

# Scrutinizing Indonesia's Agricultural Start-ups

Iwan Hermawan<sup>1\*</sup>, Yuni Sudarwati<sup>2</sup>, Rafika Sari<sup>3</sup>, Izzaty Izzaty<sup>4</sup>, Dewi Wuryandani<sup>5</sup>

<sup>1,2,3,4,5</sup> *Research Center Expertise Body of House of Representative of Republic of Indonesia, Jakarta, Indonesia*

\*Corresponding author. Email: [iwan.hermawan@dpr.go.id](mailto:iwan.hermawan@dpr.go.id)

## ABSTRACT

Enormous agricultural resources and broad market coverage have not made agricultural startups develop more massively than non-agricultural startups. Agricultural startups play a vital role in helping to provide and improve food accessibility and stimulate the welfare of producers. This study aims to analyze the development strategy of Indonesian agricultural startups. The method used is a qualitative and quantitative approach carried out with discussions/interviews with agricultural startup stakeholders and analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT). The results show that the right strategy is an aggressive strategy by conducting business expansion in concentration on horizontal integration in each part, both on the upstream side, on-farm, downstream, and as supporting roles. For this reason, various efforts and policies are still needed to reduce the risk of agricultural startup businesses, namely (1) build and develop digital infrastructure, including the development of digital talent, (2) cooperation between the government and the private sector to introduce technology and innovation. In agriculture, (3) developing commodity futures markets and warehouse receipt systems, (4) increasing the role of incubation and or acceleration of agricultural startups, and (5) increasing the availability and accessibility of integrated data as a basis for decision making.

**Keywords:** *technology, agriculture, food, strategy*

## 1. INTRODUCTION

Agricultural startups have an essential role in supporting the availability and accessibility of food in Indonesia. Moreover, with the Large-Scale Social Restrictions (PSBB) and the recommendation to stay active at home during the Corona Virus Disease 2019 (Covid-19) pandemic, which has changed consumer habits in making transactions, it should accelerate the development of agricultural startups, both to meet food needs and stimulate agricultural production. (BPS, 2020).

Among the success stories of the existence of agricultural startup developments, some of them present failure stories. The factors causing the failure to compete are very diverse. They were generally caused by, among others, lack of funds/capital, no transparent market due to immature planning, lack of innovation and only as a follower, and so on (Winosa, 2019; Wahyudi, 2017). This factor is common in all startups, including agricultural startups. According to the Ministry of Communication and Information (Kominfo), many agricultural and non-agricultural startups have failed compared to successful ones and with an average startup success rate of only 5 per cent of the total startups in Indonesia (Yadika, 2019). Meanwhile, according to failory.com. (2020), although not the case in Indonesia, when compared between sectors, startups in the agricultural sector have a startup failure rate of 49 per cent or the fourth highest after the information, construction, and manufacturing sectors.

Based on this background and problems, this study aims to analyze the development strategy of Indonesian agricultural startups. The findings and analysis of this

research are significant to assist policymakers in formulating appropriate programs, policies, and regulations for the development of agricultural startups in Indonesia and at the same time supporting a visit to Indonesia as The Digital Energy of Asia. In addition, there have not been many similar empirical studies.

## 2. METHOD

### 2.1. Data Types and Sources

The types of data used in this study include primary and secondary data. Primary data was obtained through (a) discussions and interviews with several experts. Secondary data is obtained by searching news, information, documents, research reports, journals, and other articles/libraries related to the research theme, both online and offline.

### 2.2. Selection of Locations, Resource Persons, and Respondents

The location selection of startups in Indonesia is carried out by purposive sampling. The provinces of DKI Jakarta and West Java were chosen as research locations. The resource persons/informants in this study were in (a) the DKI Jakarta area include MIKTI and Kominfo, and (b) the research area.

The criteria for agricultural startups as respondents are (1) startups in agriculture-related to e-commerce, both upstream and downstream, (2) startups in agriculture-related to fintech, (3) startups in agriculture/food, and or (4) agricultural startups that have existed for at least three years. The total number of start-ups engaged in agriculture as respondents, whether their

businesses are related to e-commerce, fintech, or other businesses, approximately 14 start-ups are in the Jakarta area and nine start-ups in the West Java area.

**2.3. Analysis Method**

The analytical method used is the SWOT analysis. The analysis is a strategic planning or strategic management tool that is useful for evaluating the strengths, weaknesses, opportunities, and threats of a business/project, both in progress and planning.

**3. RESULTS AND DISCUSSION**

**3.1. Agricultural Startups in Indonesia**

The growth of the digital economy in Indonesia shows an increasing trend from 2015 to the present, including the agricultural sector. The digital economy is inseparable from the momentum of the development of industry 4.0, so that it stimulates the agricultural sector to use technology and innovation more intensely.

**3.2. Analysis of Internal and External Strategic Factors for Agricultural Startup Development**

Analysis of internal strategic factors is carried out to find out how the internal conditions of agricultural startups affect their development, both in terms of strengths and weaknesses (Table 1).

Meanwhile, the internal strategic factor that has the lowest score related to strength in developing agricultural startups is human resources, usually filled by millennials with high passion. Despite the lowest score, its role is crucial as an agent of change to the future management of modern agriculture-skills, experience, and infrastructure support (see Rahayu, 2020).

Table 1. Internal Strategic Factors for Agricultural Startup Development

Internal Factors (Strengths and Weaknesses)			
Strategic Factors		Rating	Score
Strengths	1. Digitization creates efficiency in business operational costs	3.77	0.35
	2. Abundant quantity and types of agricultural products	3.31	0.25
	3. Consumer demand can be met quickly due to shorter distribution channels	3.31	0.35
	4. Millennials usually fill human resources with a high passion for digitalization	3.46	0.09
	5. The market coverage is relatively broader.	3.77	0.25
	6. Good reputation because the products sold also have the aim of improving the welfare of farmers/producers or the local economy.	3.15	0.25
	7. It does not require a store location or a strategic offline place to do business	3.08	0.15

Internal Factors (Strengths and Weaknesses)			
Strategic Factors		Rating	Score
Weaknesses	8. Less innovative so that their business tends to become a follower	2.54	0.23
	9. Lack of funds/business capital	1.85	0.18
	10. The selling price is relatively higher than other markets (modern/traditional)	2.62	0.13
	11. Digital talent (HR) is less supportive or not suitable for startup needs.	2.85	0.27
	12. Limited storage/warehouse/cold storage	1.77	0.09
	13. Startups have difficulty meeting market needs because producers/farmers are skeptical/reluctant to use new technologies/innovations	2.23	0.15
	14. Limited business only in urban areas/big cities	2.92	0.14
Total			2.90

Digital talent (HR) is not supportive or does not match the needs of startups, which is the main weakness factor in the development of agricultural startups. The unattractiveness of agriculture and the farming profession has more or less affected the development of agricultural startups. Agriculture still relies on a hereditary farmer system, not yet an attractive job for millennials. This condition makes qualified human resources that should participate in advancing agriculture reluctant to participate (Rizkinaswara, 2020; Supriyadi, 2017).

The weakness factor with the lowest score (0.09) is limited storage/warehouse or cold storage. Several agricultural startups operating in the downstream sector have experienced problems storing agricultural products that farmers have absorbed.

On the external environment side, the analysis can be seen from the opportunities that can be achieved and the threats and challenges faced (Table 2).

Another factor that becomes an opportunity but with the lowest ranking is related to business opportunities from startups, allowing them to be developed at the local, national, and international levels. The use of technology and digital media is possible for startups to reach the international level, although business dominance is still at the national level.

The main factor on the threats comes from the imposition of taxes (VAT) for digital service products with a score of 0.16. The amount of startup tax paid by startup actors to the state still adheres to a self-assessment system. Startups are subject to taxation from operating results, but the government will not impose taxes on startup businesses if the results are still lacking.

The lowest score on threats is related to the development of technology and information that changes too quickly, with a score of 0.08. Many farmers are still not digitally literate in

marketing their agricultural products and do not understand how to use technology to help them. If the existing technology still hampers the current technology, more effort will undoubtedly be needed when the technology used changes again (examples see Assegaf, 2017; Burhansyah, 2014).

Table 2. External Strategic Factors for Agricultural Start-Up Development

External Factors (Opportunities and Threats)			
	Strategic Factors	Rating	Score
Opportunities	1. Consumption of staple foods tends to increase, especially during a pandemic	3.23	0.33
	2. There is a great desire from investors to invest in startups	2.62	0.15
	3. The potential of the domestic (buyer) market is tremendous	3.46	0.36
	4. Changes in consumer preferences, especially healthy lifestyles, including the tendency to consume local food	3.46	0.23
	5. Business opportunities are possible to develop at the local and national level and internationally	3.23	0.12
	6. Government support for startup development, both ease of licensing and capital/financing	2.92	0.25
	7. There is a development in startup incubators and accelerators, both from the government and the private sector	3.08	0.15
Threats	8. Uneven internet network (or digital infrastructure is not supported)	1.62	0.14
	9. Startups compete with agricultural companies that already have cooperation and have loyal customers	1.92	0.15
	10. The decline in people's income due to the pandemic, which is indicated by the decline in national economic growth	1.69	0.15
	11. The development of technology and information is changing too fast	2.08	0.08
	12. Lack of interest in banks to finance or provide capital for agricultural startups	1.69	0.10
	13. Public concerns about the security of consumer data and secure payment systems	2.00	0.15
	14. There is a tax imposition (VAT) for digital service products	2.31	0.16
Total		2.5	0.3

### 3.3. Agricultural Start-up Development Strategy

After analyzing the external environment and the external environment, we will scrutinize to develop Indonesian agricultural startups. The details can be seen in Figure 1, based on the values on the X and Y axes, and the appropriate strategy recommendations are obtained to support the agricultural startup development strategy in quadrant 1, namely aggressive strategy. The agricultural startups are at a momentum so that it is possible to continue to expand, increase growth, and achieve maximum progress.

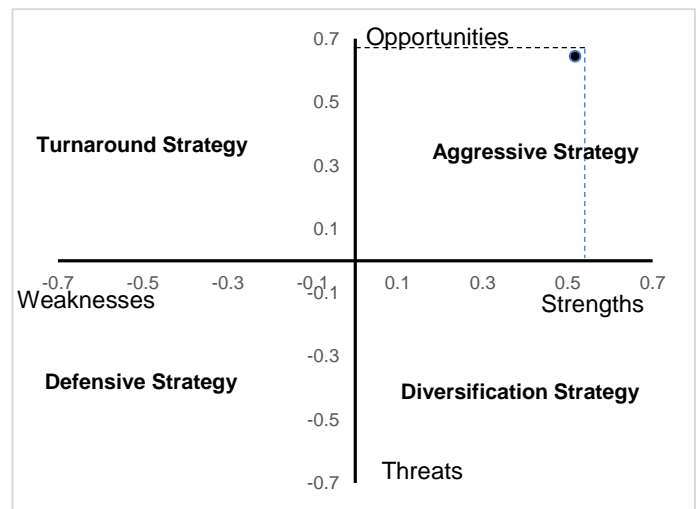


Figure 1. Agricultural Startup Development Strategy Position

The strategy chosen is more specific to ensure the scores of internal and external factors are further mapped into the internal-external matrix (IE). The IE matrix functions to position startups into a matrix consisting of 9 cells provided that the dimensions on the X-axis are internal factors and the Y-axis are external factors. Based on the IE matrix, agricultural startups are in a growth position (cell V). Therefore, the recommended strategy is a concentration strategy through horizontal integration (Figure 2).

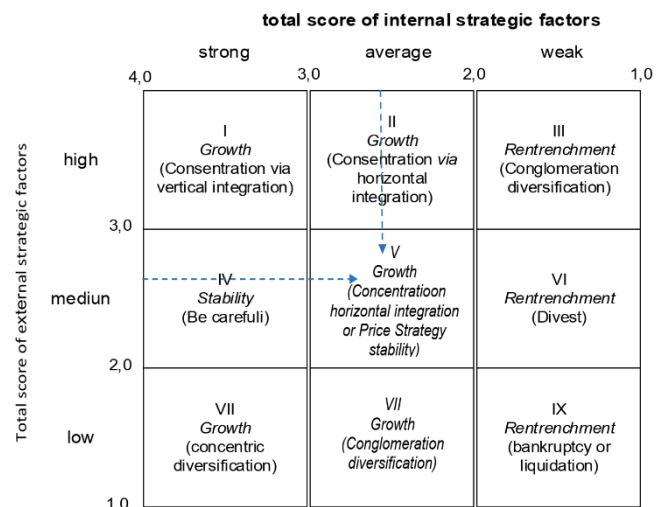


Figure 2. Internal-External Matrix

#### 4. CONCLUSION

Strategic factors that become strengths and opportunities in developing agricultural startups in Indonesia show more significance than strategic factors that can become weaknesses and threats. Therefore, the right strategy to create Indonesian agricultural startups is an aggressive strategy by expanding or increasing the growth of the startups business. The strategy is applied explicitly in concentration on horizontal integration in each part, starting from upstream, on the farm, downstream, and supporting. Horizontal integration in (a) external perspective can be done by merger or acquisition or take over other agricultural startups or (2) internally it can be done by optimizing the resource management of each agricultural startup in various business lines to increase market share.

It can convey several policy implications related to the development of national agricultural startups. Genuine efforts need to be made by the government and other parties so that agricultural startups can be accelerated to grow faster and bigger with more manageable risks, namely: (1) build and develop digital infrastructure, especially in remote areas and digital superstructures, especially digital talent, (2) build work cooperation between the government and the private sector or other countries to introduce agricultural technology and innovations that apply to small business scales to deal with high economic costs and changes in weather or climate, (3) develop commodity futures markets and warehouse receipt systems for hedging, especially for large-scale agricultural startups, (4) the existence of incubation and/or acceleration of agricultural startups must be improved, both facilities and infrastructure, to increase the success rate of startups because teamwork solidity and careful planning are the basis for the success of agricultural startups, (5) the availability and accessibility of integrated data and the latest agricultural startups in Indonesia have become very important for policymakers.

#### REFERENCES

- [1] Assegaf, C.I. (2017). Faktor-faktor yang mempengaruhi kecepatan adopsi teknologi biogas oleh peternak sapi potong di Desa Timbuseng Kecamatan Polongbangkeng Utara Kabupaten Takalar. Mini Thesis. Makassar: Universitas Hasanuddin.
- [2] APJII. (2018). Penetrasi & profil perilaku pengguna internet Indonesia. Laporan Survei. Asosiasi Penyelenggara Jasa Internet Indonesia, Jakarta.
- [3] BPS. (2020). Hasil survei sosial demografi dampak Covid-19. Jakarta: Badan Pusat Statistik.
- [4] Bagaskara, C. (2018, 20 June). Pentingnya kekuatan tim dalam kesuksesan startup. Accessed 12 October 2020 from <https://ziliun.com/pentingnya-kekuatan-tim-dalam-kesuksesan-startup/>.
- [5] Berempat.com. (2018, 11 August). Pengamat ungkap 4 faktor investor lokal tak banyak berinvestasi di startup. Accessed 12 October 2020 from <https://berempat.com/bisnis/2517/pengamat-ungkap-4-faktor-investor-lokal-tak-banyak-berinvestasi-di-startup/>.
- [6] Burhansyah, R. (2014). Faktor-faktor yang mempengaruhi adopsi inovasi pertanian pada Gapoktan PUAP dan Non PUAP di Kalimantan Barat (Studi kasus: Kabupaten Pontianak dan Landak). *Informatika Pertanian*, 23(1), 65-74.
- [7] Failory.com. (2020). The ultimate startup failure rate report [2020]. Accessed 21 July 2020 from <https://www.failory.com/blog/startup-failure-rate>.
- [8] Fitriani, H. (2018). Kontribusi fintech dalam meningkatkan keuangan inklusif pada pertanian (Studi analisis melalui pendekatan keuangan syariah dengan situs peer to peer lending pada pertanian di Indonesia). *El-Barka Journal of Islamic Economics and Business*, 1(1), 1-26.
- [9] Gurel, E., & Tat, M. (2017). SWOT analysis: A theoretical review. *The Journal of International Social Research*, 10(51), 994-1006.
- [10] Jaya, M.A., Ferdiana, R., & Fauziati, S. (2017). Analisis faktor keberhasilan startup digital di Yogyakarta. *Prosiding Seminar Nasional Teknologi dan Informatika ke-4*, Universitas Kudus, Kudus.
- [11] MIKTI & Teknopreneur Indonesia. (2018). *Mapping & database startup Indonesia 2018*. Jakarta: MIKTI dan Teknopreneur Indonesia.
- [12] Nabila, M. (2018, 14 November). Mengukur Untung Rugi Korporasi Kolaborasi Bisnis dengan Startup. Accessed 12 October 2020 from <https://dailysocial.id/post/kolaborasi-korporasi-dan-startup>.
- [13] Putri, M.R. (2019, 28 February). Startup pertanian untungkan petani. Accessed 21 July 2020 from <https://republika.co.id/berita/ekonomi/fintech/pnmq91383/ems-tartupem-pertanian-untungan-petani>.
- [14] Rahayu, J.T. (2020, 18 Agust). Pakar: Infrastruktur digital tingkatkan layanan dan jasa lebih efisien. Accessed 12 October 2020 from <https://www.antaranews.com/berita/1675506/pakar-infrastruktur-digital-tingkatkan-layanan-dan-jasa-lebih-efisien>.
- [15] Ramadhan, B. (2020, 14 April). Perubahan perilaku belanja konsumen Indonesia saat Covid-19. Accessed 12 October from <https://teknoinia.com/perilaku-konsumen-indonesia-saat-covid-19-ee51b041464e>.
- [16] Rizkinaswara, L. (2020, 17 April). Talenta digital jadi faktor penting tranformasi digital. Accessed 12 October 2020 from <https://aptika.kominfo.go.id/2020/04/talenta-digital-jadi-faktor-penting-tranformasi-digital/>.
- [17] Supriyadi, E. (2017, 29 October). Ekosistem startup Indonesia harus dibangun. Accessed 01 Agust 2020 from <https://republika.co.id/berita/oykvtg284/ekosistem-emstartupem-indonesia-harus-dibangun>.
- [18] Wahyudi, E. (2017, 10 October). Banyak startup gagal, Kominfo: Bisnis ya kayak gitu. Accessed 21 July 2020 from <https://bisnis.tempo.co/read/1257887/banyak-startup-gagal-kominfo-bisnis-ya-kayak-gitu>.
- [19] Winosa, Y. (2019, 13 February). Ini alasan 90 persen startup di Indonesia gagal. Accessed 02 November 2021 from <https://www.wartaekonomi.co.id/read215393/ini-alasan-90-persen-startup-di-indonesia-gagal>.
- [20] Yadika, B. (2019, 08 October). Menkominfo: Lebih banyak startup gagal dibanding berhasil di Indonesia. Accessed 21 July 2020 from <https://www.merdeka.com/uang/menkominfo-lebih-banyak-startup-gagal-dibanding-berhasil-di-indonesia.html>.