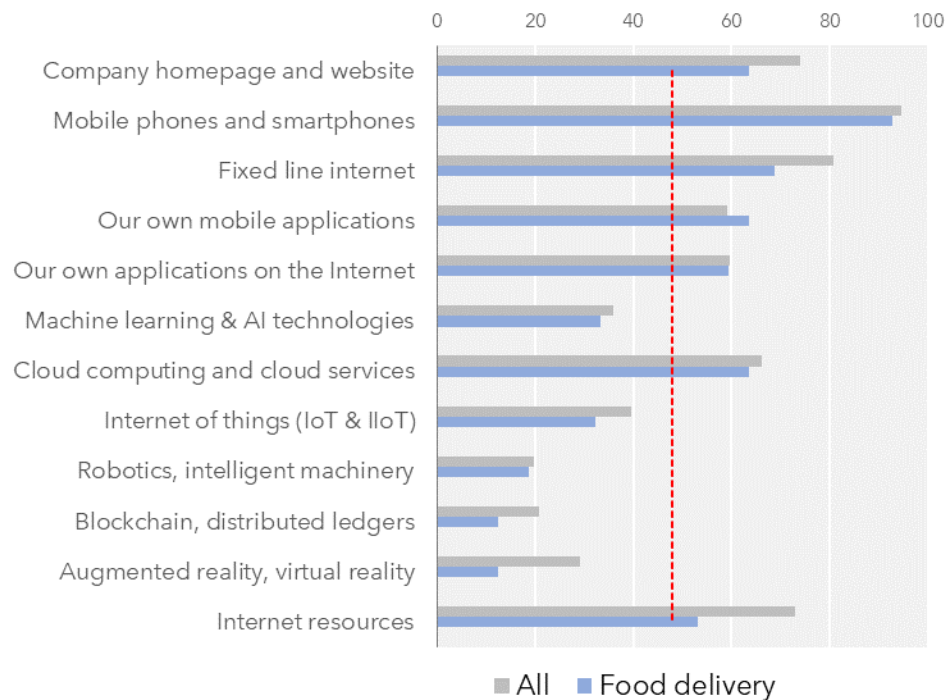
consumers, and pays logistics operators. In term of business model (Marsudi 2021), food delivery business model in Indonesia trends are (i) Cloud kitchens in form of food court model, kitchen operator model, and hybrid cloud kitchens model. This model stimulates novice F&B players to start their entrepreneurship journey with minimized risk. An insider source from Grab Kitchen mentioned that about 75% of F&B brands that use their services are SMEs. (ii) Online branded restaurants. This model leverages cloud kitchens to launch new F&B brands and experiment on new recipes. Most entrepreneurs can easily discover their product-market fit by simply launching and testing their food products. Fortunately, there is no shortage of restaurants, and so cloud kitchens are complementing existing supplies, while allowing owners/entrepreneurs to adapt online delivery with a different cost structure (Yorlin 2021). In this situation, referring to Momentum Works (2021), there is a clear departure in strategy between global and homegrown food delivery players in the region: first, pure play food delivery model, adopted by global players, including Foodpanda and Deliveroo; second, super app strategy adopted by homegrown regional players, including Grab and Gojek; third, local players in the region, including LineMan in Thailand and Now in Viet Nam, are part of a larger group/product offering consumers multiple services. The ability to cross sell across different services to the same customers and merchants, leveraging the same delivery infrastructure, allows super apps to acquire customers at lower cost, better retain customers, and turn a profit sooner, in a more sustainable way.

#### **IV. DIGITAL ENTREPRENEURSHIP IN FOOD DELIVERY INDUSTRY**

Food delivery industry is growing in Indonesia now, even during the COVID-19 pandemic. This section analyzes the comparison between digital entrepreneurs in the food delivery industry to all digital entrepreneurs industries, such as the creative industry, information technology solution, financial technology, health and wellness, e-commerce, and tour and travel.

The level of application of digital technology in all industries is in the medium with the medium intensity of use. The types of digital technology are mobile phone and smart phones, home page and websites, company home pages and websites, mobile and smartphones, fixed line internet, mobile applications, cloud computing and services, as well as utilizing various freely accessible internet sources. The food delivery industry reveals the same pattern as low-tech. The higher digital technologies use internet of things (IoT) and Industrial Internet of Things (IIoT), while robotics, artificial intelligence, machine learning, and blockchain are in low level of application.

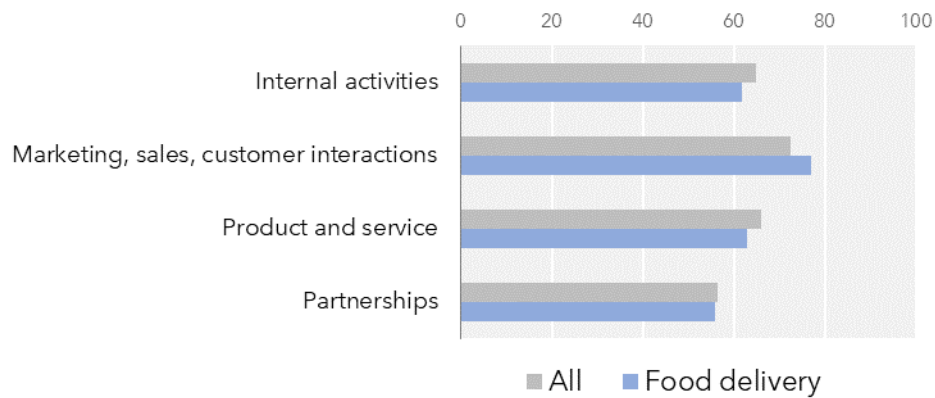
**Figure 10: Digital Technology Reliance**



AI = artificial intelligence, IoT = Internet of Things, IIoT = Industrial Internet of Things.  
Source: Survey and interviews.

Digital technology is used in various applications within the company, but its overall application is quite intensive. On the food delivery industry, digital technology is used mainly to support activities of marketing, sales, and customer interactions. The overall industry has more prominent application for internal activities, product and service development, as well as in partnership developments. Digital technology applications in food delivery and all digital entrepreneurs are depicted in Figure 12, and the details are in Table 2.

**Figure 11: Digital Technology Applications**



Source: Survey and interviews.

**Table 2: The Use of Digital Technology**  
(lowest 0, highest 100)

Digital Technology Uses		All	Food Delivery
Digital technology for internal activities	Digitalized human resource processes	61.0	51.0
	Digitalized customer management system and databases	70.6	78.1
	Digitalized accounting system	65.1	65.6
	Use suppliers to manufacture products under our own brand	46.9	47.9
	Digital technologies and data to optimize manufacturing, service, and logistics	70.4	58.3
	Use digital technologies for resource and inventory planning	64.5	70.8
	Digital connection for work from home staff	73.7	59.4
	Fully data-driven company	66.4	62.5
Digital technologies for marketing, sales, and customer interactions	Advertise primarily through digital channels	78.1	81.3
	Constantly update web page	69.5	71.9
	Constantly use social media	82.5	87.5
	Constantly monitor interactions with customers	71.5	79.2
	Customers can order or pay online (or both)	78.9	89.6
	Actively monitor ratings and customer reviews online	68.9	74.0
	Operate online user community	58.8	56.3
Digital technologies for products	Fully digital products and services	65.8	53.1
	Mobile app for our products and services	63.8	69.8
	Digital platforms to get user feedback	68.4	65.6
Digital technologies for partnerships	Online coordination resources to collaborate	50.9	51.0
	Share data with partners	47.1	45.8
	Work with partners to increase sales	65.1	63.5
	Collaborate to create new services for our customers	62.9	62.5

Source: Survey result.

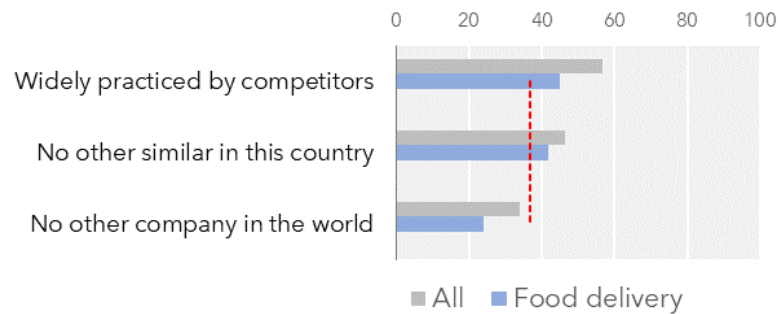
In doing their business, the digital entrepreneurs made changes to their business models because of their internal needs and adaptation to ecosystem changes. However, the changes of business model elements is at the medium level. Of the changing business models of 11 elements, only 5 elements are relatively prominent in food delivery industry, such as interaction model with customers, products and production, partnerships, models for revenue generation, and models for obtaining business opportunities. In addition to the relatively medium level of model changes, the food delivery industry is also slightly lower than all digital entrepreneur industries. In terms of business model innovation as a source of growth (Figure 13), unfortunately the overall innovation level is rather low. The innovation of business model has been practiced also by many competitors and is very local. Generally, the food delivery industry also is lower than all digital entrepreneurs industries.

**Figure 12: Changes in Business Model Elements**



Source: Survey and interview.

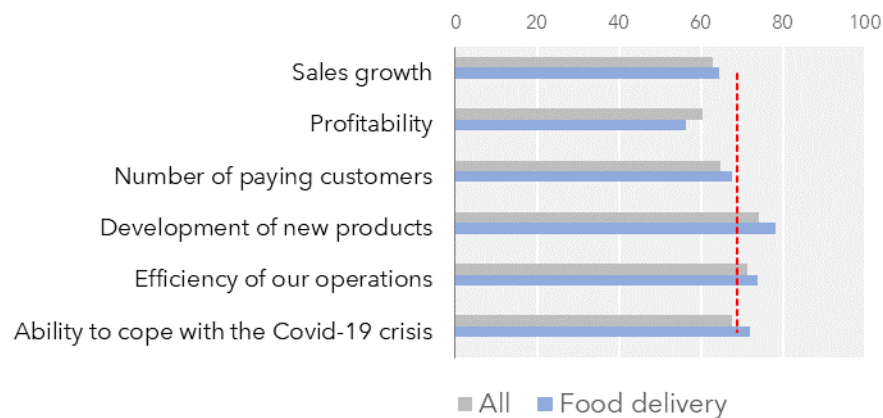
**Figure 13: Innovative Business Model**



Source: Survey and interviews.

In general, business performance of entrepreneurs is quite high, especially in terms of development of new products and operational efficiency. The performance of food delivery industries business is slightly better than all the digital entrepreneurs industry, especially in terms of sales growth, number of customers, new product development, operational efficiency, and ability to cope with the COVID-19 impact, except for lower profitability. Basically, food delivery has a large market in Indonesia, especially in urban areas, because of the large number and density of the population and food as basic needs products. However, because the value added food delivery industries are not quite large, the margin or profitability is also low.

**Figure 14: Business Performance**

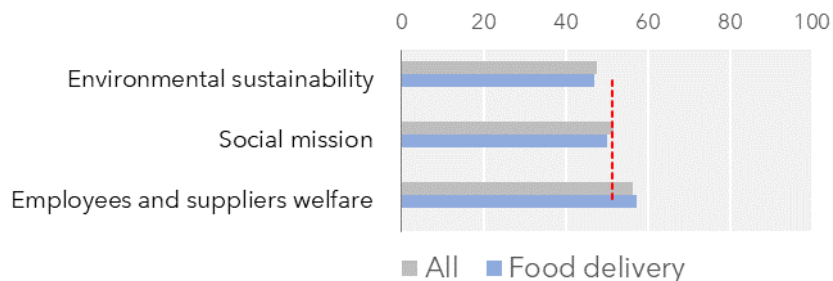


COVID-19 = coronavirus disease.  
Source: Survey and interviews.

The concern of enterprises regarding SDGs is at the medium level. The concerns of digital entrepreneurs in food delivery industries and all other industries are similar. In addition, they are

more concerned on the welfare of employees and suppliers rather than on environmental sustainability and social mission.

**Figure 15: Concern on Sustainable Development**



Source: Survey and interviews.

## V. THE INNOVATIVE DIGITAL BUSINESS MODEL IN FOOD DELIVERY INDUSTRY

The food delivery companies in this study fall under two types: (i) food delivery business models that entirely sell other parties' products or (ii) food delivery business models that not only sell their own products but also other parties' products. The levels of digital technology adoption of these companies vary in support of their chosen business model.

### A. Habibi Garden: Precision Agriculture

Indonesia has vast natural resources and land for agriculture, but most of its agricultural practices are still conventional or there is very low adoption of modern agricultural technology. The result is low productivity, substandard product, and exposure risk to climate. It is an unattractive phenomenon for young people. The Habibi Garden business tries to cope with the situation by adopting digital technology in agricultural production. Founded in 2017, the first pilot project is a tomatoes farm in Cianjur District, West Java (Jawapos, 2019), (Tinc, 2021).

Starting from the desire to build a start-up, the founders actively participated in any start-up competitions. Their creativity and innovations were widely appreciated and won a global scale competitions level in Germany. Habibi Garden tries to advance its innovations in agriculture with the IOT called Precision Agriculture. With their technology, Habibi Garden provides solutions for farmers to monitor and evaluate real-time plants condition with user-friendly application concepts and features due to fairly heterogeneous level of knowledge and adoption technology among the farmers. Innovations in product and service development were continued with many key services to help farmers. Habibi Garden also builds its own ecosystem by developing a business model



that suits market conditions by offering various facilities for farmers and through collaboration with the Ministry of Agriculture. With its digital technology, it increased water use efficiency by up to 70%, increased harvest quality by up to 20%, reduced the risk of crop failure in greenhouses to less than 5%, and increased the average productivity of vegetables and fruits by 30% (*Panen News*, 2020), (Habibi Garden, 2021).

Now Habibi Garden consumers have spread across several provinces in Indonesia. The main targets in the next 5 years are (i) increasing the interest of the millennial generation to return to the agriculture sector, (ii) expanding to neighboring countries, and (iii) increasing the potential of agricultural land resources in the other provinces by using IoT technology.

## **B. Wagros: Strong Foundation of Staple Food Grocery**

The common problems in the staple food commodity business are long distribution chains, relatively constant preference of buyers, sensitive market prices, fluctuating productions, market uncertainty, low prices, and narrow profit margin. Because of these problems, only very few companies are able to build a wide and long span of control of this business.

Warung Grosir Digital Indonesia (Wagros) brings three important innovations to the trade and distribution business on staple food: (i) shortening the distribution chain and ensuring market access through contracts with wholesalers throughout Indonesia,; (ii) supporting micro and small enterprises in terms of finance, and (iii) utilizing digital technology to control operations. This innovation is supported by a deep understanding and relationships with sources of production, relationships with wholesalers in a high number of urban population as their market, and further in the thin profit margins, Wagros builds its business very fast. Wagros is committed to further increase its use of higher level of digital technology. In 2021, Wagros upscaled collaboration with Bank Rakyat Indonesia, after a very profitable collaboration in previous years. It is also very important to help SMEs to grow, after being affected by the COVID-19 pandemic. This initiative was first launched in Garut District, West Java Province. This collaboration is part of Wagros' contribution to increasing food security and social welfare. Wagros will be supported with huge finance from Bank Rakyat Indonesia and increase their digital technology adoption (Republika, 2019), (Republika, 2020).

Warung Grosir Digital Indonesia (Wagros) in 2018 founded and built over deep field experiences. Wagros' line of business is business-to-business (B2B) trading in staple food commodities such as rice, fish, and meat. Its market covers the entire territory of Indonesia, starting from the big cities. About 97% of Wagros market is B2B, with large volume and contractual market certainty. Wagros grew impressively in 2020, as sales increased by 151%. Sales in 2020

reached Rp171 billion, increased from 2019 Rp68.6 billion. Cooperation contracts for rice increased by 199% in 2021, the majority consisted of 100,400 tons of fish and 65.880 tons of rice (Wagros. 2021).

### **C. e-Fishery: The First Aquaculture Intelligence Company in Indonesia**

The high market demand of aquaculture commodities from domestic and foreign markets was challenged by unstable supply side. The root causes of supply side are fluctuation of feed prices, declining water quality, high mortality rate, and traditionality of farming process. Responding to this phenomenon, e-Fishery as the first aquaculture intelligence company in Indonesia is trying to take part in being the solution to this problem. Its first innovative product was the EfisheryFeeder, an autofeeder technology for fish and shrimp, connected with a internet-based mobile gadget. The benefits are (i) increasing the average daily growth with continuous diet, (ii) optimizing food conversion ratio, an even feed distribution that maintain optimal nutrition, (iii) production increase with efficient feeding and faster harvest period, and (iv) improving water quality by reduction of waste from overfeeding.

e-Fishery also builds business model of vertical chains integration with suppliers, farmers, and distributors/resellers through production side; and develops distribution channel and marketing network through EfisheryFresh services. The bargaining power of farmers thus increases and this ensures sustainable market with profitable prices. (eFishery, 2020).

The founder of e-Fishery was appreciated as Unreasonable Impact in 2018, listed as Forbes 30 under 30 Asia 2017, Ernst & Young Entrepreneur of the Year Award in Innovation Category in 2018 (Forbes, 2017). These innovations were used by more than 10,000 farmers, farmer groups, and corporations spread across 250 cities in Indonesia. The total area of aquaculture land covers 4,600 hectares or the equivalent of 35,000 fish ponds. The number of deployed eFishery feeders in 2019 is 4,119 units, indicating effective market penetration and attracting farmers interest. Specifically, EfisheryFeeder product accelerated the fish and shrimp harvest period to 74 days from the normal 90 days, increased feed efficiency by 30%, and increased production capacity by 26%. (Cnbcindonesia. 2019). Efishery is also trying to strengthen its ecosystem by introducing the Efisheryfeed service that helps farmers to get a variety of quality feed at affordable prices. Efishery facilitates purchase of feed in large quantities with competitive prices to help farmers reduce operational costs.

E-fishery has been collaborating with 25 well-known brands of fish feed to supply the needs of farmers. In addition, the company developed Efisheryfund to help farmers access sources of financing. Total loan funds that have been distributed to farmers are about US\$8.1

million, including loans for fish feed of more than 5,000 tons. Now, e-Fishery collaborates with many financial institutions such as BRIAgro, ALAMI, Crowdo, Investree, Kawalcicil. This proves that e-Fishery has good credibility in the eyes of creditor partners (eFishery, 2020). This collaboration is an important part of building a solid business ecosystem between e-Fishery and their strategic partners.

## **VI. CONCLUSIONS AND RECOMMENDATIONS**

In 2021, Indonesia's DEI (20.4) was in “laggard” category. Among the 113 Asian countries, Indonesia is in 71st rank and, of the eight pillars of DEI, sub-index networking and support and human capital are the highest, while the very low sub-index is of culture and informal institutions and marketing. On the ecosystem, the entrepreneurial ecosystem are relatively higher than the digital ecosystem. The difference of entrepreneurial ecosystem among the six Southeast Asian countries are relatively narrow, compared to the difference of digital ecosystem.

With the huge market size of food delivery services, growing internet access, and increasing number of motorcyclists acting as couriers, opportunities abound for companies and start-ups to innovate new products or services and develop their own business models. During the COVID-19 pandemic, online service of food delivery was growing rapidly. About 73.13% of food delivery market was served by GrabFood and GoFood. In early 2021, the ShopeeFood entered the competitive market. The existence of dominant players leaves thin market opportunities for new entrants and many young digital entrepreneurs in food delivery business.

The recommendations is that (i) The digital entrepreneurship ecosystem should be developed together by businesses, communities, knowledge institutions, financial institutions, and the government. All parties can directly collaborate through the business incubation and facilitation for digital start-ups and/or indirectly by promoting efficient markets and providing digital technology infrastructures. (ii) The Government of Indonesia can scale up the 1,000 Digital Start-ups Movement and other supporting policies by developing networks of business incubators throughout the nation for information sharing, resource optimization, and market access to reach more entrepreneurs and encourage their involvement.

In the very competitive market with dominant players, food delivery companies and start-ups still can serve a niche market and/or simultaneously use existing platforms of the giant companies. There are still open opportunities to innovate with new products or services and develop own models.

## REFERENCES

- AIDES .2021. *Asian Index of Digital Entrepreneurship System*. Asian Development Bank.
- Cnbcindonesia. 2019. *Startup e-Fishery Pemberi Pakan Ikan dari Bandung ke Barcelona*.  
<https://www.cnbcindonesia.com/tech/20190323073741-37-62509/startup-efhisery-pemberi-pakan-ikan-dari-bandung-ke-barcelona> (accessed 2 September 2021).
- eFishery. 2020. *Aquaculture Intelligence Company Profile*. Bandung.
- Fathur Rahman, Dzulfiqar. 2021. Indonesia's \$3.7b Food Delivery Market Largest in Region. *The Jakarta Post*, 28 January.  
<https://www.thejakartapost.com/news/2021/03/08/deliveroo-cuts-annual-loss-before-london-float.html> (accessed on 22 September 2021).
- Forbes. 2017. 30 Under 30 Asia 2017: Here are The Young Engineers and Scientists Revolutionizing Age-Old Industries. <https://www.forbes.com/sites/ywang/2017/04/12/30-under-30-asia-manufacturing-industry-energy/> (accessed 2 September 2021).
- Govenrment of Indonesia, Ministry of Trade. 2013. *Profile Commodity: Rice*. Jakarta.  
[https://ews.kemendag.go.id/sp2kp-landing/assets/pdf/130827\\_ANL\\_UPK\\_Beras.pdf](https://ews.kemendag.go.id/sp2kp-landing/assets/pdf/130827_ANL_UPK_Beras.pdf) (accessed 30 Augus 2021).
- Government of Indonesia, Ministry of Agriculture. 2020. *Pandemi Covid-19 Jadi Momen Mendongkrak Bisnis Hortikultura*. Jakarta.  
<https://www.pertanian.go.id/home/?show=news&act=view&id=4382> (accessed 12 September 2021)
- Government of Indonesia, Ministry of Agriculture, Directorate General of Horticulture. 2020. *PDB Triwulan II 2020, Sektor Pertanian Tumbuh Paling Tinggi*. Jakarta.  
<http://hortikultura.pertanian.go.id/?p=5494> (accessed 1 September 2021).
- Habibi Garden. 2021. *Habibi Garden Profile*. <https://www.habibigarden.com/> (accessed 2 September 2021).
- Hirschberg, Carsten, Alexander Rajko, Thomas Schumacher, Martin and Wrulich. 2016. *The changing market for food delivery*. McKinsey & Company.  
<https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-changing-market-for-food-delivery>.

- Jawapos. 2019. *Habibi Garden, Startup Indonesia yang Cetak Prestasi di MWC 2019*, <https://www.jawapos.com/oto-dan-teknologi/01/03/2019/habibi-garden-startup-indonesia-yang-cetak-prestasi-di-mwc-2019/> (accessed 3 September 2021).
- Liputan6. 2019. *Distribusi Tak Maksimal Jadi Penyebab Harga Ikan Masih Mahal*. <https://www.liputan6.com/bisnis/read/4082293/distribusi-tak-maksimal-jadi-penyebab-harga-ikan-masih-mahal> (accessed 28 August 2021).
- Marsudi, Dyota. 2021. *Indonesia's Evolving F&B Industry: Amidst the Pandemic, the F&B Industry Emerged as One of the Most Resilient Sectors Through Digitalization*. <https://www.vertexventures.sg/news/indonesia-s-evolving-f-b-industry-amidst-the-pandemic-the-f-b-industry-emerged-as-one-of-the-most-resilient-sectors-through-digitalization/> (accessed 22 September 2021).
- Momentum Works. 2021. *Food Delivery Platforms in Southeast Asia (SEA)*. January.
- Natakusumah, Kameswara. 2019. *Food Delivery Market in Indonesia; Shifting Dynamics*. October 17. <https://thelowdown.momentum.asia/food-delivery-market-in-indonesia-shifting-dynamics/> (accessed 22 September 2021).
- Panen News. 2020. *Habibi Garden, Sebuah Start-up Irigasi Pertanian Modern Buatan Anak Negeri*. <https://panennews.com/2020/01/habibi-garden-sebuah-startup-irigasi-pertanian-modern-buatan-anak-negeri/> (accessed 27 August 2021).
- Republika. 2019. *Teknologi Bantu Milenial Farmers Kembangkan Pertanian*. <https://www.republika.co.id/berita/q2ercx216/teknologi-bantu-milenial-emfarmersem-kembangkan-pertanian> (accessed 26 August 2021).
- Republika. 2020. *Kementan: Masalah Pangan Timbul dari Distribusi*. <https://republika.co.id/berita/q98iyt380/kementan-masalah-pangan-timbul-dari-distribusi> (accessed 27 August 2021).
- Statistics Indonesia. 2020. *Rice Trade Distribution in Indonesia 2020*. Jakarta: Badan Pusat Statistik.
- Statistics Indonesia. 2021. *Food and Beverage Service Activities Statistics 2019*. Jakarta: Badan Pusat Statistik
- Tinc. 2021. *Habibi Garden: Precision Farming*. <https://tinc.id/innovationDetail/habibi-garden> (accessed 2 September 2021).
- Wagros. 2021. *Company Profile*. Bandung.

World Bank Group. *Digital Ag Series: eFishery- Creating the Future of Aquaculture with an IoT Smart Feeding Technology to Help Millions of Farmers at the Bottom of the Pyramid.*

<https://olc.worldbank.org/content/digital-ag-series-efishery-creating-future-aquaculture-iot-smart-feeding-technology-help> (accessed 3 September 2021).

Yorlin Ng. 2021. *SEA Food Delivery Platforms: Your Questions Answered.*

<https://thelowdown.momentum.asia/sea-food-delivery-platforms-your-questions-answered/> (accessed 22 September 2021).