

Urban Farming Competitiveness in Jakarta City in the Digital Era

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Abstract

Urban farming farmers in Jakarta City, Indonesia are able to survive in the midst of increasing land conversion so that agricultural land is increasingly narrow. The strategy to increase the competitiveness of cultivation technology and digital technology is the main key to its development. The purpose of this study is to analyze the simultaneous and partial effects of competitiveness variables as measured by production, capital and labor on digital technology strategies and their impact on the income of urban farming MSMEs in Jakarta City. The survey research method uses OLS Multiple Regression data analysis techniques for urban farming farmers or MSMEs in the Jakarta City area. The results of the study are that simultaneously products, capital and labor have a positive effect on the strategy for determining digital technology. The competitiveness of capital and labor plays a positive role in determining digital technology, while products cannot compete and have no real effect. Digital technology strategies have a positive impact on farmers' income. The research finding is that urban farming in the city of Jakarta is able to compete with the determining factor being its human resources in implementing digital technology in its farming. Without the application of digital technology will reduce income.

Keywords: *Product, Capital, Workforce, Digital Technology Strategy, Urban Farming Revenue.*



A. INTRODUCTION

The COVID-19 pandemic has greatly affected the behavior of people, businesses and organizations globally (Hubeis, 2020). The impact of COVID-19 both on the internal environment of business entities and on the internal environment of business entities and conventional patterns of business activities in the fields of marketing, finance, human resources and operations (Hubeis, 2020; Taufik & Ayuningtyas, 2020).

Digital technology is a way of carrying out activities that are supported by automation devices, both simple and sophisticated (Juman, 2020). Digital entrepreneurship is a business that utilizes the sophistication of digital technology, both processing and marketing. Or it can be stated that all types of businesses whose marketing is done online using either websites or applications are included in the realm of digital entrepreneurship. The use of e-commerce applications and the use of social media in digital marketing is included in the realm of digital entrepreneurship. The future of digital entrepreneurship can be a sector that will make a lot of positive contributions to strengthening the Indonesian economy. Salim et al. (2022) states that technological innovation has a positive effect on income.

Global competition is not only in the fields of business economics, trade, investment but also technology. Governments, organizations, businesses and communities are challenged to win the competition in order to grow, advance and develop. The winners are those who have an absolute competitive advantage over other parties (Frances, 2013). In creating these advantages related to this, two things must be considered, namely understanding competition and how to create competitive advantage that can realize its strategic goals as planned.

Determining the right strategy must be adjusted to all activities of the company's functions, so that it will create the company's performance as expected. Particularly MSMEs compete to be at the forefront, fastest or meaningful in the era of competition. MSMEs that are highly competitive are characterized by reliable human resource (HR) capabilities, high mastery of knowledge and mastery of the economy. According to Hubeis (2020), the competitiveness of MSMEs is determined by internal factors such as labor and capital, as well as external factors such as government macro policies and other external environments. The competitive advantage of a company depends on the relative level of resources it has and is called competitive advantage (Hubeis, 2020).

Technology plays a role as a driving force in social, cultural and economic transformation in various aspects of people's lives, and assists in efforts to open the isolation of rural areas to market information, capital, agricultural innovations and other supporting facilities and infrastructure (Abdul Kadir, 2014; Juman, 2020). Technology can assist farmers in the decision-making process, agricultural land ownership and leasing agreements, input procurement, machine economics, post-harvest and product marketing (Salim, et.al., 2022). This, if managed properly, will increase production, increase farm income, and can further reduce poverty in both urban and rural agriculture (Leary & Berge (2006) in Burhan (2018). Urban farming is part of a series of gardening activities in the middle of cities that are beneficial from an economic and health perspective because they are able to support oxygen needs which characterize life (Fahmy 2022). Urban farming is carried out by farmers, SMEs or commercial companies. According to the Law of the Republic of Indonesia No. 20 of 2008 concerning MSMEs (Micro, Small and Medium Enterprises) are productive businesses owned by individuals and/or individual business entities that meet the criteria for micro-enterprises as stipulated in the Law Small-scale businesses are productive economic enterprises that stand alone, which are carried out by individuals or business entities that are not subsidiaries or non-subsidiaries owned, controlled or become part, either directly or indirectly, of medium or large businesses.

The development of urban agriculture in DKI Jakarta needs to be strengthened, one of which is technological innovation to compete in this digital economy era (Salim et al., 2022). The digital economy is often associated with economic aspects based on the utilization and empowerment of digital information and communication technology (Anonymous, 2019). The development of the digital economy apart from entering into e-commerce is also in the fields of transportation, banking finance, agriculture, to urban planning (Anonymous, 2019). However, the agricultural,

forestry and fisheries sectors in DKI Jakarta are not considered as significant economic sectors. In the second quarter of 2019, agriculture only contributed 0.08 percent of DKI Jakarta's economy (BPS, 2019). However, the increase in urban agriculture in DKI Jakarta is not only seen from an economic perspective, but also from an ecological, environmental, health and natural preservation perspective.

It is important to examine in this research how to encourage MSME urban farming to survive and even be able to scale up, expand business in terms of quality and quantity. The aim is for MSMEs to be competitive at the global level, and to analyze the implementation of marketing and development strategies in an effort to increase the competitiveness of MSMEs, as well as the strengths, weaknesses, opportunities and obstacles that are in real terms owned by MSMEs. Compared to Malaysia where MSMEs are export-oriented and competitive, MSMEs in Indonesia are still relatively competitive compared to competitive competitiveness (Salim, et. al., 2022) where MSME growth is directly influenced by credit, investment and technology and has a positive impact on state income.

The development of urban farming activities in the city of Jakarta aims to fulfill food needs, in the context of realizing food security, increasing the productivity of urban communities, making the environment green, clean and healthy, fostering sociopreneurship and community social engagement, and encouraging the creation of entrepreneurship among the community (Suhayatmi, 2022). Field conditions in Jakarta are seen from the structure of household income, vegetable commodities provide the largest contribution to farmers, besides that the choice of leaf vegetables is a response to market demand.

Problems that can be raised in increasing the productivity of urban farming farmers, especially after the Covid-19 pandemic, include (1). The post-19 pandemic recovery has not had a positive impact on increasing farmer production and income; (2). The competitiveness of urban farming farmers in Jakarta is not yet optimal, it is necessary to know the competitive advantages of urban farmers in Jakarta; (3). The farming is still subsistence, the use of labor is still dependent on family labor; (4). The use of capital is still limited to own capital, not yet optimal access to capital from the government (KUT); (5). In today's digital era, the use of information technology is a necessity, however, the availability of information technology facilities and infrastructure that can be accessed is not yet optimal; (6). The use of digital technology for both cultivation and marketing technology information has not been mastered, farmers have not correctly understood the strategies for using digital technology; (7). The welfare of urban farming farmers is influenced by many internal factors, namely the condition of the farming family and external factors, namely the macro environment cannot be controlled by farmers; (8). The role of the government has not been optimal in increasing farmer productivity such as land clearing, conversion of agricultural land, competition with modern markets and others.

The research was conducted in the City Region of Jakarta, the capital city of Indonesia with the object of research being urban farming farmers or farmers who work on urban land with all its advantages and disadvantages. In previous studies, it

was stated that urban farming farmers in Jakarta did not depend on land area, age of farmers and courage to take risks, but were dominantly determined by sources of information on technological innovations that had a positive impact on farmers' income. The findings are that farmers are competitive on narrow land, regardless of age and the need for access to information sources both to improve their abilities in cultivation and access to marketing (Salim et. al., 2022a). In this study as a continuation of previous research, it seeks to analyze the competitiveness of farmers' advantages, namely advantages as measured by product advantages, capital and labor, on digital technology strategies and their impact on farmer income. The aim of the study was to examine the influence of the competitiveness factor as measured in product, labor and capital variables on its ability to determine strategies for using information technology and its impact on farmers' income for the sustainability of urban farming in Jakarta.

B. LITERATURE REVIEW

David Hunger and Thomas Wheelen in Rifki Mohamad and Idris Yanto Niode (2020) state that strategy consists of (1). corporate strategy describes the direction of the company towards the direction of growth and management of various businesses and this is to achieve a balance of products and services, competitive business strategy describes the market segments served by the division, developed at the divisional level, and emphasizes improving the position of competitors for the company's goods or service products in specific industries, (2). Functional strategy emphasizes maximizing the productivity resources of a company and the business strategies around them. Technology and innovation must be implemented and carried out by farmers in this digital economy era so that agriculture must also be digital not only in terms of human resources (Susilastuti et al., 2018), they are also required to be active in technological innovation (UMN, 2016).

Company performance is measured by its competitive power capacity. Competitiveness is the ability to meet process standards in producing better, faster or more meaningful products (Afriyani, 2011). Competitiveness is the ability of businesses in the industry to deal with various environmental problems. The competitiveness or competitive advantage of a company depends on the relative level of resources it has and is called competitive advantage (Porter, 2008). According to Frinces (2013) global competitiveness can be achieved by having absolute superiority in the following fields, namely: (a). Qualified human resources; (b). Effective leadership and organization; (c). Strategic planning (d). Efficient technology; (e). Mastery of raw materials, energy sources and capital; (f). Services, prices, promotions, trust, financing and payment systems; (g). Product quality; (h). Bargaining position, network, communication and transportation.

Agricultural competitiveness is measured by production and efficiency (Haryono, 2014). Efficiency is measured by time, resources and suitability (Yuniastari & Wiyati, 2015). Agricultural resources in the form of products as a result of land use, labor, capital and cultivation interventions by farmer actors such as the

provision of agricultural inputs (Heryawan, Fauzi, & Hidayat, 2014). Product competitiveness is the appearance of the product that can be reflected in the product or service design, a good product appearance is one that has a simple design but has high value. The period of product acceptance is meant by the length of time the product can be accepted by the market, the longer the product lasts on the market, the better the quality of the product (Mohamad & Niode, 2020). Highly competitive products will provide a high price value as well.

Capital is goods or money which, together with the factors of production, land and labor, can produce new goods, namely agricultural products. Farmer capital in the form of goods other than land is livestock and their cages, hoes, plows or other agricultural tools, fertilizers, seeds, medicines/pesticides, crops that have not been sold, plants that are still in the fields and others (Salim, Susilastuti, Setyowati, 2019). As a factor of production, capital is used to purchase inputs and pay labor wages (Daniel, 2002). Capital competitiveness relates to the effective and efficient use of capital.

Labor is human resources used to carry out work or business activities. The workforce of farmers and their family members is a determining and important factor in self-sufficient farming or family farming (Salim, Susilastuti & Setyowati, 2019). The workforce of farmers and their family members is a determining and important factor in subsistence farming or family farming (Salim, Susilastuti, & Setyowati, 2019). The comparative competitiveness of the workforce is assessed from the quantity of the workforce used in a unit of time, while the competitive competitiveness of the workforce is assessed from the productivity of the workforce.

Digital technology is a method or way of developing the practical application of new scientific values and contexts, or a new way of applying existing science and technology to products or production processes that are supported by digital technology or information systems. Digital technology is an innovation in the field of information systems that can help humans to be creative, namely implementing their ideas into works. Hubeis (2020), states that information technology in agriculture is used as a vehicle for accessing inputs, cultivation technology and gaining access to marketing. According to Juman (2020), the use of digital technology turns manual work into automation using various tools, such as mobile phones, computers, televisions, tabs and others. Digital technology is often associated with technological aspects based on the utilization and empowerment of digital information and communication technology (Anonymous, 2019). The development of digital technology besides entering into e-commerce is also in the fields of transportation, banking finance, agriculture, to urban planning (Anonymous, 2019). Digital technology can be in the form of job automation and the use of social media and internet-based applications (Kadir, 2014).

Kieso, Warfield & Weygandt (2016) explain that income is the gross inflow of economic benefits arising from the normal activities of an entity during a period, if the inflow results in an increase in equity that does not come from investment contributions. In farming, farmer's income contains two meanings, namely: practical

understanding and technical understanding. Income in a practical sense is remuneration from elements of production received by farmers or managers or owners of certain elements of production. In the technical sense, income is the difference between income and expenses in farm production which is calculated within a certain period of time (Rochaeni, 2018). If the results of agricultural production are multiplied by the selling price, it will produce farming income and the difference between the income and the total cost of farming is called farming income.

The following is a schematic framework for the relationship between variables in research as shown in the following figure:

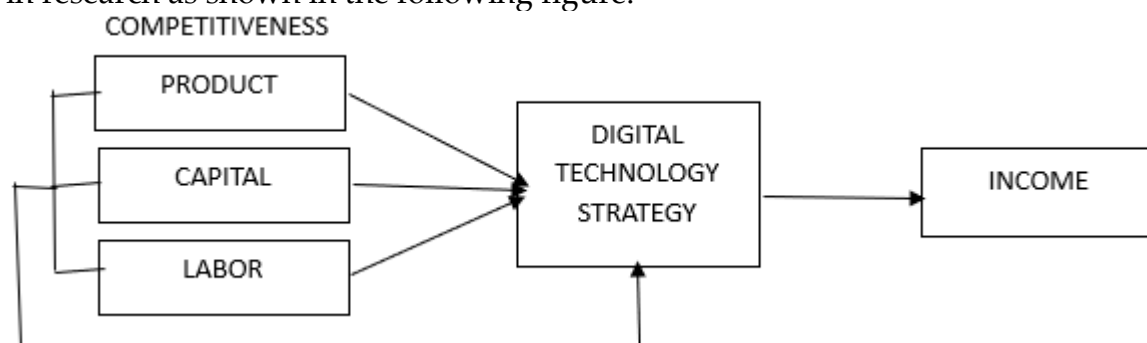


Figure 1. Framework for Thinking about Relations Between Variables

Based on the theoretical framework and frame of mind, the research hypothesis to theoretically answer the problem formulation is that it is suspected that the competitiveness variables as measured by production, capital and labor influence the determination of digital strategies and are able to increase the income of MSME urban farming farmers. Increasing the income of MSME urban farming farmers will later have implications for increasing sustainable farming. The formulation of the research hypothesis is as follows: (1). There is a significant influence on the determinants of competitiveness, namely products, capital and labor on the digital technology strategy of urban farming farmers/MSMEs simultaneously or partially and there is a significant influence of digital technology strategies on the income of urban farming farmers/MSMEs.

C. METHOD

The research was conducted on urban farming farmers/MSMEs in DKI Jakarta purposively with the following criteria: 1). Using social media, such as: WhatsApp, Instagram, Facebook and so on; 2). As a managing farmer for own or leased land, someone who cultivates and or sells agricultural commodities, farmers manage urban agricultural land with various cultivation system methods. Primary data was collected through direct interviews, questionnaires or google forms which were distributed to respondents.

The independent variables studied are the Production Factor (X1), the Capital Factor (X2), and the Labor Factor (X3) which are elements of competitiveness, the intervening variables are the Digital Technology Strategy Factor (Y) and Income (Z) are treated as the dependent variable,

Variable operational limits are defined as follows: (1). Product is the yield quantity per farm area per unit time; (2). Capital is the cost incurred by farmers for farming per unit time per area cultivated; (3). Workforce is the number of workers who assist farming activities both from family workers and from outside the family; (4). Digital Technology Strategies are methods and types of technology, especially information technology that are utilized in relation to farming activities to increase production; and (5). Income is the rupiah obtained from the results of farming every month.

The data analysis method uses multiple linear regression with the following model formulation:

Model 1 is used to determine the effect of competitiveness on Digital Technology Strategy.

$$Y_1 = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + e \quad (1)$$

Information:

Y_1 = The dependent variable is Digital Technology Strategy

X_1 = Production variable

X_2 = Capital variable

X_3 = Labor variable

b_0 = intercept

$b_1 \dots b_3$ = Parameters to be estimated

Model 2 is used to determine the effect (recursive) of Digital Technology Strategy on Farmers' Income

$$z = b_0 + b_1 \hat{y} + e \quad (2)$$

Information:

$\hat{y}$ = Digital Technology Strategy Variable

z = Farmer's Income Variable

The classic assumption test uses the Normality Test, Multicollinearity Test, Heteroscedasticity Test, and Autocorrelation Test, while the hypothesis test is done with the F test and t test, as well as the Determination test and determining the dominant factor using Beta Values (β Standardized Coefficients).

D. RESULTS AND DISCUSSION

In multiple linear regression analysis, the simultaneous effect test is used to test the effect of all independent variables together on the dependent variable. With a confidence level of 95%, the competitiveness factors, namely production, capital and labor, are stated to have a significant effect simultaneously on digital technology strategy.

Table 1 Simultaneous Test Results (Test F)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	66931912621.645	3	22310637540.548	11.549	0.00 ^b
Residual	127496658806.926	66	1931767557.681		
Total	194428571428.571	69			

Source: processed data (2023)

Based on the results of the regression analysis in the table above, a significant value was obtained from the F test result of $0.00 < 0.05$, then H_0 was rejected and it was concluded that simultaneously production, capital and labor had a significant effect on digital technology. Partial test results (t test) are presented in the following table:

Table 2. Partial Test Results (t test)

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	t
1	(Constant)	10.421	.524		19.901
	Produksi	-.069	.045	-.284	-1.551
	Modal	.135	.043	.505	3.101
	Tenaga Kerja	.310	.093	.425	3.330

a. Dependent Variable: Teknologi Digital

Source: processed data (2023)

Based on the results of the regression analysis in the table above, the following results are obtained:

1. The constant value is 10,421 with sig. 0.00, means that if other variables are fixed, then the value of the technology strategy is 10;421 units
2. The significance value of the influence of production on digital technology strategy is $0.126 > 0.05$ and the negative regression coefficient is -0.069, it is concluded that the level of production does not affect the level of digital technology strategy. Increased production lowered the digital technology strategy.
3. The significant value of the effect of capital on digital technology is $0.003 < 0.05$ and the positive regression coefficient is 0.135, it is concluded that capital has a positive and significant effect on digital technology strategy, meaning that the higher the capital, the higher the digital technology strategy can be implemented optimally by farmers, and vice versa the lower the capital value, the lower the digital technology strategy can be implemented optimally for farmers.
4. The significant value of the influence of labor on digital technology is $0.001 < 0.05$ with a positive regression coefficient of 0.310, it is concluded that labor has a positive and significant effect on digital technology strategy, meaning that the more the number of workers, the higher the digital technology strategy can be implemented optimally by farmers, and vice versa the less labor, the lower the digital technology strategy can be implemented optimally.

Based on the regression coefficient, the regression equation to predict digital technology strategy based on production, capital and labor is as follows:

$$Y = 10,421 - 0,069 x_1 + 0,135 x_2 + 0,310 x_3 \quad (3)$$

With:

Y = digital technology strategy

X1 = production

X2 = capital

X3 = labor

Based on the regression equation above, it can be stated that:

1. The value of the digital technology strategy with production, capital and permanent labor variables is 10,421 units.
2. In conditions where the variable is fixed, an increase in farmer production by 1 unit will increase digital technology by -6.9%
3. In conditions where the variable is fixed, an increase in the amount of farmer capital by 1 unit will increase the digital technology strategy by 13.5%
4. In conditions where the variable is fixed, an increase in the number of workers by 1 unit will increase the digital technology strategy by 31%

The coefficient of determination seen from the Adjusted R Square value is 0.31 or 31%, meaning that the contribution of production, capital and labor to digital technology strategy is only 31%, and the remaining 89% is influenced by other factors not examined.

Table 3. Coefficient of Determination

Model	R	R Square	Model Summary ^b		Std. Error of the Estimate
			Adjusted R Square		
1	.587 ^a	.344	.314		43951.8777

a. Predictors: (Constant), Tenaga Kerja, Modal, Produksi

b. Dependent Variable: Teknologi Digital

Source: processed data (2023)

In Model 2, the simultaneous influence of digital technology strategy factors has a significant effect on farmers' income (sig. 0.001 < 0.05) (Table 4).

Table 4. Simultaneous Test Results

ANOVA ^a						
Model	Sum of Squares	df	Mean Square	F	Sig.	
Regression	22983531027	1	22983531027	12.383	.001 ^b	
	185932.000		185932.000			
Residual	12621269697	68	18560690731			
	2814064.000		29618.500			
Total	14919622800	69				
	0000000.000					

a. Dependent Variable: Income

b. Predictors: (Constant), Teknologi Digital

Source: processed data (2023)

Table 5. Partial Test Results (t test)

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	-7438648.053	13964841.900		.596
	Digital Technology	343.818	97.705	.392	.001

a. Dependent Variable: Income

Source: processed data (2023)

Based on the results of the regression analysis in the table above, the results show that the significant value of the influence of digital technology on income is

0.001, because the sig. <0.05 and a positive regression coefficient of 343.818, it is concluded that digital technology strategy has a positive and significant effect on income, meaning that the greater the digital technology strategy, the higher income, and vice versa the lower digital technology, the lower income.

The results of the regression analysis in Table 5 show a regression constant value of -7438648.053 with a digital technology strategy regression coefficient of 343.818. Based on these values, the regression equation that can be used to predict Z based on Y is as follows:

$$z = -7438648,053 + 343,818 \hat{y} \quad (4)$$

With:

z = income

$\hat{y}$ = Digital technology

Based on the regression equation,

1. The value of income with the fixed digital technology strategy variable is -7438648.053 units
2. In conditions where other variables are constant, an increase in digital technology strategy by 1 unit will increase income by 343.818%.

Table 5. Coefficient of Determination

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.392 ^a	.154	.142	43082120.1095

a. Predictors: (Constant), Digital technology

b. Dependent Variable: Income

Source: processed data (2023)

The results of the regression analysis in the table above show that the R Square value of the regression model is 0.154. This shows that the magnitude of the simultaneous influence of digital technology on revenue is 15.4% while the remaining 84.6% of the income variance is influenced by other factors outside of digital technology strategy.

The Influence of Production, Capital, Labor on the Determination of Digital Technology Strategies for Urban Farming Farmers/MSMEs

Production, capital and labor, have a significant effect on the determination of digital technology strategy, which means that the higher the production, capital and labor, the higher the determination of digital technology strategy, and vice versa. In accordance with the opinion of Porter (2008), competitiveness or competitive advantage is determined by the relative level of resources it has. Competitive strategies in using digital technology in urban farming are not only determined by the capacity of information sources (Malik, Hariadi & Priyotamtama, 2020; Salim, Susilastuti & Oktavia, 2020; Salim et al., 2022a) are also influenced by micro-economic factors and globalization factors, namely product, capital and labor simultaneously (Frinces, 2013).

The determinant coefficient is only 34% and less than 50%, meaning that there are still many other factors that influence the determination of digital technology strategy, namely 66%, which still need to be studied. Frinces (2013) states that the factors of global competitive advantage include (a). Human Resources; (b). Leadership and organization; (c). Business planning (d). Technology; (e). Mastery of raw materials, energy sources and capital; (f). Services, prices, promotions, trust, financing and payment systems; (g). Product quality; (h). Bargaining position, network, communication and transportation. Grujić and Grujić (2021) added that competitiveness is determined by product quality and consumer tastes, while Ngenoh et.al. (2019) states that the competitiveness of farmers includes capital, institutional institutions, access related to decision making, information on market prices, technology and land ownership.

Abdul Kadir (2014) and Rheza (2022) stated that the establishment of digital technology, especially information technology, plays a very important role in replacing human labor in carrying out task and process automation, presenting information on a task and process and in the restructuring of human roles. Urban agricultural technological innovation is not determined by land area, age and decision making, but rather by information sources (Salim et.al., 2022).

Productivity, which in this case is measured by gross farming results, does not affect the determination of digital technology strategies, which means that the productivity of urban farming in Jakarta is still low, so it cannot support the use of digital technology. The use of digital technology is still simple, namely 97.3% only use cellphones and 43.0% of farmers do not use digital platforms, only use WhatsApp 45.2% and a combination of WhatsApp, Instagram and Facebook is 46.6%. Low production is also thought to be caused by farmers only selling ornamental plants, not as producers or actors in production (plant cultivators). Rifki Mohamad & Idris Yanto Niode (2020), and Grujić & Grujić (2021) state that a product can compete if the quality and appearance of the product are good, that is, it has a simple design but has high value, the time period for product acceptance is accepted by the market. In the field of ornamental plants, it can be interpreted as an attractive appearance of plants, healthy, attractive types of plants, affordable prices and easy to maintain. Agricultural resources in the form of products as a result of land use, labor, capital and cultivation interventions by farmer actors such as the provision of agricultural inputs (Heryawan, Fauzi, and Hidayat, 2014). Therefore, it is very important to maintain the stability of the quantity and quality of the product. Product superiority by carrying out a variety of products such as plant display, price, promotion (Porter, 2008) and after-sales services can be carried out by farmers to achieve product competitiveness between urban farming entrepreneurs and similar businesses. Production facilities provided by the government are also determining factors in production that must be completed (Heryanto, Asrol & Wahyudy, 2020)

Capital has a positive effect on determining digital technology strategy, which means that the higher the amount of capital, the higher the determination of digital technology strategy, and vice versa the lower the amount of capital, the lower the

determination of digital technology strategy. In agriculture, capital is goods or money which together with the production factors of land and labor can produce new goods, namely agricultural products (Salim, Susilastuti, & Setyowati, 2019). As a factor of production, capital is used to purchase inputs and pay labor wages (Daniel, 2002). Capital competitiveness relates to the effective and efficient use of capital in farming (Heryawan, Fauzi, & Hidayat, 2014). Farmers' capital is obtained from their own capital, joint capital, loan capital, for example Farming Business Credit or cooperative loans, investment from third parties or the government, or grants.

In this study, 67.1% of the respondents' capital came from independent sources and the rest came from loans from various sources. 93.2% of respondents have a total capital of more than 2 million rupiah. The fee used to purchase internet credit to support the use of digital technology is around Rp. 100.000,- Rp. 200.000,-. Based on the results of this study, it can be stated that urban farming farmers in DKI Jakarta have used it effectively and efficiently to determine their technology strategy.

The number of workers has a positive effect on the determination of digital technology strategy, which means that the higher the number of workers, the higher the determination of digital technology strategy, and vice versa, the lower the number of workers, the lower the determination of digital technology strategy. According to Frinces (2013), the quantity and quality of labor is one of the factors to win the competition. In this study, 94.5% of urban farming had a workforce of less than 3 (three) people with 60.3% coming from family labour. This shows that based on the number of workers, the size of urban farming in DKI Jakarta is still small, which is a micro business (Salim, Susilastuti & Oktavia, 2018; Kemenkop, 2022).

The workforce of farmers and their family members is a determining and important factor in subsistence farming or family farming (Salim, Susilastuti, & Setyowati, 2019). The comparative competitiveness of the workforce is assessed from the quantity of the workforce used in a unit of time, while the competitive competitiveness of the workforce is assessed from the productivity of the workforce. Maesaroh (2020) states that human or labor resources are the most important factor in increasing the competitiveness of MSMEs. In addition to increasing skills in human resources, revitalization of managerial systems and ease of access to technology are also needed. This is proven that labor is the dominant factor in determining digital technology strategies for urban farming in DKI Jakarta. This is as stated by Hubeis (2020) that MSMEs that have high competitiveness are characterized by reliable human resource (HR) capabilities, high mastery of knowledge and mastery of the economy. According to Hubeis (2020), the competitiveness of MSMEs is determined by internal factors such as labor and capital, as well as external factors such as government macro policies and other external environments.

The Effect of Digital Technology Strategy on the Income of Urban Farming Farmers/MSMEs

Determination of the technology strategy has a positive effect on farmer's income, meaning that the higher the technology strategy, the higher the farmer's

income, and vice versa the lower the income, the lower the determination of digital technology strategy. However, the contribution of digital technology to the income of urban farming farmers in Jakarta is still low, as indicated by the coefficient of determination, which is only 15.4%. This is not much different from the research by Salim et al. (2022a) where the role of technological innovation in the income of urban farming farmers is 7.9%. Far et al. (2020) stated that competitiveness in an era of competition, it is not only the product of an agricultural commodity that competes but human resources, namely the actors behind the quality of the product. Therefore, it is important that farmers' income must be increased and is part of the main goal of national development, namely to improve people's living standards, because increasing farmer income is an indicator of farmer welfare (Susilastuti, 2017). In this study, the net income of Jakarta urban farming farmers was 54.8%, earning Rp. 5 million rupiah to Rp. 30 million rupiah, even 20.5% earn more than Rp. 50 million rupiahs. This shows that farming on narrow land in the city of Jakarta is quite profitable. This is also indicated by a negative constant value, so that without the use of digital technology it will reduce income.

The successful application of technological innovations can have a positive impact on economic benefits, namely more profitable income (Hubeis, 2020), social benefits, namely the impact on reducing unemployment and poverty (Susilastuti, 2017) and environmental preservation benefits which are in line with the concept of sustainability development (Wuryaningrat, 2016). However, a more in-depth study is still being carried out on the domino effect of the use of digital technology, the most effective forms of digital technology and other influential factors that contribute greatly to revenue.

E. CONCLUSION

The strategy for establishing a digital technology strategy for urban farming farmers/MSMEs is simultaneously influenced by the competitiveness of production, capital and labor. Labor is the dominant factor influencing the determination of digital technology strategies for urban farming businesses. The competitiveness of urban farming capital and labor has a partial positive effect on the determination of digital technology strategies, while production has not been able to compete and has no effect on digital technology strategies. The strategy for determining digital technology has a positive effect on urban farming income.

The research findings in this study are that the strategy for determining digital technology is determined by the competitiveness of the workforce. Digital technology strategy is an important factor affecting the income of urban farming farmers, without the use of digital technology income will decrease.

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