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Operating Model for Partnership between Smallholders and Mills: A Study in Perak and Johor, Malaysia

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ABSTRACT

There is an important need to sustainably increase food production across the supply chain amid the expected population growth in the future. However, most related researches in the past dealt mostly on the agricultural production aspect rather than the structure of the existing agricultural business models. In the context of oil palm, smallholders often do not have a direct relationship with mills resulting in low bargaining power and limited access to other benefits. The purpose of this study is to assess the willingness of smallholders to establish a partnership with oil palm mills. The assessment was made on smallholders located at two sites in Perak and Johor by means of questionnaire survey and interviews. Besides that, this study also looked at possible operating models for partnership. In addition, desk research and interviews were carried out among stakeholders along the supply chain. Majority of respondents indicated their interests to establish a partnership with oil palm mills with most of them favoured services related to land management. Based on the study, four potential operating models were proposed for a partnership establishment between smallholders and mills such as the extension services model, modular services, plantation management (fee model) and plantation management (lease model). The value proposition on each operating model was discussed as well as the strategy to increase the scale of the operating model. This study is likely to be in the interest of investors, company and policymakers who are seeking an alternative approach in connecting smallholders within the supply chain especially in the developing countries.

Keywords: Independent oil palm smallholders, oil palm fruit dealers, oil palm mills operating model, partnership.

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INTRODUCTION

Global demand for food is set to increase amid population growth resulted in renewed interest in agricultural investment by large companies. Overall food production will have to increase by 50%-60% by 2050 (Alexandratos and Bruinsma, 2012; Dijk *et al.*, 2021). Food products that are more responsive to higher incomes in developing countries such as livestock, dairy products and vegetable oils will grow much faster compared to other food products (FAO, 2009).

Oil palm is one of the most productive and versatile crops in the world contributing almost 35% of the total world production of vegetable oils (USDA, 2021). Malaysia together with Indonesia producing most of the world's palm oil production. Oil palm cultivation has been an important industry for the economic growth of Malaysia which contributed to almost RM38 billion in 2020 (DOSM, 2020). As of 2020, Malaysia recorded 5.87 million hectares under oil palm cultivation including independent smallholders who represented 16.3% of the total planted area. Despite their large contribution, they often have to cope with various issues such as low productivity, low yield, inadequate knowledge and high cost of production.

In Malaysia, independent oil palm smallholders are defined as those who own oil palm land of less than 40.4 ha (Parthiban *et al.,* 2017a). Their land holding is small with an average of 3.8 ha and scattered all over the country. Therefore, they are often not able to leverage on economies of scale due to the scattered locations (Parthiban *et al.,* 2021b). It is common for smallholders to contract out farm management such as harvesting and transportation to oil palm fruit dealers (DF). Independent oil palm smallholders typically sell their harvested fresh fruit bunches (FFB) through DF rather than direct to mills due to the low amount of FFB produced or the mills are located far from their farm (Parthiban *et al*., 2017a). Oil palm mills are often located far away from each other and are usually tied to large plantations (Brandi *et al*., 2013). DF will collect the FFB from each individual smallholder before selling it to the oil palm mill. Current cooperation between smallholders and dealers is mostly through informal agreements (verbal) based on trust and mutual benefit rather than formal agreements (written contractual). Smallholders often do not have a direct relationship with mills resulting in low bargaining power and limited access to other benefits. Millers on the other hand are unable to trace the source of each individual FFB from smallholders resulting in a gap to achieve overall traceability in the supply chain.

Independent oil palm smallholders typically manage their oil palm on their own without any direct support unlike the organised smallholders which are managed by different structured entities. Their productivity, knowledge and management differ based on individual smallholders. They often lack the necessary resources and knowledge to meet the various requirements of the local and export market as well as the growing pressure to meet the certifications and quality standards. Therefore, integrating smallholders into the supply chain is an important task that needs to be looked at in every aspect including establishing a partnership within the supply chain via a right business model. Since land scarcity is an issue, the required growth of food production needs to be effectively produced and managed through the existing available land resource. Integration of crops and livestocks within the existing oil palm cultivation area are able to address this issue (Parthiban *et al.,* 2021a). Other than that, partnerships within the stakeholders along the supply chain to further pool the resources and increase the current productivity will be able to contribute towards sustainability in oil palm industry.

Increased investment in agriculture might contribute towards the economic and social development of farmers in rural areas. However, the type of collaboration or partnership between the large companies and smallholders should be given more attention to avoid the risks of being marginalised by either party. A partnership if inappropriately structured might result in a disadvantage and exploitative relationship by either one party. Therefore, if the partnership were strategically formed, it can mutually benefit both parties which might lead to broader benefits along the entire supply chain and the industry as a whole. Thus, this study focused on assessing the willingness of smallholders to establish a partnership with oil palm mills based on a study at two locations. Other than that, this study looks at possible operating models for partnership and the feasibility of each operating model.

LITERATURE REVIEW

Knowledge-based capabilities by Richardson (1972) suggested that in a large industry, activities within an industry need to be carried out by entities with appropriate knowledge, experience and skills. Coordination among the entities can happen through consolidation, cooperation and market transaction depending on their similarity and complementarity between the activities. Over the years, agricultural production, processing and sales had shifted between various methods such as open production, contract production and vertical integration (Martinez, 2002). In open production or spot market, commodities are bought on the open market where a firm or smallholders does not commit to selling before completing production. Contract production involves a commitment by producers to deliver goods to buyers in the future (Martinez, 2002). Vertical integration is the strategic structure in which one entity controls two or more stages in a supply chain (Martinez, 2002). Contract production and vertical integration is an institutional response to the high

risks and uncertainties in the open production. In many parts of the world, vertical integration and collaboration between farmers and agricultural organisations have been extensively promoted. In China, vertical integration of agriculture is considered an important measure to integrate small and large scale farming which can increase the farmer's income (Ao *et al.*, 2021). Vertical coordination between producers and buyers is more efficient if the buyers are large scale processing plants, exporting companies and suppliers of modern supermarkets (Bijman, 2008). However, the common business practice of large organisation is to seek out to large scale suppliers as buying from scattered small-scale farmers are perceived to be costly and risky (Vorley *et al.*, 2008). Numerous studies had reported positive impact of contract arrangement among farmers such as higher yields (Brambilla and Porto, 2011), higher incomes (Bolwig *et al.*, 2009; Miyata *et al.*, 2009; Schipmann and Qaim, 2011) and increase in farm productivity (Islam *et al.*, 2019).

Business model is how a business creates and captures value within a market network of producers, suppliers and consumers (Vorley *et al.*, 2008). Several types of inclusive business models were reported such as producer-driven models, buyer-driven models, intermediary-driven models and public sector-driven models (Kruijssen *et al.*, 2020, Vorley *et al.*, 2008). Certain models involved large scale development with closer involvement of local land owners while others might include smallholders into the value chain. However, all the models have their own opportunities and constraints. Vermeulen and Cotula (2010) discussed various business models in agriculture such as contract farming, management contract, lease contract, joint-ventures and farmer-owned businesses. Contract farming is pre-agreed agreement between farmers and buyers/companies to produce and deliver products at an agreed term (Vermeulen and Cotula, 2010). The buyers provide upfront assistance such as credit, seeds, fertilisers, pesticides and technical advice. Management contracts are arrangements where the land is managed under contract by someone else. It can be in the form of a lease or tenancy agreement. Joint ventures refer to the co-ownership of a business by a different party by sharing the risks and benefits in proportion to the equity share. Farmer owned businesses are groups of farmers who choose to formalise their alliance through association, trusts or cooperatives. In the oil palm industry, several developments models were used such as company estates, joint venture arrangements, nucleus estate schemes, contract farming and independent smallholders (Beekmans *et al.*, 2014). In Ghana, several oil palm commercialisation models in partnership with mills and plantation were reported (Dzanku *et al.*, 2020). One of the models is Individual Out Grower model where farmers agree to supply some of their harvests to mill or large estate in exchange for incentives such as farm inputs and credits. There is no any formal written agreement and the binding is normally until the loans are repaid. Another model is where oil palm mill operated a farmers cooperative that supplies their produce to the mill.

In a partnership collaboration, both parties might have different interests and motivations to establish the partnership. Beekmans *et al.* (2014) elaborated four principles for a successful partnership such as freedom of choice, accountability, improvement and respect for rights. Goldsmith (1985) suggested that contract option is most desirable if the crop is a long-term crop, needs fast processing, easy to transport, requires extensive processing and focus on stringent quality grading. The private sector generally is motivated towards economic gain, increased productivity, competitiveness, cost reduction, market position or product quality (Guo *et al.*, 2007; Hartwich *et al.*, 2007). Factors such as availability of land, proximity to an oil palm mill and secured land were favoured by private companies for a partnership in the oil palm industry (Gatto *et al.*, 2015). Small scale farmers on the other hand tend to focus on reducing vulnerability, increasing yield and access to better pricing. Other than prices, farmers also value other aspects such as access to inputs, availability of extension services, credit information, independence and flexibility in a contract arrangement (Armah *et al.*, 2010; Azumah *et al.*, 2016; Schipmann and Qaim, 2011; Tinashe *et al.*, 2013). Partnerships are generally formed when both parties believe they will gain benefits and share a common interest. Delayed payment and lack of credit might deter small farms from participating in a contract. Therefore, smallholders prefer the provision of inputs and credit in a contract design (Schipmann and Qaim, 2011). A long term functionality of an ideal partnership relies on positive benefits proportional to the contribution of each partner (Hartwich *et al.*, 2007). Working partnerships with local landholders and operators are important to any business model to be more inclusive in their approach (Vermeulen and Cotula, 2010). The costs involved in implementing a partnership such as its negotiation process, survey, evaluation and legal agreement should not outweigh the benefits of a partnership (Hartwich *et al.*, 2007).

High dropout rates were observed among farmers on the contract scheme due to insufficient information provided by the company which lead to mistrust

(Anette and Matin, 2021). Other than that, most of the smallholders are unable to consistently meet the quality requirement hence violating the contract (Vorley *et al.,* 2008). Vermeulen and Cotula (2010) recommended four interlinked criteria to assess value sharing between business partners such as ownership, the ability to influence a key business decision, risks involved and sharing of benefits. These criteria are interlinked and can influence each other criteria. For example, a business model that relies on more ownership might expose the partner to more risk.

METHODOLOGY

This study was carried out in Teluk Intan (Perak) and Simpang Renggam (Johor) in Peninsular Malaysia. The study areas are purposively chosen due to the availability of oil palm mills of our partner plantation company in these two locations. The smallholders were chosen due to geographical proximity and the willingness to participate in the study. A total of 2819 invitations were sent out via MPOB extension officers to smallholders within the radius of 50 km from our partner's oil palm mill in Teluk Intan and Simpang Renggam. A total of 1019 smallholders who attended the program were engaged through 18 interview sessions in different localities within both locations. Questionnaire based surveys and interviews were carried out among all the smallholders that attended the program to determine their socioeconomic background as well as their views and willingness to the idea of partnership with oil palm mill. Prior to the interview, basic information on possible partnership with oil palm mills were described to the respondents. Other than that, desktop research and interviews were carried out within the stakeholders involved such as smallholders, village heads, dealers, government agencies, cooperatives, plantation management companies and non-governmental organisations (NGOs) in providing insight into the smallholder's community and type of operating model for plantation management. Based on this, potential operating models were identified for a partnership between smallholders and mills. Descriptive statistics such as frequency, percentage and mean were used to analyse all the data.

RESULTS AND DISCUSSION

Socio-Demographic Profile of Respondents

The overall turnout rate of smallholders for the programme and interview session is 36% with variability within different localities in Johor and Perak (*Figure 1*). Total of 1019 smallholders were engaged through 18 events across Simpang Renggam in Johor (602 attended out of 2280 invited) and Teluk Intan in Perak (417 attended out of 700 invited). Teluk Intan has a better turnout rate (60%) compared to Simpang Renggam (26%).

Table 1 shows the socio-economic profile of respondents. Based on the 1019 respondents, 60% were Malays, 38% were Chinese and 2% were Indians and others. The majority of the respondents (29%) were between 60-69 years of age. Most of the respondents (28%) are holding between 1 to 2 ha of land with an average of 2.4 ha. This result is consistent with a previous study by Parthiban *et al*. (2017b) which reported the average land holding in Peninsular Malaysia is 2.3 ha. Their self-reported average FFB yield is 16.6 t/ha/yr with most of the respondents (23%) reported yield of less than 10 t/ha/yr.

Willingness and Requirements of Smallholders in a Partnership Model

Overall, 69% of the respondents indicated early interest to establish a partnership with oil palm mills (*Figure 2*). However, 39% of the respondents within this group indicated that they needed more information before they could fully agree on any partnership model.

In terms of services and criteria favoured by smallholders in a partnership model, 76% of them need services related to land management (*Figure 3*). 67% preferred minimum income and the ability to purchase agricultural inputs from mills. 78% preferred cash payment for their FFB sold as one of the criteria. This is in line with previous research conducted by Parthiban *et al*. (2017a) which stated that smallholders prefer cash payment for the FFB sold.

Land Management Practices

73% of smallholders were managing their land on their own and 17% with mixed management with DF while the remaining 10% were fully managed by dealers (*Figure 4*). Further analysis by sorting the 10% of smallholders who have their land fully managed by dealers revealed that their average FFB yield was higher by 9.2% at 17.8 t/ha/yr compared to 16.3 t/ha/yr of self-managed lands.

Further analysis between major ethnicities (Malay and Chinese) in the study areas revealed various differences (*Figure 5*). Chinese smallholders were aged with an average of 65 years old compared to Malay with an average age of 59 years. 19% of the Chinese smallholders were MSPO certified compared to 14% of Malay smallholders. Overall, 76% of Malay and 60% of Chinese smallholders indicated their interests in the program. Chinese smallholders are having a larger land area with an average of 3.3 ha with 15% being managed by dealers compared to Malay smallholders with an average land holding of 1.9 ha with only

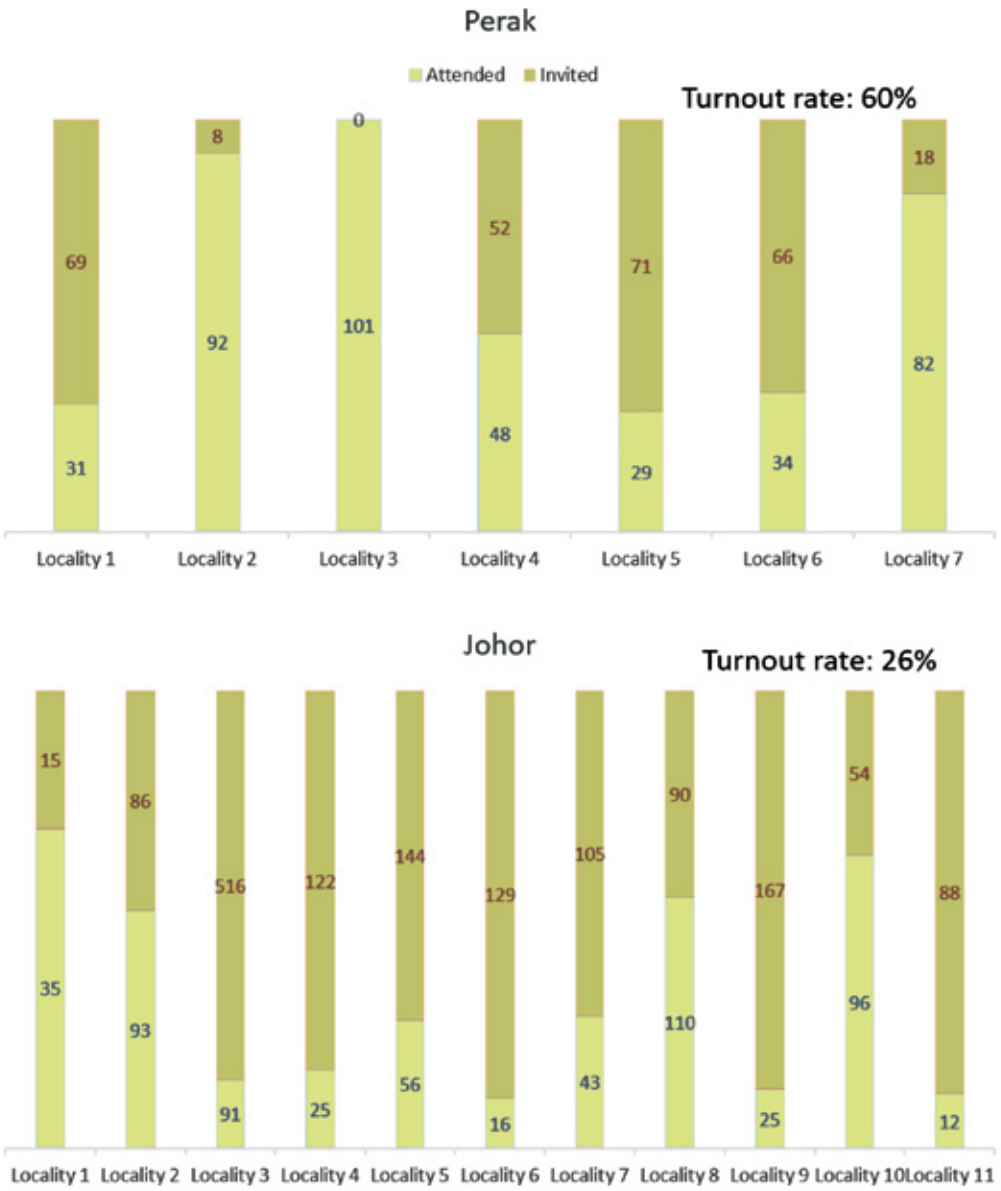

Figure 1. Turnout rate among smallholders in Perak and Johor for the interview sessions.

6% being managed by dealers. It has been reported that the average farm size of Chinese was higher compared to Malay in the paddy cultivation (Fujimoto, 1983). Malay smallholders recorded a 21% lower FFB yield at 14.8 t/ha/yr compared to Chinese smallholders. The higher yield might be due to the higher proportionate of land that belongs to Chinese smallholders which were fully managed by dealers. Alam *et al.* (2010) reported similar higher yield of Chinese farmer for paddy production compared to Malay farmers in Malaysia due to differences in farm management and productivity. This is consistent with the earlier data which reported higher yield among smallholders who had their land fully managed by dealers. Chinese community's approach towards social network or *guanxi* in the business and agricultural marketing sector which focuses on network ties or profit-based network between two parties based on mutual goals and benefits had been discussed by many scholars (Chen *et al.*, 2004; Pek, 2008). In agriculture, the social network or *guanxi* is an important approach to Chinese farmers to remain competitive with leading producers of agricultural products (Lyndon *et al.*, 2015). Therefore, the different management styles among Malay and Chinese smallholders might need a different approach towards persuading them towards a partnership model. Chinese smallholders might prefer lease agreements with less involvement of them directly in the land management compared to Malay smallholders.

Archetypes of Respondents

Based on the analysis, four archetypes of smallholders were

TABLE 1. SOCIO-ECONOMIC PROFILE OF RESPONDENTS

Respondent's profile	Category	Percentage (%)	Average
Ethnicity	Malay	60	
	Chinese	38	
	Indian and others	2	
Age (yr)	<40	5	61
	40-49	13	
	50-59	27	
	60-69	29	
	>70	26	
Land holding (ha)	<1	25	2.4
	1-2	28	
	2-3	21	
	3-4	12	
	4-5	6	
	>5	8	
FFB yield (t/ha/yr)	<10	23	16.6
	10-14	15	
	14-18	21	
	18-22	13	
	22-28	17	
	>28	11	

determined based on their answers to establish a partnership with the mills (*Figure 6*). Most of the smallholders belonged to the category of 'Emotionally attached' and 'Follower'. Smallholders were largely attached to local dealers in selling their oil palm fresh fruit bunch (FFB) for many years. Parthiban *et al.* (2017a) reported that most of the smallholders have been selling to the same dealers for 6-10 years with an average of 14.4 years. Dealers on the other hand were providing various assistances to smallholders to attract and retain the smallholders to continue selling their FFB. Other than that, smallholders also inclined to follow other key influencers such as friends, relatives or people with authority. Therefore, one of the strategies to attract smallholders can be through key influencer such as village head especially in areas with high 'follower' archetypes smallholders. 'Commercially savvy' smallholders most likely agree with the partnership if it is being beneficial for them. Some of the smallholders belonged to the category of 'Hands-off' as they have leased their land to others and have been only receiving payment for the FFB sold.

Comparison between Smallholders in Perak and Johor

Comparison between smallholders in Perak and Johor found out that smallholders in Perak are more ready for partnership management with mills compared to smallholders in Johor based on different characteristics (*Figure 7*). The need for intervention is higher for smallholders in Perak as they have a lower average monthly income from oil palm of RM300 compared to RM582 in Johor. However, the data on average monthly income might be biased due to the changes in FFB price as the survey was conducted within a different time period. Besides that, the average land holding is much smaller for smallholders in Perak at 1.9 ha compared to 2.8 ha in Johor hence having a higher potential to benefit from consolidation. 71% of smallholders in Perak were willing and ready for a partnership with mills compared to only 68% in Johor. Other than that, there is a higher proportion of MSPO certified smallholders in Perak (20%) compared to Johor (12%) implying that smallholder's plots in Perak are more suitable and ready for partnership management with mills.

Models of Oil Palm Fruit Dealers

Four models of oil palm fruit dealers (DF) were identified operating in the study areas consisting of super dealer, dealer, cooperative and government linked dealer (*Figure 8*). Super dealer is DF contracted by mills to supply FFB in large quantity while dealers are small scale license holder who sells FFB to the super dealer or directly to the oil palm mill. Super dealers and dealers are usually privately owned by individuals or company. On the other hand, government linked dealers are network of dealers established by Lembaga Pertubuhan Peladang (LPP) such as Pertubuhan Peladang Kawasan (PPK). PPK mainly collects FFB from their members and supply to their own mill and in some cases to independent mills. Cooperatives are community based organisation intended to benefit members through collecting and selling FFB in bulk such as Oil Palm Growers Cooperative or known as Koperasi Penanam Sawit Mampan (KPSM). Further analysis on respective dealers on their views on smallholder's partnership with mills revealed mixed reactions. Super dealers were interested to add mills to their clientele while dealers mostly viewed this model as a threat

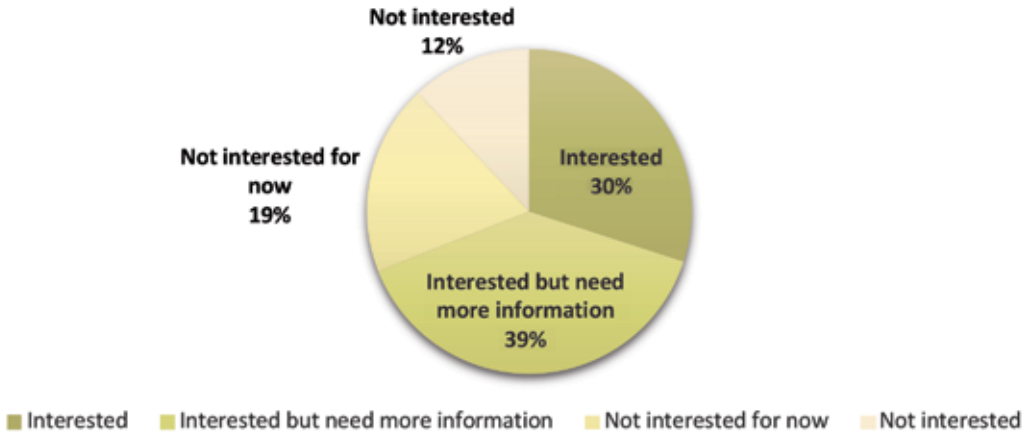

Figure 2. Willingness of smallholders to establish a partnership with oil palm mill.

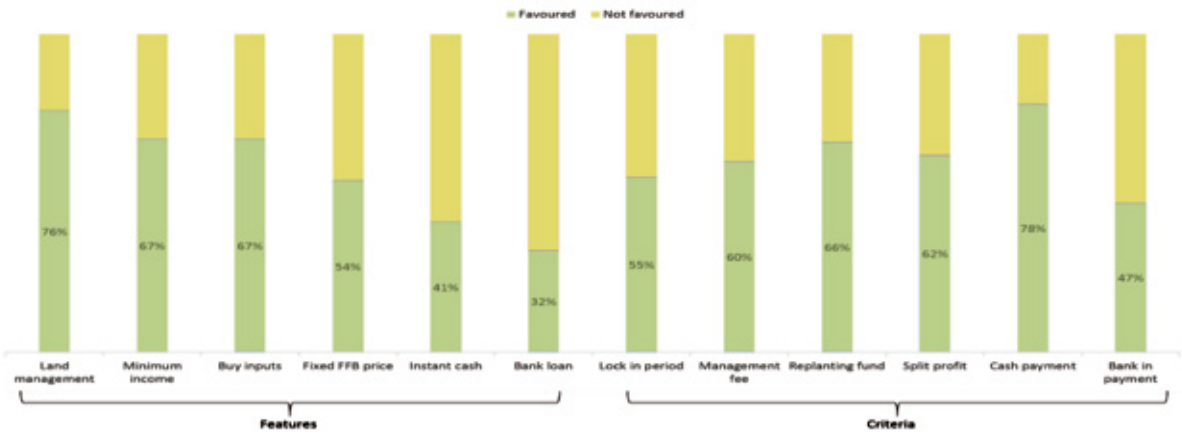

Figure 3. Features and criteria favoured by smallholders in a partnership model.

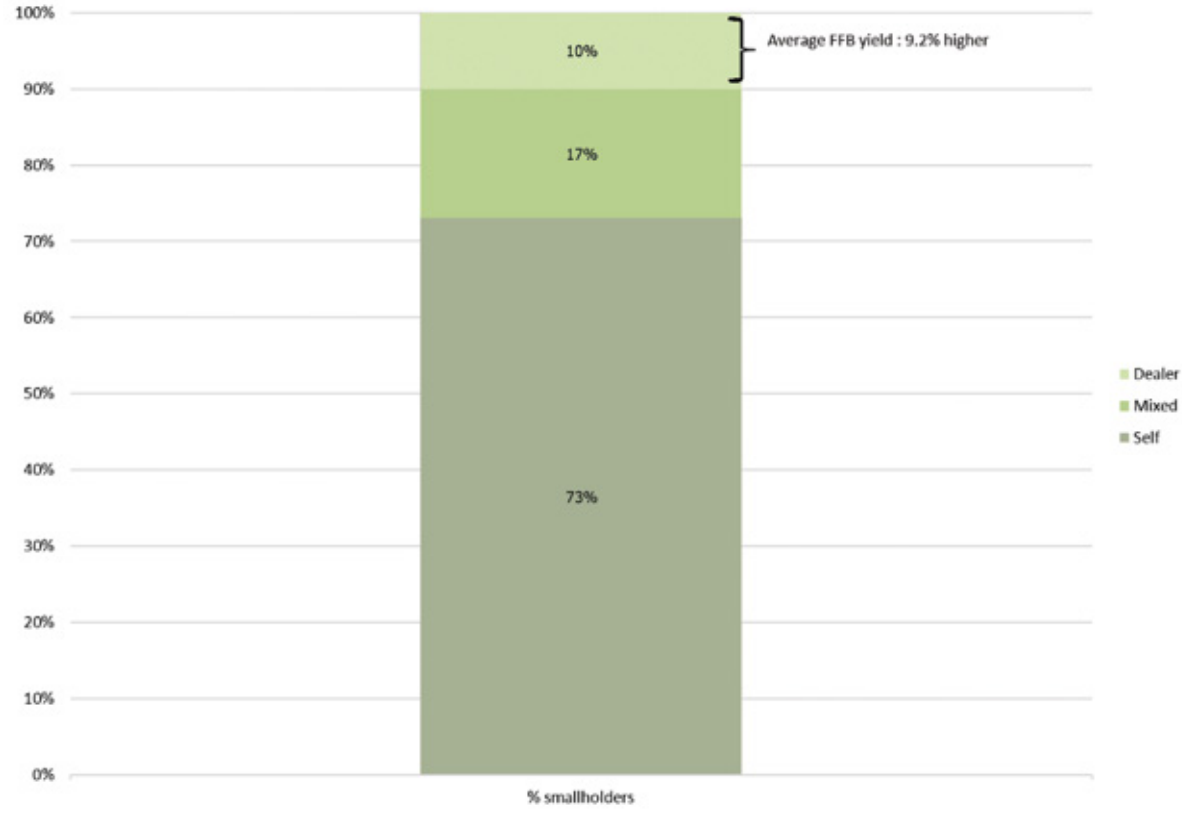

Figure 4. Oil palm land management practices among smallholders.

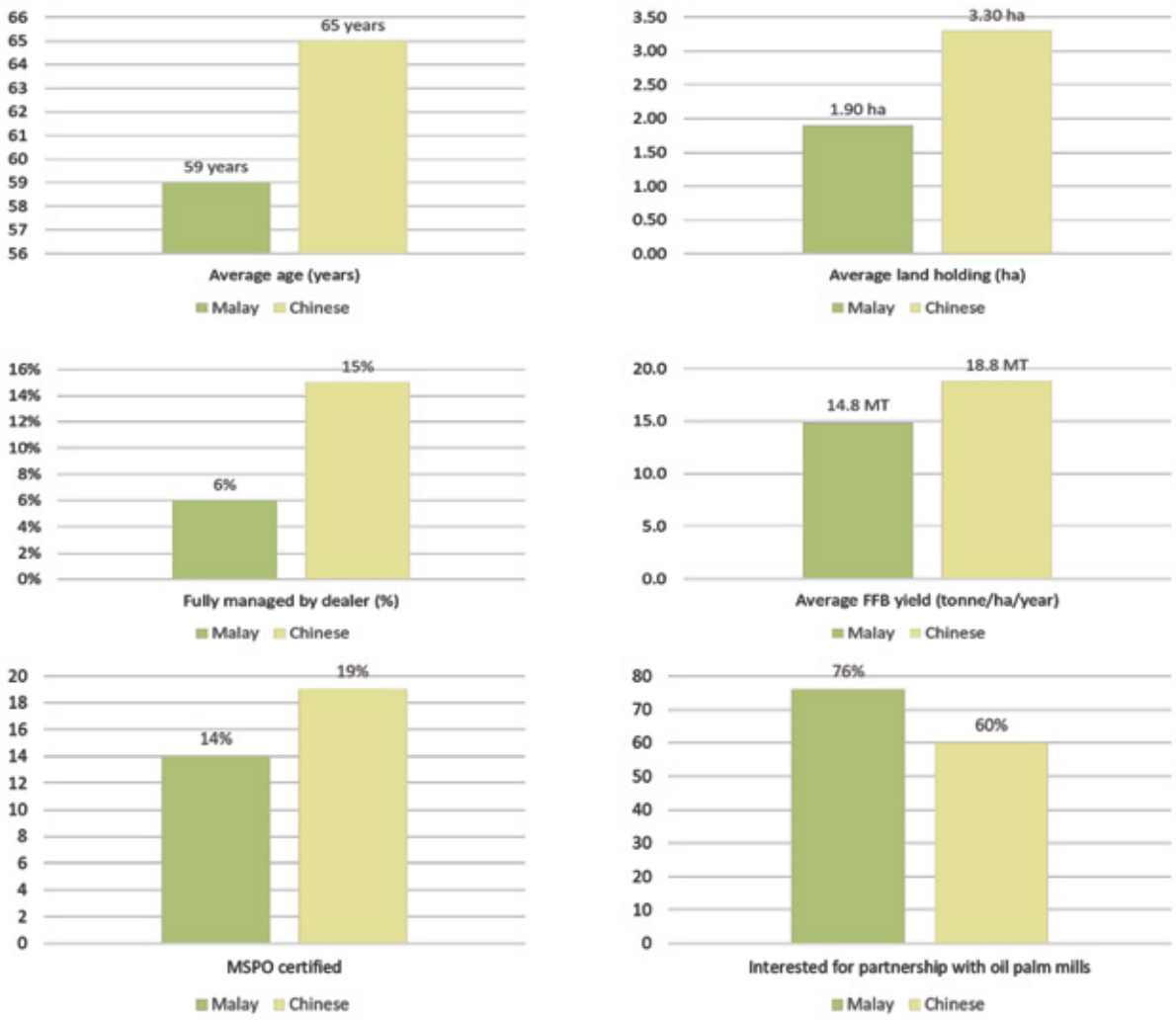

Figure 5. Differences observed between independent smallholders of different ethnicities.

Emotionally attached (30-40%)	**Follower** (30-40%)	**Commercially savvy** (15-20%)	**Hands-off** (5-10%)
"I work on my own land… millers should partner with local dealers."	*"What did HE say?" (pointing to influencer)*	*"If we can earn more, why not?"*	*"I've leased my land to a dealer."*

Figure 6. Archetypes of respondents.

to their own business. Government linked dealer shows some interest with caution due to potential conflict with their own mills. Meanwhile, cooperative shows strong interest to collaborate as they are not bound to any one particular mill and open for consideration.

Operating Model for Partnership

Figure 9 conceptualises the various issues faced by smallholders and possible value propositions which can be offered through a partnership model. The poor seedling quality and high replanting costs among smallholders can be addressed by partnership as mills (with their own plantations) normally have access to high quality seedlings. Other than that, they also can assist smallholders to seek financial aid for replanting. Availability of licensed and qualified labour in the plantations owned by the mills will be helpful to smallholders in adhering to best practices. Lower costs to purchase agricultural inputs are possible via bulk procurement besides fair and transparent grading, weighing and pricing practices.

Based on desktop research and interviews with key stakeholders, four potential operating models were identified for a partnership establishment between smallholders and mills (*Figure 10*). The extension

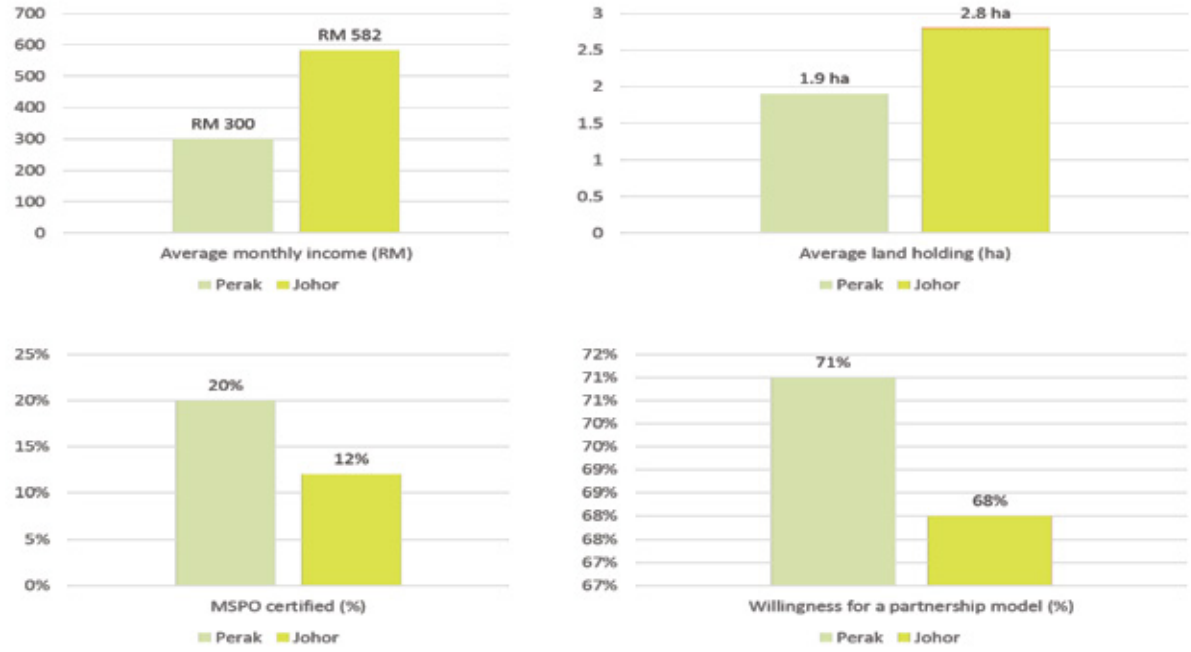

Figure 7. Notable differences between independent smallholders in Perak and Johor.

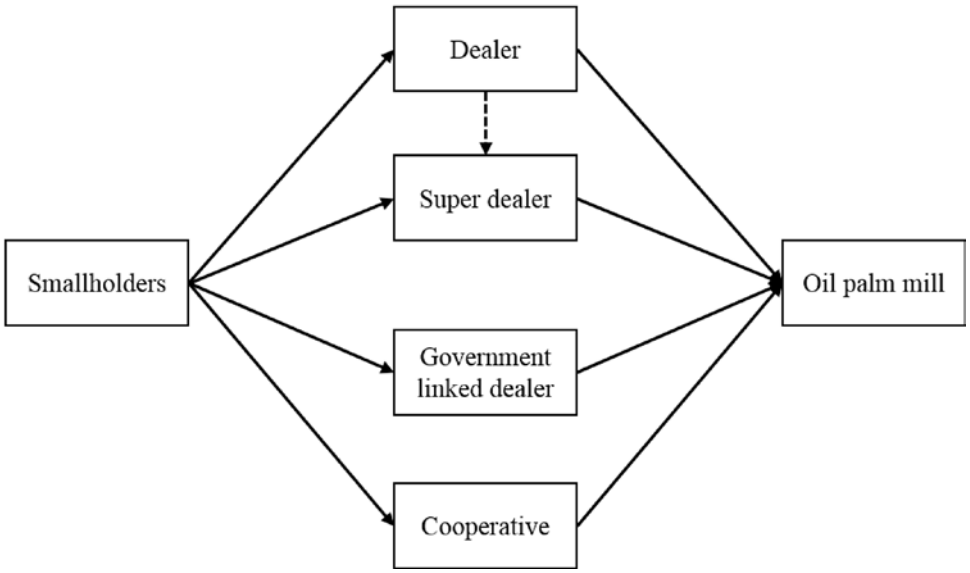

Figure 8. Existing models of oil palm fruit dealers in the study area.

services model offers extension services on best agricultural practices to smallholders where fees are charged for the consultation. Similarly, modular services also provide advisory where smallholders are able to choose and subscribe for each plantation management services for a fee. The third model of plantation management (fee model) is the management of smallholdings end to end for a fee with pay-out to smallholders based on the proportionate of the FFB produced. Meanwhile, the plantation management (lease model) is the management of smallholdings end to end with a lease payment and also dividend pay-out based on profits.

Each operating model offered a different value proposition and services (*Table 2*). Based on the analysis of the value proposition, plantation management (fee model) mostly likely to offer most benefits for millers and smallholders. Mills are able to increase utilisation rate while smallholders have the potential to improve their yield and reduce cost.

Three phases are proposed to increase the scale of the operating model gradually to include more smallholders as a long-term strategy (*Figure 11*). In phase 1, it is proposed that the miller focuses on plantation management (fee model) to demonstrate yield improvement before moving to the next phase

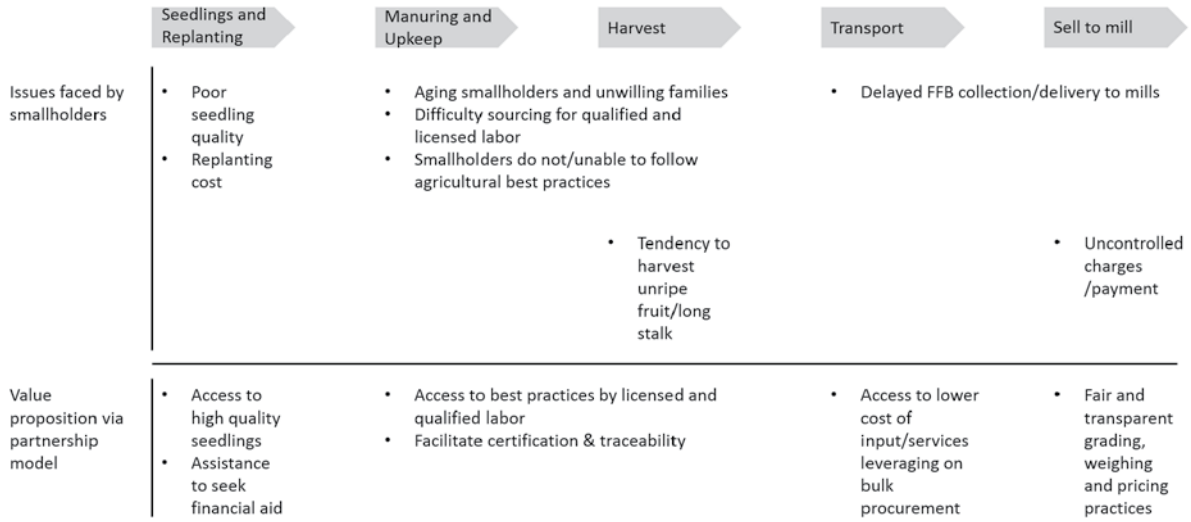

Figure 9. Challenges among smallholders and value proposition of a partnership model.

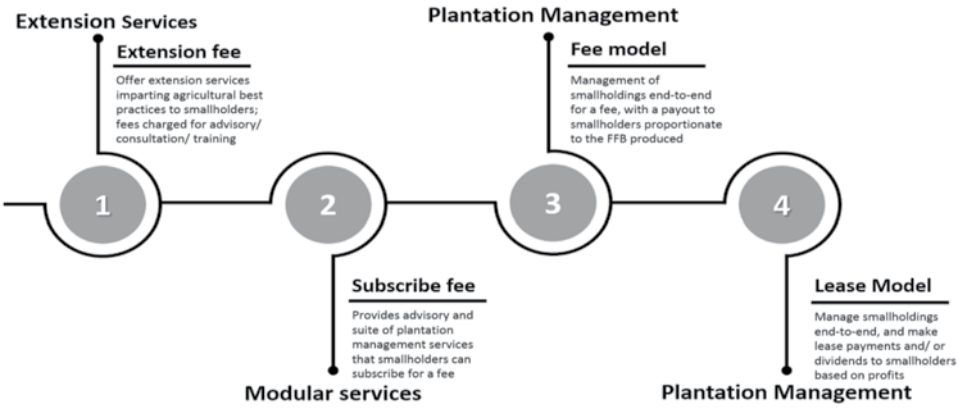

Figure 10. Potential operating model for partnership.

TABLE 2. VALUE PROPOSITION OF DIFFERENT OPERATING MODEL

	Extension Services	Modular Services	Plantation Management (fee model)	Plantation Management (lease model)
Service offered				
Harvesting	Advisory	☑ Smallholders select desired services	☑	☑
Manuring	Advisory	☑	☑	☑
Upkeep	Advisory	☑	☑	☑
Transport	N/A	☑	☑	☑
Replanting	Advisory	☑	☑	☑
Mode of service provision	Direct advisory and training	Direct advisory and partial plantation management	Full plantation management	Full plantation management
Requirement to send FFB to mills	Mill has right of refusal: I.e., smallholders are obliged to send mill unless mill deems FFB to be in low quality	Mill has right of refusal: I.e., smallholders are obliged to send mill unless mill deems FFB to be in low quality	Yes	Yes
Potential to increase mill utilization	Medium: due to uncertain FFB quality	Medium: due to uncertain FFB quality	High, given high willingness for plantation management	High, but may take time to recruit land lease participants (wait for current leases to expire)
Yield improvement potential	Depend on smallholders capability to implement best practices	Depend on services subscribed and smallholders capability to implement best practices	High, given professional plantation management	High, given professional plantation management
Cost reduction potential	Low: smallholders rely on existing input/service providers	Limited: depend on services subscribed	High: Able to tap into mill's bulk purchase and other services	High: Able to tap into mill's bulk purchase and other services

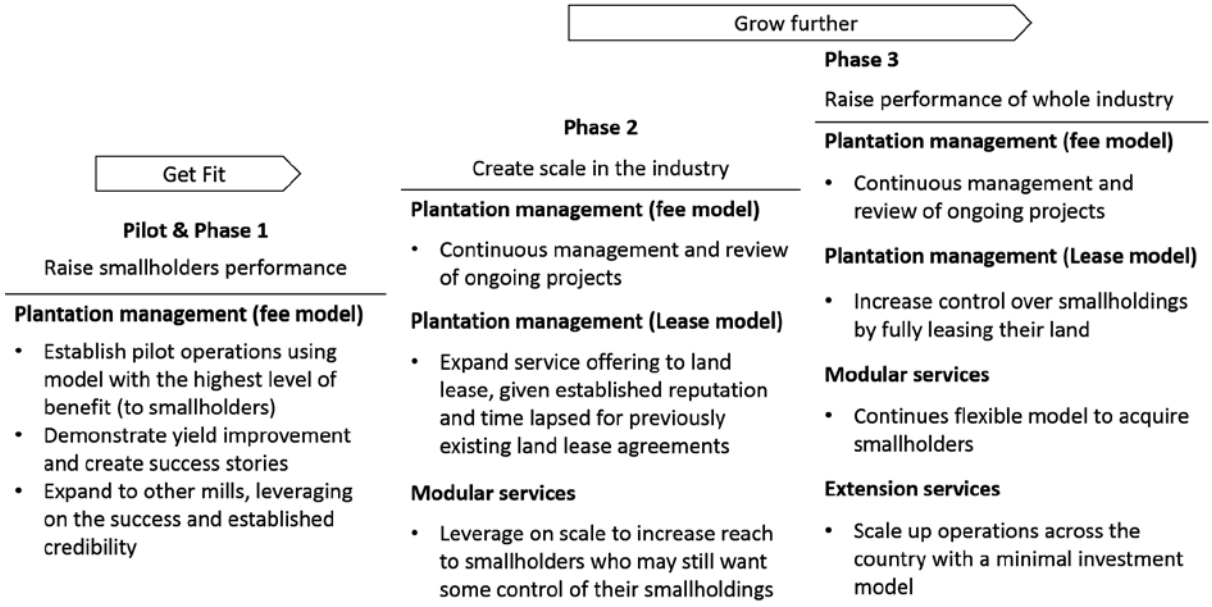

Figure 11. Proposed phases to increase the scale of operating model.

leveraging on the positive results. Phase 2 and 3 will be focusing to grow further to scale up operations across different mills with the inclusion of other operating models. However, a dedicated team managing the affairs of smallholders needs to be in place within the mill's management to make sure all the issues are dealt with promptly.

CONCLUSION AND RECOMMENDATION

The study revealed that most of the respondents indicated early interest to establish a partnership with oil palm mills pending more detailed information on the partnership before making a decision. Independent smallholders that are fully managed by dealers show a higher yield and income. Different management styles and preferences were observed between Malay and Chinese smallholders which might require different approaches towards a partnership model. Compared to Johor, Perak smallholders are more ready for a partnership. Cash payment and the ability to purchase agricultural inputs are most favoured by smallholders in a partnership model.

Four operating models were identified for a partnership between smallholders and mills such as the extension services model, modular services, plantation management (fee model) and plantation management (lease model). Plantation management with a fee model is most likely to offer the most benefits to millers and smallholders. However, a site with sufficient land size of smallholder's clusters within the proximity of nearest mills needs to take into consideration in the formation of the initial partnership.

Solving the persistent and complex challenges facing the agricultural sector is not upon a single actor alone. Comprehensive changes need the involvement of various stakeholders within the supply chain. Government intervention in the form of policy or subsidies to promote and support partnerships can further encourage the industry to come together to improve the competencies of the oil palm industry as a whole. Partnership directly with processing facilities like mills is able to link smallholders a step higher in the supply chain providing better benefits. Partnership with processing facilities like mills is able to reduce the high dependency of smallholders on government services, increases support for skills development, reduces market risks and facilitates the transfer of technology. Mills are able to facilitate the mandatory certification such as MSPO among smallholders.

Besides that, partnership with processing facilities enables smallholders to leverage on processing facilities centralised procurement to acquire inputs such as fertiliser and planting materials at competitive price. However, buying or sourcing from smallholders alone cannot bring inclusive benefits. Any intervention such as partnership model should focus towards sustainability to further elevate smallholder's development such as to assist smallholders to adopt good agricultural practices to achieve better yield in the long run. Partnerships by smallholders and big producers should be considered as part of a long-term strategic alliance towards the sustainability of the oil palm industry. However, the realisation of the partnership needs to balance between commercial sustainability and the social aspect

within the supply chain. Further study needs to focus on the commercial feasibility and social aspect of each partnership model to propose the best model for adoption. Other than that, the view and involvement of existing oil palm fruit dealers need to be further studied to better strategise the partnership model. One of the limitations of this study is to the results as it covers only specific location.

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