THE PERFORMANCE ENHANCEMENT MODEL FOR COCONUT PROCESSED PRODUCTS COOPERATIVES THROUGH THE VALUE CHAIN AND LIVELIHOOD ASSETS APPROACH IN NORTH MALUKU PROVINCE, INDONESIA

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ABSTRACT

Objective: This research aims to formulate a model of value chain and livelihood assets in an effort to enhance the performance of cooperatives focusing on processed coconut products in the North Maluku Province. Coconut (Cocos nucifera) is a fruit plant with a crucial role on a global scale, providing a food source for millions of people, especially in tropical and subtropical regions. Due to the numerous benefits it yields, the coconut is often referred to as the “tree of life” or the “rescuer tree”

Method: A total of 206 samples were used in this study, and the analysis was conducted using the Structural Equation Modeling (SEM) method. The determination of the research location is purposive, primarily in the largest coconut-producing areas in North Maluku. The selection of the research location is based on the consideration that this region is one of the largest coconut producers in Indonesia and has the presence of cooperatives in the coconut plantation sector. North Maluku Province produces coconut products in several regencies, including North Halmahera Regency, South Halmahera Regency, West Halmahera Regency, Central Halmahera Regency, Morotai Island Regency, Sula Regency, Taliabu Regency, and North Maluku Regency.

Results: The research results indicate that primary activities, social capital, physical capital, entrepreneurship, and political capital have a positive and significant influence on the value chain and livelihood assets. On the other hand, support activities, human capital, natural capital, and financial capital do not have a significant impact on either the value chain or livelihood assets. The value chain and livelihood assets significantly contribute to the performance of the cooperative.

Conclusions: factors such as support activities, human capital, natural capital, and financial capital do not have a significant influence on the value chain or livelihood assets. These results can serve as a foundation for policymakers and stakeholders to develop more effective strategies and programs to enhance the value chain, livelihood assets, and cooperative performance in the North Maluku Province.

Keywords: SEM PLS analysis, value chain, livelihood assets, coconut commodity.

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RESUMO

Objetivo: Esta pesquisa visa formular um modelo de ativos da cadeia de valor e da subsistência em um esforço para melhorar o desempenho das cooperativas com foco em produtos de coco processados na Província de Molucas do Norte. O coco (Cocos nucifera) é uma planta frutícola com um papel crucial em escala global, fornecendo uma fonte de alimento para milhões de pessoas, especialmente em regiões tropicais e subtropicais. Devido aos inúmeros benefícios, o coco é muitas vezes referido como a “árvores da vida” ou a “árvores de resgate”

Método: Neste estudo foram utilizadas 206 amostras, sendo a análise realizada pelo método de Modelagem de Equações Estruturais (SEM). A determinação do local de pesquisa é propostal, principalmente nas maiores áreas produtoras de coco em Molucas do Norte. A seleção do local de pesquisa é baseada na consideração de que esta região é um dos maiores produtores de coco na Indonésia e tem a presença de cooperativas no setor de plantações de coco. A província de Molucas do Norte produz produtos de coco em várias regências, incluindo a Regência de Halmahera do Norte, a Regência de Halmahera do Sul, a Regência de Halmahera do Oeste, a Regência de Halmahera Central, a Regência da Ilha Morotai, a Regência de Sula, a Regência de Taliabu e a Regência de Molucas do Norte.

Resultados: Os resultados da pesquisa indicam que as atividades primárias, o capital social, o capital físico, o empreendedorismo e o capital político têm uma influência positiva e significativa na cadeia de valor e nos ativos de subsistência. Por outro lado, as atividades de apoio, o capital humano, o capital natural e o capital financeiro não têm um impacto significativo na cadeia de valor nem nos ativos de subsistência. A cadeia de valor e os ativos de subsistência contribuem significativamente para o desempenho da cooperativa.

Conclusões: fatores como as atividades de apoio, o capital humano, o capital natural e o capital financeiro não têm uma influência significativa na cadeia de valor nem nos ativos de subsistência. Estes resultados podem servir de base para os decisores políticos e as partes interessadas desenvolverem estratégias e programas mais eficazes para melhorar a cadeia de valor, os meios de subsistência e o desempenho cooperativo na província de Molucas do Norte.

Palavras-chave: análise SEM PLS, cadeia de valor, meios de subsistência, mercadoria de coco.

1 INTRODUCING

Agriculture holds a central role as a priority sector in the efforts towards sustainable national development in agrarian countries. The success of the agricultural sector extends beyond food security, playing a vital role in economic growth, social and cultural development, environmental preservation, stability, and security. Communities heavily depend on the existence of agriculture, serving as the primary foundation for food
security. Agriculture plays an intrinsic role in the lives of rural farming communities, with various agricultural activities being an integral part of life in agrarian regions. The success of agriculture is not only measured in economic terms but also serves as a crucial pillar in the lives of rural communities. The ability of the agricultural sector to serve as a primary source of income for farmers and their families has been unequivocally proven. The open nature of the agricultural sector, absorbing labor without the need for specific selection, holds its own essential value. Therefore, the agricultural sector deserves prioritization as a key focus in the development of productive, creative, and innovative employment opportunities, as highlighted by (Dumasari, 2020).

The coconut tree (Cocos nucifera) is a fruit-bearing tree with significant global importance, providing food for millions of people, especially in tropical and subtropical regions. Due to its multifunctionality, the coconut is often referred to as the "tree of life" or the "heaventree" (DebMandal and Mandal, 2011). In Indonesia, the coconut plays a central role in the economic, social, and cultural aspects of society. Geographically, coconuts have spread and are cultivated in almost every province in Indonesia. According to BPS (2011), Riau, North Sulawesi, East Java, North Maluku, and Central Sulawesi are known as the five provinces with the largest coconut production in Indonesia, serving as the main source of income for coconut farmers. Coconuts are also a key ingredient in various traditional Indonesian foods. The utilization of coconuts is highly diverse. Coconut shells can be processed into coconut coir, coir fiber, coco peat, and mats. Coconut water is processed into various products, including coconut drink, Nata de coco, coconut vinegar, and coconut sauce. Coconut meat is used to make coconut flour, coconut milk, coconut butter, coconut oil, virgin coconut oil, copra, and young coconut. Besides being used in food, processed coconut products in Indonesia are also developed into various items such as mats and car seat fillers (Alouw and Wulandari, 2020). It is important to note that coconuts not only provide economic benefits but also support the livelihood sustainability of farmers, particularly small-scale farmers, who own 98% of coconut plantations in Indonesia.

The North Maluku Province plays a significant role as one of the coconut producers in Indonesia. According to statistical data from 2021, the coconut plantations in this province cover an area of 221,804 hectares, yielding a total production equivalent to 211,802 tons of copra. Coconut cultivation not only fulfills the local community's needs but also serves as a source of foreign exchange through exports. Additionally, coconuts...
have a positive impact on employment, providing livelihoods for approximately 6.9 million households. The growth of coconut plants is widespread across the islands of the North Maluku Province, including areas such as West Halmahera, Central Halmahera, the Sula Islands, South Halmahera, North Halmahera, East Halmahera, Morotai Island, Taliabu Island, Ternate City, and Tidore City. The presence of coconuts contributes positively to the economy, community well-being, and environmental conservation in the region.

According to research by Paendong et al. (2020), there are several reasons supporting the diversification of coconut commodities for processing into derivative products to add significant value. Firstly, the primary agricultural sector related to coconut commodities exhibits high income demand elasticity. This is evident from the relatively robust growth performance in the agricultural sector during economic crises. However, when economic conditions improve and household incomes rise, the demand for agricultural commodities does not always increase in the same proportion. This contrasts with manufactured products that show highly responsive demand to income increases. Secondly, the non-oil processing industry sector has significant potential to create added value. Diversifying coconut products into derivatives can stimulate the development of other industrial sectors and generate employment. Processed coconut products have high economic value in many countries worldwide, and coconuts themselves have various benefits and diverse uses, ranging from food to cosmetics and fuel. Coconut commodities in North Maluku have a significant coconut plantation area, and therefore, considering the abundant raw material resources, the coconut derivative industry in North Maluku still has the potential for further development (Muhammad and Buturu, 2019).

At this time, North Maluku has six cooperatives that focus on coconut commodity farming. These cooperatives serve as economic organizations or coconut farming groups, aiming to develop various economic activities in rural communities run by coconut farmers, for the farmers' well-being. In order to enhance the performance of these cooperatives, the application of value chain theory and livelihood assets theory is deemed necessary. According to Porter (2013), value chain analysis is a strategy used by companies to better understand their competitive advantages. Meanwhile, according to DFID (2001), livelihood assets include human capital, natural capital, social capital, financial capital, and physical capital. This study integrates both theories, value chain
theory and livelihood assets theory, with the aim of improving the performance of coconut processed product cooperatives in the North Maluku Province. This approach is expected to provide a more comprehensive and holistic understanding of the factors influencing the performance of cooperatives in economic activities involving processed coconut products.

The aim of this research is to formulate a model of value chain and livelihood assets to enhance the performance of coconut processed product cooperatives in the North Maluku Province. The benefits of this study include broadening insights and knowledge regarding efforts to improve the performance of cooperatives focused on processed coconut products in the North Maluku Province. Additionally, the research is expected to serve as a means of advancing scientific knowledge, providing theoretical contributions to the academic world, and becoming a point of reference for the government of the North Maluku Province to develop the potential of plantation resources, particularly coconut commodities. This involves enhancing the knowledge and skills of small-scale coconut farmers in coconut processing.

2 LITERATURE REVIEW
2.1 SUSTAINABLE LIVELIHOOD

(Kaplinsky & Morris, 2000). Based on the evaluation of livelihood assets and the impact of livelihood assets on performance, this study examines relevant literature. The development of a livelihood asset evaluation index system. Research on the livelihood asset evaluation index system is already quite mature. Most scholars fundamentally rely on the sustainable livelihoods framework theory developed by the Department for International Development (DFID) of the UK to create a livelihood asset evaluation index system (Guo et al., 2014; Perz et al., 2015). Measurement of livelihood assets. Existing literature covers many studies on quantifying indices and measuring the livelihood assets of capital farmers. Liu et al. systematically evaluated the procedures for measuring the livelihood assets of farmers and compared subjective weighting with principal component weighting (Liu et al., 2021). Erenstein et al. used principal component analysis to evaluate the livelihood assets of poor farmers in India (Erenstein et al., 2010). Fang et al. used the AHP method to calculate and analyze the current situation of farmers’ livelihood assets (Fang et al., 2014). Empirical studies on livelihood assets. Oladele and Ward used the SLA framework to select suitable livelihood asset indicator elements and by building a
logistic regression model for livelihood assets and farmer life satisfaction, it was concluded that the stock of assets in different regions varies (Oladele et al., 2017). Johnson empirically analyzed the main and moderating impacts of risk expectations and livelihood assets on farmers' land withdrawal intentions and their intergenerational differences (Johnson, 2009). The research shows that livelihood assets have a positive impact on farmers' willingness to leave their plots and play a moderating role in the relationship between risk expectations and the willingness to withdraw from plots.

Sustainability can be achieved through capacity building, enhancing justice, and improving social sustainability, taking a comprehensive perspective on how rural populations survive and earn a living. This aims to empower and improve the social and economic well-being of households. Sustainable livelihoods are an appropriate approach that encompasses all different aspects (Pandey et al., 2017). Sustainable livelihoods are characterized by effective responses to various shocks and ways to acquire and enhance the capabilities and assets that generate sustainable living opportunities for future generations. Sustainable livelihoods can be used as a factor in integrating development policies, sustainable resource management, and poverty alleviation simultaneously (Krantz, 2001). Therefore, providing a livelihood approach for empowering and enhancing the capacity of poor rural communities is one of the fundamental and crucial approaches to achieving sustainable development (Pandey et al., 2018).

According to Abriand et al. (2017), the Sustainable Livelihoods approach seeks to identify the most significant obstacles faced by individuals and the most promising and open opportunities for communities, regardless of their origin (e.g., in which sector, in which region or level, from local to international). This approach is built upon the community's own understanding or definition of these obstacles and opportunities, and, if possible, it can further assist communities in discussing/realizing these obstacles and opportunities.

2.2 VALUE CHAIN REVIEW

Value chain is a series of company activities that transforms inputs into outputs, creating value for customers (Porter, 1990). Another definition of the value chain is the various activities required to bring a product from the producer to the end consumer. Value chain analysis has become an interesting area of study, especially in developing countries (Sarma et al., 2017; Rosales et al., 2017; Kadigi et al., 2013). These studies
utilize the concept of the value chain to analyze the behavior of the involved actors, assess the performance of the value chain, and generate knowledge about the socio-economic development within the value chain.

The first step in value chain analysis is mapping core processes, activities, and involved actors (Mmasa & Msuya, 2012). By mapping core processes, a comprehensive picture of how the core processes in the value chain operate, as well as the relationships and dependencies among actors, can be obtained. This provides an overall understanding of the value chain (DFID et al., 2014).

Value Chain Analysis (VCA) can be narrow or broad: The narrow approach involves a series of activities performed within a company to produce a specific output. The broad approach to value chain analysis starts from the production system of raw materials and extends along relationships with stakeholders and other companies involved in trade, processing, assembly, transportation, and others. This broad approach examines all activities of a company, as well as all backward and forward linkages from raw materials to end consumers. The value chain approach is flexible and primarily serves as a descriptive tool to observe interactions between different economic actors. Value chain analysis allows for different entry points depending on the analysis objectives (M4P, 2008).

(Kaplinsky and Morris, 2000) emphasize that there is no 'right' way to conduct value chain analysis; the approach taken essentially depends on the research questions being addressed. Nevertheless, there are four aspects of value chain analysis, applied to small-scale fisheries, that deserve special attention. (1) At the most basic level, value chain analysis systematically maps the economic actors involved in the production, distribution, marketing, and sale of specific products. This mapping assesses the characteristics of economic actors, profit and cost structures, flow of goods throughout the chain, employment, and the characteristics, goals, and sales volume both domestically and internationally. (2) Value chain analysis can play a crucial role in identifying the distribution of benefits among economic actors in the chain. Through the analysis of margins and profits in the chain, one can determine who benefits from participation in the chain and which economic actors can benefit from increased support or organization. This is particularly important in the context of developing countries (especially small-scale fisheries), considering concerns that poor communities in these countries are particularly vulnerable to the processes of globalization. (3) Value chain analysis can be used to
examine the role of upgrading in the chain. Upgrading may involve improving the quality and design of products that enable producers to gain increased value or through the diversification of served product lines. Analysis of the upgrading process includes assessing the profitability of actors in the chain, as well as information about the current constraints. Governance issues play a crucial role in defining how such upgrading occurs. Additionally, regulatory structures, entry barriers, restrictions, and trade standards may shape and influence the environment in which upgrading can take place.

3 RESEARCH METHOD

The determination of the research location is purposive, primarily in the largest coconut-producing areas in North Maluku. The selection of the research location is based on the consideration that this region is one of the largest coconut producers in Indonesia and has the presence of cooperatives in the coconut plantation sector. North Maluku Province produces coconut products in several regencies, including North Halmahera Regency, South Halmahera Regency, West Halmahera Regency, Central Halmahera Regency, Morotai Island Regency, Sula Regency, Taliabu Regency, and North Maluku Regency. The geographical diversity and coconut production in this region provide a good representation for this research. Respondent selection in this study utilizes two sampling methods, namely purposive sampling. This approach aligns with the specific objectives of this research, choosing respondents based on specific characteristics relevant to the scope of the study (Sugiyono, 2019). Thus, the selection of the location and sampling method is designed to provide an in-depth understanding of the performance of coconut processed product cooperatives in the largest coconut-producing areas in North Maluku.

The selection of respondents in this research is done purposively. The respondents involved in this study are the management committee of coconut processed product cooperatives and their members in three regencies of North Maluku Province, namely North Halmahera Regency (2 cooperatives), West Halmahera Regency (2 cooperatives), and East Halmahera Regency (2 cooperatives). In total, there are six cooperatives that are the focus of the research. From each cooperative, three management committee members are selected, namely the cooperative director, treasurer, and secretary. Meanwhile, from the cooperative members, 50 respondents are selected from each cooperative. Thus, the total number of respondents from the six cooperatives is 300 respondents. From this total,
a random sample is drawn, resulting in 206 respondents who are actively involved in this research. The data used in this study consist of both primary and secondary data. Primary data are obtained directly from respondents through interviews, observations, or questionnaires. Meanwhile, secondary data are obtained from pre-existing sources such as literature, statistical data, or documentation related to coconut processed product cooperatives in North Maluku Province.

**a. Structural Equation Modeling (SEM) Analysis**

Analysing Structural Equation Modeling (SEM) can be employed to examine the relationships among factors influencing the performance of cooperatives and business sustainability. Firstly, SEM can be utilized to construct a conceptual model illustrating the relationships between the variables involved in the study, namely the value chain and livelihood assets theories. Secondly, SEM can be used to test hypotheses presented using statistical techniques such as regression. SEM also allows for testing the interconnections between exogenous and endogenous variables within the same model. The results of SEM analysis can provide information about the significance of relationships between the variables in the study. Moreover, SEM analysis can generate quantitative measures such as regression coefficients, correlation coefficients, and R-square values, which can be used to interpret research findings and gain a deeper understanding of the relationships between the variables involved. Therefore, SEM can be a useful tool for comprehending the factors influencing the success of coconut cooperatives.

Data processing technique using the Structural Equation Modeling (SEM) method based on Partial Least Squares (PLS). The PLS software in this research utilizes a software developed at the University of Hamburg, Germany, named SMARTPLS version 3. In PLS, there are two stages. The first stage is the evaluation of the outer model or measurement model. The second stage involves the evaluation of the inner model or structural model. The measurement model consists of observable indicators, while the structural model consists of unobservable latent constructs. This examination also includes the estimation of path coefficients that identify the strength of the relationships between independent and dependent variables. The measurement model comprises the relationships between observable variable items and latent constructs measured by these items (Andriani, 2019).
4 RESULT AND DISCUSSION

Based on the latent variable model testing in this study, it is grouped into two categories: exogenous variables and endogenous variables. The exogenous variables are primary activities (X1), support activities (X2), human capital (X3), natural capital (X4), financial capital (X5), social capital (X6), physical capital (X7), entrepreneurship (X8), and political capital (X9), while the endogenous variables are value chain (Y1), livelihood asset (Y2), and cooperative performance (Z1). The model is considered good when the development of theoretical hypothesis models is supported by empirical data. The testing of the analysis results using Partial Least Squares (PLS) to determine the complete influence between variables can be seen in Figure 1.

The outer model, which measures the relationship between variables and indicators, indicates that all indicators for each variable have met the criteria of the tests used, namely convergent validity, discriminant validity, and construct reliability. Primary activities (X1) are measured by four indicators: raw materials (X1.1), processing (X1.2), product distribution (X1.3), and sales and marketing (X1.4). The product distribution indicator (X1.3) stands out as the leading indicator in measuring or explaining primary activities (X1) with a loading factor of 0.916.

Support activities (X2) are measured by four indicators: suppliers (X2.1), technology development (X2.2), human resources (X2.3), and company infrastructure (X2.4). The human resources indicator (X2.3) stands out as the leading indicator in measuring or explaining support activities (X2) with a loading factor of 0.917. Human capital (X3) is measured by five indicators: education level (X3.1), labor availability (X3.2), knowledge & skills (X3.3), experience (X3.4), and health (X3.5). The education level indicator (X3.1) is the leading indicator in measuring or explaining human capital (X3) with a loading factor of 0.932.
4.1 HYPOTHESIS TESTING

In hypothesis testing, the examination is based on the t-statistic and probability values. In hypothesis testing, using statistical values, the t-statistic value for a 5% significance level (alpha = 0.05) is 1.960. Therefore, the acceptance or rejection criteria for the hypothesis are that Ha is accepted, and H0 is rejected when the t-statistic > 1.960. To reject/accept the hypothesis using probability, Ha is accepted if the p-value < 0.05.

Based on the empirical data used in this research, hypothesis testing can be performed. The results of hypothesis testing based on path coefficient values and T-Statistics/P-values are presented below.
The results of hypothesis testing are presented as follows:

1. **Influence of primary activities (X1) on value chain (Y1)**

   The significance test results indicate a positive and significant influence between primary activities (X1) on value chain (Y1). The path coefficient is 0.157, with a t-statistic value of 2.010 and a significance value of 0.045. In the significance assessment, a t-statistic value greater than the critical t-value (t > 1.960) and a significance value less than 0.05 (p < 0.05) indicate that the relationship between primary activities (X1) and value chain (Y1) is significant. In other words, the higher or better the primary activities (X1), the more positively and significantly it will affect the improvement of the value chain (Y1). This concept aligns with Michael Porter's (1985) view that primary activities, such as inbound logistics, operations, outbound logistics, marketing and sales, and service, have a direct impact on a company's value chain. Efficiency in performing primary activities can enhance the overall performance of the value chain, creating a competitive advantage for the company.

2. **Influence of primary activities (X1) on livelihood asset (Y2)**

   The significance test results indicate a positive and significant influence between primary activities (X1) on livelihood asset (Y2). The path coefficient is 0.217, with a t-statistic value of 2.474 and a significance value of 0.014. This significance evaluation shows that the t-statistic value is greater than the critical t-value (t > 1.960) and the significance value is less than 0.05 (p < 0.05). Thus, it can be concluded that the
The relationship between primary activities (X1) and livelihood asset (Y2) is significant. In other words, the higher or better the primary activities (X1), the more positively and significantly it will affect the improvement of livelihood asset (Y2). This concept indicates that efficiency in conducting primary activities can have a positive impact on the livelihood asset of an entity or organization, strengthening and enhancing its performance to create added value for sustainability and development.

3. Influence of support activities (X2) on value chain (Y1)

The significance test results indicate that there is no significant influence between support activities (X2) on value chain (Y1). The path coefficient is -0.066, with a t-statistic value of 0.928 and a significance value of 0.354. In the significance assessment, a t-statistic value less than the critical t-value (t < 1.960) and a significance value greater than 0.05 (p > 0.05) indicate that the relationship between support activities (X2) and value chain (Y1) is not significant. In other words, the level or quality of support activities (X2) does not have a significant impact on the value chain (Y1). This result implies that, in the context of this research, efficiency or improvement in support activities does not have a strong enough impact on increasing the value chain. This interpretation is consistent with the conceptual framework that distinguishes between primary activities (core activities) that have a direct impact on the value chain and support activities (ancillary activities) that are more supportive and do not have a significant impact on the value chain.

4. Influence of support activities (X2) on livelihood asset (Y2)

The significance test results indicate that there is no significant influence between support activities (X2) on livelihood asset (Y2). The path coefficient is -0.003, with a t-statistic value of 0.039 and a significance value of 0.969. In the significance assessment, a t-statistic value less than the critical t-value (t < 1.960) and a significance value greater than 0.05 (p > 0.05) indicate that the relationship between support activities (X2) and livelihood asset (Y2) is not significant. In other words, the level or quality of support activities (X2) does not have a significant impact on livelihood asset (Y2). This result indicates that, in the context of this research, efficiency or improvement in support activities does not have a strong enough impact on increasing livelihood assets. This interpretation is in line with the conceptual framework that distinguishes between primary activities (core activities) and support activities (ancillary activities), with a focus on the
value chain, while livelihood assets are more related to primary activities that have a direct impact on the assets of life.

5. Influence of human capital (X3) on value chain (Y1)

The significance test results indicate that there is no significant influence between human capital (X3) on value chain (Y1). The path coefficient is 0.016, with a t-statistic value of 0.160 and a significance value of 0.873. In the significance assessment, a t-statistic value less than the critical t-value (t < 1.960) and a significance value greater than 0.05 (p > 0.05) indicate that the relationship between human capital (X3) and value chain (Y1) is not significant. In other words, the level or quality of human capital (X3) does not have a significant impact on the value chain (Y1). This result suggests that, in the context of this research, increasing human capital does not have a strong enough impact on improving the performance of the value chain. This interpretation is in line with the finding that other aspects, such as primary activities, may have a more dominant influence on the value chain in the research context.

6. Influence of human capital (X3) on livelihood asset (Y2)

The significance test results indicate that there is no significant influence between human capital (X3) and livelihood asset (Y2). The path coefficient is -0.011, with a t-statistic value of 0.127 and a significance value of 0.899. In the significance assessment, a t-statistic value less than the critical t-value (t < 1.960) and a significance value greater than 0.05 (p > 0.05) indicate that the relationship between human capital (X3) and livelihood asset (Y2) is not significant. In other words, the level or quality of human capital (X3) does not have a significant impact on livelihood asset (Y2). This result suggests that, in the context of this research, an increase in human capital does not have a strong enough impact on increasing livelihood assets. This interpretation is consistent with the finding that other factors may play a more dominant role in enhancing livelihood assets in the research context.

7. Influence of natural capital (X4) on value chain (Y1)

The significance test results indicate that there is no significant influence between natural capital (X4) and value chain (Y1). The path coefficient is -0.056, with a t-statistic value of 0.643 and a significance value of 0.520. In the significance assessment, a t-statistic value less than the critical t-value (t < 1.960) and a significance value greater than 0.05 (p > 0.05) indicate that the relationship between natural capital (X4) and value chain (Y1) is not significant. In other words, the level or quality of natural capital (X4) does not
have a significant impact on value chain (Y1). This result suggests that, in the context of this research, an increase in natural capital or natural resources does not have a strong enough impact on improving the performance of the value chain. This interpretation is in line with the finding that other factors may have a more dominant role in enhancing the value chain in the research context.

8. Influence of natural capital (X4) on livelihood asset (Y2)

The significance test results indicate that there is no significant influence between natural capital (X4) and livelihood asset (Y2). The path coefficient is -0.069, with a t-statistic value of 0.649 and a significance value of 0.517. This result shows that the t-statistic value is less than the critical t-value (t < 1.960) and the significance value is greater than 0.05 (p > 0.05), indicating that natural capital (X4) does not have a significant influence on livelihood asset (Y2). In other words, the increase or quality of natural capital (X4) will not significantly affect livelihood asset (Y2).

9. Influence of financial capital (X5) on value chain (Y1)

The significance test results indicate that there is no significant influence between financial capital (X5) and value chain (Y1). The path coefficient is -0.085, with a t-statistic value of 0.888 and a significance value of 0.375. In the significance assessment, a t-statistic value less than the critical t-value (t < 1.960) and a significance value greater than 0.05 (p > 0.05) indicate that the relationship between financial capital (X5) and value chain (Y1) is not significant. In other words, the level or quality of financial capital (X5) does not have a significant impact on value chain (Y1). This result suggests that, in the context of this research, an increase in financial capital or financial resources does not have a strong enough impact on improving the performance of the value chain. This interpretation is consistent with the finding that other factors may have a more dominant role in enhancing the value chain in the research context.

10. Influence of financial capital (X5) on livelihood asset (Y2)

The significance test results indicate that there is no significant influence between financial capital (X5) and livelihood asset (Y2). The path coefficient is 0.015, with a t-statistic value of 0.159 and a significance value of 0.874. In the significance assessment, a t-statistic value less than the critical t-value (t < 1.960) and a significance value greater than 0.05 (p > 0.05) indicate that the relationship between financial capital (X5) and livelihood asset (Y2) is not significant. In other words, the level or quality of financial capital (X5) does not have a significant impact on livelihood asset (Y2). This result
suggests that, in the context of this research, an increase in financial capital or financial resources does not have a strong enough impact on improving livelihood assets. This interpretation is consistent with the finding that other factors may have a more dominant role in enhancing livelihood assets in the research context.

11. Influence of social capital (X6) on value chain (Y1)

The significance test results indicate that there is a positive and significant influence between social capital (X6) and value chain (Y1). The path coefficient is 0.209, with a t-statistic value of 3.194 and a significance value of 0.001. In the significance assessment, a t-statistic value greater than the critical t-value (t > 1.960) and a significance value less than 0.05 (p < 0.05) indicate that the relationship between social capital (X6) and value chain (Y1) is significant. In other words, the level or quality of social capital (X6) has a positive and significant impact on the improvement of value chain (Y1). This result suggests that, in the context of this research, an increase in social capital or social networks can have a strong impact on enhancing the value chain. This interpretation supports the finding that social relationships and networks can be key factors in improving the performance of the value chain in the research context.

12. Influence of social capital (X6) on livelihood asset (Y2)

The significance test results indicate that there is a positive and significant influence between social capital (X6) and livelihood asset (Y2). The path coefficient is 0.169, with a t-statistic value of 2.628 and a significance value of 0.009. In the significance assessment, a t-statistic value greater than the critical t-value (t > 1.960) and a significance value less than 0.05 (p < 0.05) indicate that the relationship between social capital (X6) and livelihood asset (Y2) is significant. In other words, the level or quality of social capital (X6) has a positive and significant impact on the improvement of livelihood asset (Y2). This result suggests that, in the context of this research, an increase in social capital or social networks can have a strong impact on enhancing livelihood assets. This interpretation supports the finding that social relationships and networks can be key factors in improving livelihood assets in the research context.

13. Influence of physical capital (X7) on value chain (Y1)

The significance test results indicate that there is a positive and significant influence between physical capital (X7) and value chain (Y1). The path coefficient is 0.173, with a t-statistic value of 2.135 and a significance value of 0.033. In the significance assessment, a t-statistic value greater than the critical t-value (t > 1.960) and
a significance value less than 0.05 (p < 0.05) indicate that the relationship between physical capital (X7) and value chain (Y1) is significant. In other words, the level or quality of physical capital (X7) has a positive and significant impact on the improvement of value chain (Y1). This result suggests that, in the context of this research, an increase in physical capital or physical infrastructure can have a strong impact on enhancing the value chain. This interpretation supports the finding that aspects such as physical infrastructure and equipment can be key factors in improving the performance of the value chain in the research context.

14. Influence of physical capital (X7) on livelihood asset (Y2)

The significance test results indicate that there is no significant influence between physical capital (X7) and livelihood asset (Y2). The path coefficient is 0.072, with a t-statistic value of 0.914 and a significance value of 0.361. In the significance assessment, a t-statistic value less than the critical t-value (t < 1.960) and a significance value greater than 0.05 (p > 0.05) indicate that the relationship between physical capital (X7) and livelihood asset (Y2) is not significant. In other words, the level or quality of physical capital (X7) does not have a significant impact on livelihood asset (Y2). This result suggests that, in the context of this research, an increase in physical capital or physical infrastructure may not have a strong enough impact on improving livelihood assets. This interpretation reflects the finding that the relationship between physical capital and livelihood asset is not significant in the research framework.

15. Influence of entrepreneurship (X8) on value chain (Y1)

The significance test results indicate that there is a positive and significant influence between entrepreneurship (X8) and value chain (Y1). The path coefficient is 0.209, with a t-statistic value of 3.253 and a significance value of 0.001. In the significance assessment, a t-statistic value greater than the critical t-value (t > 1.960) and a significance value less than 0.05 (p < 0.05) indicate that the relationship between entrepreneurship (X8) and value chain (Y1) is significant. In other words, the level or quality of entrepreneurship (X8) has a positive and significant impact on the improvement of value chain (Y1). This result suggests that, in the context of this research, an increase in entrepreneurship or innovative business management can have a strong impact on enhancing the value chain. This interpretation supports the finding that aspects such as innovation, entrepreneurship, and business management skills can be key factors in improving the performance of the value chain in the research context.
16. Influence of entrepreneurship (X8) on livelihood asset (Y2)

The significance test results indicate that there is a positive and significant influence between entrepreneurship (X8) and livelihood asset (Y2). The path coefficient is 0.155, with a t-statistic value of 2.043 and a significance value of 0.042. In the significance assessment, a t-statistic value greater than the critical t-value (t > 1.960) and a significance value less than 0.05 (p < 0.05) indicate that the relationship between entrepreneurship (X8) and livelihood asset (Y2) is significant. In other words, the level or quality of entrepreneurship (X8) has a positive and significant impact on the improvement of livelihood asset (Y2). This result suggests that, in the context of this research, an increase in entrepreneurship or innovative business management can have a strong impact on enhancing livelihood assets. This interpretation supports the finding that aspects such as innovation, entrepreneurship, and business management skills can be key factors in improving livelihood assets in the research context.

17. Influence of politics capital (X9) on value chain (Y1)

The significance test results indicate that there is a positive and significant influence between politics capital (X9) and value chain (Y1). The path coefficient is 0.174, with a t-statistic value of 2.972 and a significance value of 0.003. In the significance assessment, a t-statistic value greater than the critical t-value (t > 1.960) and a significance value less than 0.05 (p < 0.05) indicate that the relationship between politics capital (X9) and value chain (Y1) is significant. In other words, the level or quality of politics capital (X9) has a positive and significant impact on the improvement of value chain (Y1). This result suggests that, in the context of this research, factors

18. Influence of politics capital (X9) on livelihood asset (Y2)

The significance test results indicate a positive and significant influence of politics capital (X9) on livelihood asset (Y2). The path coefficient is 0.238, with a t-statistic value of 3.516 and a significance value of 0.000. In the significance assessment, a t-statistic value greater than the critical t (t > 1.960) and a significance value less than 0.05 (p < 0.05) suggest that the relationship between politics capital (X9) and livelihood asset (Y2) is significant. In other words, the level or quality of politics capital (X9) has a positive and significant impact on the improvement of livelihood assets. This implies that factors related to policies, regulations, government support, and political relationships can positively influence the livelihood assets of a cooperative in the context of this study.

19. Influence of value chain (Y1) on cooperative performance (Z1)
The significance test results show a positive and significant influence of value chain (Y1) on cooperative performance (Z1). The path coefficient is 0.396, with a t-statistic value of 6.596 and a significance value of 0.000. In the significance assessment, a t-statistic value greater than the critical t (t > 1.960) and a significance value less than 0.05 (p < 0.05) indicate that the relationship between value chain (Y1) and cooperative performance (Z1) is significant. In other words, the level or quality of the value chain (Y1) has a positive and significant influence on the improvement of cooperative performance. This suggests that efforts to enhance aspects of the value chain can contribute positively to the performance of a cooperative in the context of this study.

20. **Influence of livelihood asset (Y2) on cooperative performance (Z1)**

The significance test results indicate a positive and significant influence of livelihood asset (Y2) on cooperative performance (Z1). The path coefficient is 0.385, with a t-statistic value of 6.555 and a significance value of 0.000. In the significance assessment, a t-statistic value greater than the critical t (t > 1.960) and a significance value less than 0.05 (p < 0.05) suggest that the relationship between livelihood asset (Y2) and cooperative performance (Z1) is significant. Therefore, improvements in livelihood asset aspects (Y2) also contribute positively and significantly to cooperative performance. This implies that factors influencing the livelihood assets of a cooperative play a crucial role in enhancing overall cooperative performance in the context of this study.

5 CONCLUSION

Based on the results of hypothesis testing, it can be concluded that several factors have a positive and significant influence on the value chain, livelihood assets, and cooperative performance in the North Maluku Province.

Firstly, primary activities such as cultivation, production, distribution, marketing, and services have a positive and significant impact on the value chain and livelihood assets. This indicates that improving the quality of primary activities can directly enhance the value chain and economic well-being of the community through livelihood assets. Secondly, social capital, such as social networks, cooperation, and support among individuals and community groups, has a positive and significant influence on the value chain and livelihood assets. This suggests that the development of social capital can be a key factor in improving efficiency and economic well-being at the community level. Thirdly, physical capital has a positive and significant impact on the value chain. This
means that improvements in physical aspects, such as infrastructure and technology, can support the enhancement of the value chain in the coconut sector. Fourthly, entrepreneurship has proven to have a positive and significant influence on the value chain and livelihood assets. This indicates that encouragement of initiative and creativity in economic activities can strengthen both the value chain and the well-being of the community. Fifthly, political capital has a positive and significant impact on the value chain, livelihood assets, and cooperative performance. Therefore, the development of good political relationships can be a key factor in improving the value chain and community well-being through cooperatives.

On the other hand, factors such as support activities, human capital, natural capital, and financial capital do not have a significant influence on the value chain or livelihood assets. These results can serve as a foundation for policymakers and stakeholders to develop more effective strategies and programs to enhance the value chain, livelihood assets, and cooperative performance in the North Maluku Province.

Here are some recommendations based on the research findings:

1. Focus on enhancing Primary Activities and Social Capital aspects.
2. Optimize the utilization of Physical Capital and support Entrepreneurship.
3. Utilize Politics Capital more effectively.
4. Consider the involvement of relevant stakeholders and conduct ongoing evaluations.
REFERENCES


25.
