

# Marketing Management Skill of Mangosteen Farmer

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**Abstract:-** The purpose of the study is to measure the influence of internal factors, external factors and the technology utilization on marketing management skill of mangosteen farmers in Bogor. The respondent farmers were 60 farmers who are farmer group member and minumun 0,5 hectare land area landowners. The research model was analyzed by structural equation model which includes four latent variables. Empirical results show that the management skill of Bogor mangosteen farmers is average. The internal factor, individually the highest effect was motivation. The highest effect of external factor was government assistance in market information. The highest effect of technology utilization was internet utilization. The marketing managerial skills, the data shown that place was the highest variable. The internal factor and technology ability were significant and indicated positive correlation. Fifty nine percents farmer marketing capacity explained by internal, external factor and technology skill. Based on the outer loading analysis, the most influential manifest internal factor variable was farming interest. The influential manifest variable was government assistance in market information. The most influential manifest of technology ability variable was transportation and communication utilization. The variable that influences the marketing management skill, the most is placing.

**Keywords:-** Marketing Management, Farmer Skill, Mangosteen.

## I. INTRODUCTION

Nowadays the farmer marketing capability became main aspect for their welfare. Research of Naminse and Zhuang found that the farmer's social-cultural capability become the primary factor of entrepreneurship growth. That factor was also significantly impacts the rural poverty in Guangxi Province China (1). Management skill for farmer was significantly importance to nation economics (2) and significantly, management can increase the efficiency and effectiveness of agriculture (3). Base on Indonesia Statistic Berau from year 2013 till 2017, the mangosteen farmer exchange rate has flat tendency. Meanwhile base on FAO in the same period, data of the mangosteen producer and consumer price indices has rising trend. The data comparison shown on figure below:

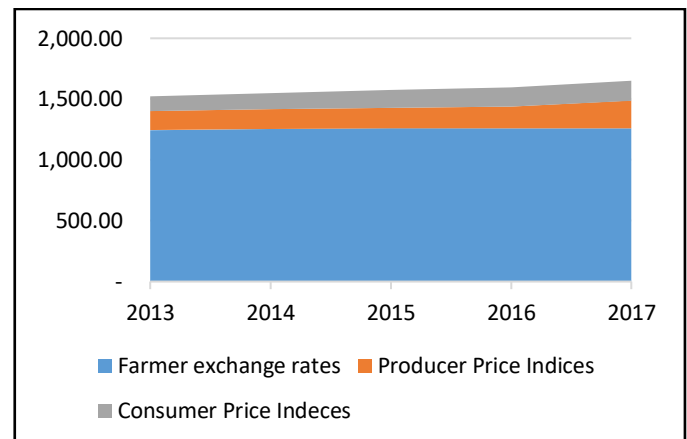


Fig 1:- The data of Indonesia mangosteen farmer exchange rates, International producer price indices and international mangosteen consumer price indices.

Source: The farmer exchange rate from BPS (2019)  
The producer and consumer price indices from FAO (2019).

The farmer's entrepreneurship influenced by technical and non-technical factor. The one of non-technical factor was rational boundary in mangosteen marketing management. That limitation used by middle trader and exporter with purpose to get bigger profit. (Oktini, 2018). The gap between producer and consumer price indices is margin for the broker (5). The circumstances declare that the rising price in consumer level, does not rise the farmer income. To escalate the farmer income, the marketing skill become a main factor (Rabbi et al., 2019; Erlangga, Purwadaria, & Firdaus, 2012; FAO Diversification Booklet 16, 2010). In Canada, some of studies on against the agriculture challenges consists of three main things, such as: 1) the skills that related to the ability to acquire, organize and access the information, 2) the expertise in making the right business decisions, and 3) the expertise that related to the ability to organize all resources on the decision implementation. Those three main things relationship was guided farmers to do the right management, meanwhile first expertise and second directed the farmers to do right business. All those things became critical factors for the success for farmers (<http://www5.agr.gc.ca>). Empirically, farming management is related to sustainability itself (8).

The marketing management skill will help farmer to access the better market and price. Empirically many studies pointed that the Indonesia farmer management skill is low (Harahap, Sriyoto, & Yulianti, 2018; Veronice, Helmi, Henmaidi, & Arif, 2018; Jaya, Sarwoprasodjo, Hubeis, & Sugihen, 2017; Suasih & Yasa, 2017; Quincieu, 2015; Sumarauw & Soegoto, 2014; Patkar, Natawidjaja, & Widyastuti, 2012; Pasaribu, 2010). This is in accordance with the conditions of mangosteen farmers in Bogor whereas the Republic Indonesia Agriculture Ministry, in year 2003 declared that mangosteen is a west Java primary imported oriented fruit. Astuti, Marimin, Poerwanto, Machfud, & Arkeman, (2010) declared that the west Java mangosteen production activity was not efficient to international competition and needed to involving organization selection in order to rise the Bogor mangosteen competitiveness. Smallholders farmer's participation in marketing channel choice is limited by low volume of produce, presence of middleman, perceived low prices in local market and lack of information (12). To increase farmers' opportunities in the market need various things affect farmers' participation (Valliant, Ruhf, Gibson, Brooks, & Farmer, 2019; de Krom, 2017; Utaranakorn & Yasunobu, 2016; Entz et al., 2015; Derks, van Werven, Hogeveen, & Kremer, 2014;)

Basically, the farmer marketing management skill is influenced by internal, external factor and technology utilization. The internal factor are motivation, farming interest, learning skill, positive perspective and farmer's diligence. The motivation and farming interest become first factor. If their motivation and interest are high, they will enhance their own management skill (May, Arancibia, Behrendt, & Adams, 2019; Kragt, Dumbrell, & Blackmore, 2017; Mayasari, Sente, & Ammatilah, 2015). The learning skill of Bogor mangosteen farmer are low. Their average education is primary school. Farmer also must have positive perspective because it push farmer to optimize their farm. Lima and Müller (2017) mentioned that the education and experience of small business owners indirectly affect the cognitive ability of small business owners to open new market opportunities. Damke, Junior, Gimenez dan Damke (2018) also mentioned related to the strategic management of small-scale enterprises was very dependent on the scope of their knowledge, the higher their knowledge, the better their management strategic ability. They become internal factor that can expand the marketing managerial skill (Panpakdee & Limnirankul, 2018; Sumner, von Keyserlingk, & Weary, 2018; Sutherland et al., 2017; Terano, Mohamed, & Din, 2016; Diab, 2015; Githitho-Muriithi, 2010). And diligence, the mangosteen is seasonal and yearly fruit and diversificate with pala, padi and other plant. The farmer diligence will rise the mangosteen quantity. The farmer decide the diversification to increase revenue (Morris, Henley, & Dowell, 2017; Pisani & Scrocco, 2016; Ibrahim, Dorina, & Abdelrazek, 2014; Chowdhury & Khairun, 2014; Wang, 2010). It is supported by Pisani and Scrocco's research that mentioned a downward trend in farmers' income (in cotton) related to product specialization (28).

The external factor are farmer organization existence, government assistance in production, price, capital accessibility, market information and quality assurance. Basically, organizations existence will be interconnected with human resources (29). Farmer must implement the good governance farming to run their farm business (30). Empirically, Bogor mangosteen farmers tend to depend their farm on government policy. The government assistance plays a important role (31). Jean Tirole, Noble prize awarded in year 2014, declared that in example if the farmer are poorly informed meanwhile the trader plays negative externalities the government must apply public intervention (32). Many studies showed the government's role success in improving the farmers welfare (Rose et al., 2019; Baloch & Thapa, 2019; Kansime, van Asten, & Sneyers, 2018; Zasada et al., 2017; Cabral, Favareto, Mukwereza, & Amanor, 2016, M. Badrul Haider & Akhter, 2014). One aspect of government involvement in improving farmers' welfare is price incentive policy. Price incentives are a major consideration for sustainability of production, so many traditional farmers lack the knowledge and expertise to make important decisions relating to prices that tend to decide on the basis of intuition or simply follow other farmers' decisions (Kustiari, & Purba, 2012).

Technology can make farmers accessing the market information (Barhatov, Campa, & Pletnev, 2018; Raungpaka & Savetpanuvong, 2017). In understanding that the Bogor mangosteen farmers are small scale entrepreneurs, technology utilization can help farmer to enhance their value added into market (41). It is importance because enhancing the marketing management skill (Morris, Henley, & Dowell, 2017; Sianipar, Yudoko, Adhiutama, & Dowaki, 2013). Empirically technology utilization by farmer is low and correlated (Andriyanty & Humaira, 2016; Icc, 2016). The technology aspects analyze from three aspects: communication (handphone using), transportation (vehicle using), and internet (internet access via cellphone).

Farmers are entrepreneurs for their farm. They should have managerial skills (Agbolade Obasan, 2014; R. Radfar. N. Rezaei-Malek, 2012), particularly in marketing. Kotler stated that marketing management is about applying the concept of market segment targeting the market appropriately, effectively and efficiently, maintain and increase the number of consumers through the creation, delivery and communication of consumer values. Regarding to creating, delivering and communicating of consumer value, farmers must apply the marketing mix through understanding the concepts of product, price, place, promotion, people, process, and physical evidence (46). The better of marketing managerial skills of farmers, the better their income (Kaleka & Morgan, 2019; Kyomugisha, Sebatta, & Mugisha, 2018; Obradović, Kostić, & Mitrović, 2016; Abishovna, 2014; Hussin, Alias, & Ismail, 2013).

Based on the things outlined above, all matters above are important for increasing the farmer marketing managerial skill. Many studies declared that Indonesian farmer have low management skill, but how low it is?.

This research purpose are to measure the level of farmer’s marketing management and to measure the influence of internal factors, external factors and the technology utilization on marketing management skill of manggosteen farmers in Bogor. The expectation of this study is agriculture human resources mapping.

**II. RESEARCH METHOD**

The location of the study were in Bogor covering 9 villages covered Leuwiliang sub-district (Barengkok, Karacak and Pabangbon village); Cigudeg sub-districts (Sukaraksa and Bunar village); Jasinga sub-district (Pangradin and Jugalaya village). The respondent farmers were 60 farmers who are farmer group member and minumun 0,5 hectare land area landowners. The participation in farmer organizations is fundamental to marketing managerial skill (Utaranakorn & Yasunobu, 2016; Gangai & Agrawal, 2015). The data type were used primary data and to measure the level of marketing management skill of respondents was designed with positive Linkert scale (from 1-5). Respondents were asked to assess their skill based on the research questionnaire. The lowest value is rated 1, and the highest is rated 5. The level of approval in this research was the farmer opinion with gradation and weighted values according to the following table:

The farmer decision gradation	Weighted value
Very high	5
High	4
Average	3
Low	2
Very low	1

Table 1:- The gradation and weighted values of farmers marketing management capability.

The general theory of linear models is declared valid if the observed variables are random. This assumption has implications for the analysis of the regression model, so that a structured and consistent model is developed in the design of the model equation matrix. Stuctural analysis models (SEM) are categorized as multivariate statistics

dependencies that allow the analysis of one or more independent variables into latent variables with estimated measurement errors (Timm, 2007). This research is socio-economic research using farmer behavior data which includes four latent variables. The first endogenous latent variable is the internal factor, the second endogenous variable is external factor, the third is technology application and the exogenous latent variable is the farmer's marketing management skill. The reserach modeling is approached with SEM (54) . The conversion equation path diagram consist of two model: outer model and inner model. The mathematical model equation is:

$$\eta = \tau_1\xi_1 + \tau_2\xi_2 + \tau_3\xi_3 + \zeta_1$$

Where  $\eta$ =the farmer marketing management skill;  $\tau_1$ =coefficients associated with internal factor;  $\xi_1$ =internal factor;  $\tau_2$ =coefficients associated with external factor;  $\xi_2$ =external factor;  $\tau_3$ =coefficients associated with external factor;  $\xi_3$ =external factor;  $\zeta_1$ = error of exogenous latent variable. All datas analyzed by statitital software Smart-PLS.

The farmer marketing management skill as exogenous latent variable be affected by three endogenous latent variables. The first endogenous latent variable, internal factor analyzed by the following manifest variables: motivation, farming interest, learning capability, positive perspective and farmer’s diligence. The second is external factor, used approach by six manifest variables: organization existance, goverment assistance in production, goverment assistance in price, goverment assistance in market information, goverment assistance in quality assurance, and goverment assistance in capital accessibility. The third endogenous latent variable is technology application. Its manifest variables are communication technology utilization, transportation technology utilization and internet technology utilization. The latent endogenous variables was farmer marketing management skill. It analyzed by seven manifest variables: product, price, place, promotion, process, people and phycisal evidence. Based on the analysis of construct reliability and validity, all values of the loading factor are reliable and valid. The specification for measuring all manifest variables shown in figure below:

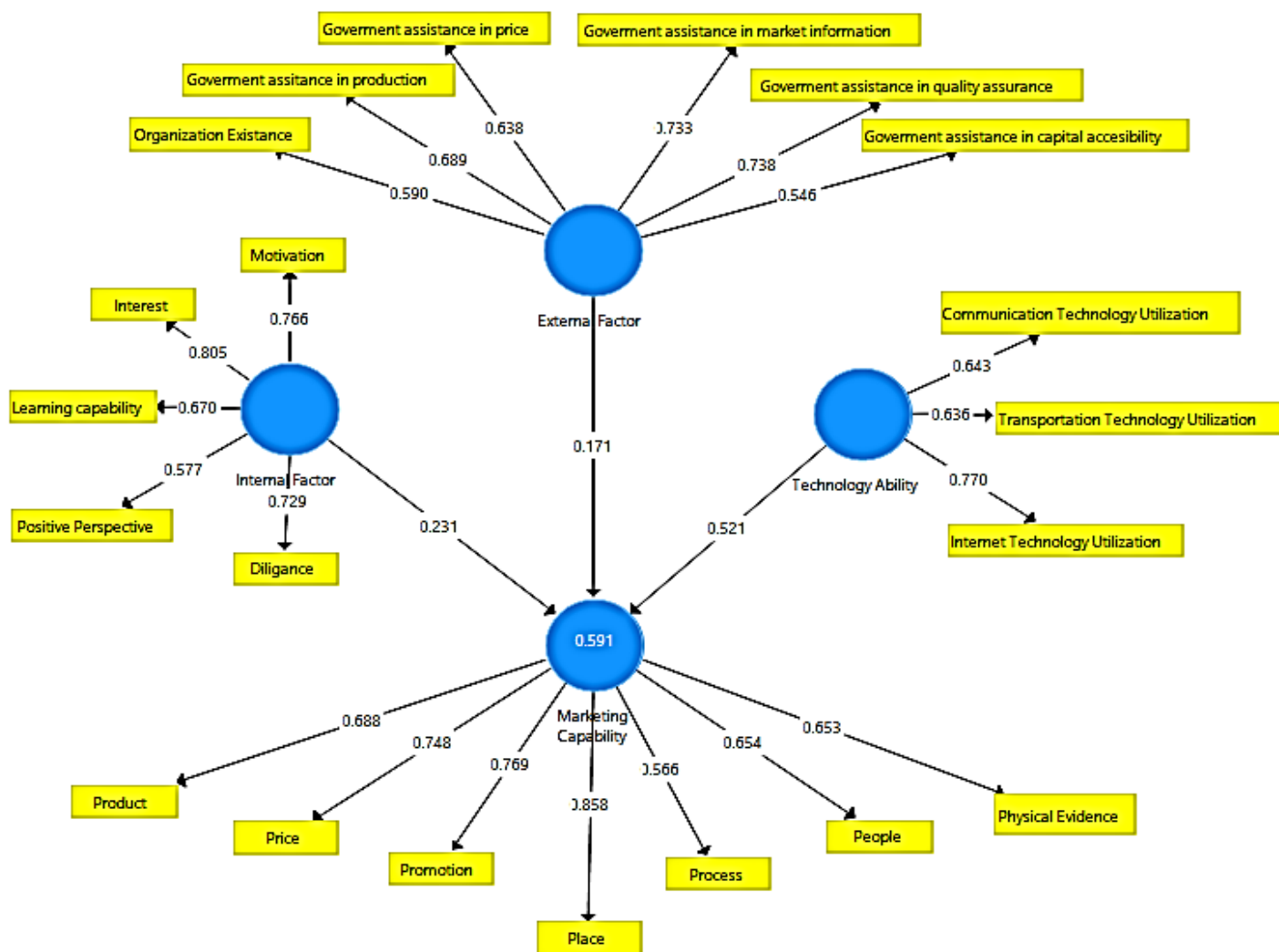


Fig 2:- The construct reliability and validity.

### III. RESULTS & DISCUSSION

The internal factor, individually the manifest variable that has the highest score was 3,65 on motivation (SD=0,68). The lowest score was positive perceptive=3,13 and SD=1,00). All manifest variables have an average number of three. Empirically in the research field, farmers do mangosteen cultivation because of heredity. The internal factors tend to be weak factor in determining the farmer’s marketing managerial skill. The highest score of external factor was organization existance with value 3,27 and standard deviation=0,78. The lowest score was government assistance in quality assurance with value 3,27 and standard deviation=0,78. Actually government assistance is given in the form of the role of village agricultural instructors. Farmer can be asked everything related with production, and quality assurance. The government assistance in price is also given but frequently not valid. The government assistance in capital accessibility and market information were limited At in the end they were always dependent on the middle man. The technology utilization, the highest score were

transportation utilization with value 3,85 (standard deviation=0,97). The lowest score was internet utilization with value 2,72 (standard deviation=1,01). In general, farmers already have a mobile phone but it is limited to the telephone and text functions. Their cellphone can not access the internet because of limited capital and low urge of internet technology itself. For mangosteen transportation, farmers have optimized their motorbikes. The marketing managerial skills, the data shown that production was the highest variable with number 3,95 (standard deviation=0,97). The lowest score was promotion with value 2,88 (standard deviation=1,06). In production aspects: the farmers were able to sort and grading, but it required a further cost than if they sold directly to middle/local trader (in local language middle/local trader call as ijon). These conditions made farmers sold their mangosteen bulky. Farmers accepted the price information when the harvest arrived, but they did not have enough time to process that information properly. It caused the farmer limitations to access on price and procedures of export. For more details datas could be seen in the following table 2 below.

Indicators	Minimum	Maximum	Mean	Standard Deviation
Farmer motivation	2	5	3,65	0,68
Interest in Farming	2	5	3,38	0,85
Learning capability	1	5	3,38	0,92
Positive Perspective	1	5	3,13	1,00
Farmer Diligance	2	5	3,35	0,84
Organization Existance	2	5	3,83	0,91
Government Assistances in Production	2	5	3,70	0,87
Government Assistances in Price	1	5	3,48	0,75
Government Assistances in Capital Accessibility	2	5	3,45	1,05
Government Assistances in Market Information	2	5	3,70	0,81
Government Assistances in Quality Assurance	2	5	3,27	0,78
Communication Technology Application	1	5	3,73	0,86
Transportation Technology Application	2	5	3,85	0,97
Internet Technology Application	2	5	2,72	1,01
Managerial skill in Production	2	5	3,95	0,77
Managerial skill in Pricing	2	5	3,05	1,00
Managerial skill in Promotion	2	5	2,88	1,06
Managerial skill in Placing	2	5	3,63	0,71
Managerial skill in Processing	2	5	3,65	0,78
Managerial skill in People relation	2	4	3,48	0,75
Managerial skill in Physical Evidence	2	5	3,17	0,56

Table 2:- The descriptive data.

The further analysis continues with the construct reliability and validity of all latent variables. The composite reliability value showed the construct for all latent variables were realibel and valid. The data shown on table below.

	Cronbach's Alpha	Rho_A	Composite Realiability
External Factor	0,740	0,749	0,820
Internal Factor	0,773	0,803	0,837
Technology Ability	0,454	0,442	0,725
Marketing Skill	0,832	0,840	0,876

Table 3:- The construct reability and validity test.

Goodness of fit model is measured using R-square latent variables of farmer's marketing capacity. R-square

value bigger than 0 indicates the model has predictive relevance otherwise if the R-square value smaller or same with 0 indicates the model has less predictive relevance. Based on the analysis of the R-square value obtained 0.591, which concluded that the model is good fit. It shows 59 percents farmer marketing capacity explained by internal, external factor and technology skill. Based on the path analysis and total effects, The internal factor and technology ability were significant and only external factor latent variable was not significant. The internal factor, original sample estimate value 0,231 indicated positive correlation. The original sample estimate value for technology ability was 0,521 and indicated positive correlation also. The path analysis data can be seen in the following table.

	Original sample	Sample Mean	Standard Deviation	T Statistic	P Value	Conclusion
External Factor → Marketing skill	0,171	0,175	0,125	1,376	0,085	insignificant
Internal Factor → Marketing Skill	0,231	0,241	0,122	1,899	0,029	significant
Technology Ability → Marketing Skill	0,521	0,522	0,141	3,687	0,000	significant

Table 4:- The path analysis.



The structural equation model formulated as follows:

$$\eta = 0,171\xi_1 + 0,231\xi_2 + 0,521\xi_3 + \tau_1$$

The internal factor and technology ability influenced the marketing managerial skill. It declared that it can be build from their internal factor and escalate the technology ability instead of external factor escalation.

	Original sample	Sample Mean	Standard Deviation	T Statistic	P Value	Conclusion
Farming Interest←Internal Factor	0,805	0,787	0,143	5,632	0,000	significant
Motivation←Internal Factor	0,766	0,726	0,148	5,182	0,000	significant
Diligance ← Internal Factor	0,729	0,724	0,107	6,806	0,000	significant
Learning skill←Internal Factor	0,670	0,616	0,200	3,353	0,000	significant
Positive Perspective ← Internal Factor	0,577	0,547	0,199	2,898	0,000	significant
Government assistance in market information ←External Factor	0,733	0,725	0,104	7,075	0,000	significant
Government assistanve in production ←External Factor	0,689	0,686	0,095	7,246	0,000	significant
Government assistanve in price ←External Factor	0,638	0,596	0,1541	4,139	0,000	significant
Organization Existance←External Factor	0,590	0,579	0,10	4,200	0,000	significant
Government assistance in capital accesibility ←External Factor	0,546	0,531	0,138	3,953	0,000	significant
Internet Technology Utilization ←Technology Ability	0,770	0,757	0,096	8,042	0,000	significant
Communication Technology Utilization ←Technology Ability	0,643	0,635	0,156	4,129	0,000	significant
Transportation Technology Utilization←Technology Ability	0,636	0,625	0,133	4,783	0,000	significant
Place ←Marketing Skill	0,858	0,847	0,072	11,867	0,000	significant
Promotion←Marketing Skill	0,769	0,765	0,058	13,147	0,000	significant
Price←Marketing Skill	0,748	0,737	0,098	7,617	0,000	significant
Product←Marketing Skill	0,688	0,676	0,097	7,064	0,000	significant
People←Marketing Skill	0,654	0,651	0,093	6,997	0,000	significant
Physical Evidence←Marketing Skill	0,653	0,653	0,128	5,116	0,000	significant
Process←Marketing Skill	0,566	0,540	0,169	3,343	0,000	significant

Table 5:- The Outer loading analysis.

Based on the outer loading analysis table below, all manifest variables were significant. The first latent exogenous variable that influenced the marketing management skill was internal factor. The most influential manifest internal factor variable was farming interest (0,802). The farming interest plays a critical role in farmer marketing skill escalation especially young farmer (55). The other influential manifest variable were motivation, farmer diligence, their learning skill and positive perspective. All variables is a fundamental factor to improve the ability of farmers in mangosteen farming and their scores were average. The empirical evidence showed that the effect of mangosteen farmer farmer motivation = 0,766; The farmer diligence effect=0,729; the learning skill effect = 0,670 and positive perspective effect = 0,577. The second latent exogenous variable that influenced the marketing skill was external factor. The influential manifest variable was government assistance in market information with value 0,733. The effect values in a row were government assistance in production (0,689),

government assistance in price (0,638), organization existance (0,590) and government assistance in capital accesibility (0,546). The most influential manifest of technology ability variable was the internet utilization with effect=0,770 and followed by communication and transportation utilization. The communication effect = 0,643. Meanwhile the tranportation utilization was low with effect = 0,636. Generally the farmers used mobile phones in a simple way even though limited to the telephone calls and texting to traders. They do not connect with the internet. Farmers also have difficulty operating the internet. This is related to the average age of farmers who are old and low adoption. This condition explain by Jamaluddin’s reasearch in year 2013 that Indian farmer are in still in infant stage in internet-using. Although there has been a lot of training given to farmers, the main constraints are poor internet connectivity, costs, and lack of organization (56). Most farmer utilized their motorcyce to transport the mangoosteen. Farmer always relies on his mangosteen transportation process to middle/local traders.

They did not develop their transportation with the bigger vehicles, due cost reason. Bigger vehicles mean bigger cost and farmers do not want to endure that cost.

The endogenous latent variable was marketing management skill. It consisted of six manifest variables with value average. The most influential manifest variable was place with effect = 0,858. The other manifest variables: Promotion effect = 0,769; price effect = 0,748, people effect = 0,654; physical evidence effect = 0,653 and process effect = 0,566. The production became main aspect because fair production process will guarantee the better product (Abdullah & Hoetoro, 2011). Bogor mangosteen farmer must be able to change the paradigm towards modernizing farming (58). Research of Allahyari, Saburi dan Keshavarz (p:65) also explained that in the area the farmer ability to sell their products directly to consumers has the lowest value (59). Lobantiu & Lobantiu (p.550) said that, the most small business owners who tend to do direct sales activities only 38 percent, the rest tend to hand over sales to other marketing agencies (60). This showed that farmers prefer to sell their products to other marketing institutions rather than directly selling to the consumers. The farmers focused more on production activities than on marketing activities. They bounded for accessing and processing the complete information in uncertainty circumstances. It positioned the farmer as price taker in mangosteen marketing system in Bogor. This condition caused the rentseeking exploration by the marketing agency institutions. That behavior plus the low capital, the high transportation costs and the risk of fruit damage, the absence of financial institutions at the village that can not ensure the availability of funds for farmers to fulfill their life necessities, forced farmers to sell their mangosteen to merchant collectors or middle/local trader. Those things became a driving factor why farmers were not ready to become a mangosteen marketing institution directly. Farmers consciously declared that their mangosteen fruit has not met the export requirement and was forced to accept the price offered by the marketing agency.

Basically, farmers want to be able to sell mangosteen independently and have tried to improve product quality. But they are constrained by their daily needs cost. To fulfill their daily needs, farmers mortgaged their immature mangosteen to local traders. The traders will estimate the price of the mangosteen as they wish and farmer must accept its price. In this circumstances occur rentseeking. The rentseeking condition can be surmounted by increasing of internet technology utilization farmer ability and capital assistance from the government. The government assistance in initiating the existence of financial institutions for farmers can be the right solution related to rentseeking. The one of most priority strategies of mangosteen agriculture are post-harvest infrastructure through cooperation with exporters and financial institutions, followed by the use of developed cultivation and post-harvest technology to increase mangosteen productivity and improve its quality (61). The internet technology utilization enables farmers to sell mangosteen directly. This scheme shortens the marketing chain. It is more profitable

for farmers. This is supported by Sianipar, Yudoko, Ashiutama and Dowaki's statement of increased utilization of the farming community towards technology which has an effect on sustainable development. This is what requires government involving (62).

Due to the low of farmer marketing management skill, it was found a solution that the farmer marketing skill should be developed. The developing of farmer's participation into market could be supported through subsidized price, stock storing, training, new technology introducing and enhance the role of local agricultural instructors (Rabbi et al., 2019; Toader & Roman, 2015) It should be noted that with the marketing training, farmers can be trained to access information and make marketing decisions based on accurate information ("2013 Annual Report on FAO's projects and activities in support of producer organizations and cooperatives," 2013). The farmer with low endowment factor basically can rely on social capital which are tailored to farmers' characteristics (65). The inclusion of social capital in farming is expected to increase farmers' competence and innovation for their marketing management skill. The improvements in business skills, project management and information technology capabilities have a positive effect on sales and profits (66).

#### IV. CONCLUSION

Overall Bogor mangosteen farmer's marketing managerial skill is at an average condition (value 3 on a scale of 1 to 5). The internal factor and technology ability were significant and indicated positive correlation. Fifty nine percents farmer marketing capacity explained by internal, external factor and technology skill. The most influential manifest internal variable was farming interest. The influential manifest variable was government assistance in market information. The most influential manifest of technology ability variable was internet utilization. The endogenous latent variable influenced by manifest variable was place. That circumstances must be improved by increasing the internal factors of the farmers themselves instead of external factor development. And it must be followed by the development of technology application among farmers, especially the internet utilization.

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